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99th
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President
Prof. Manjushree Ray



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PART II

**SECTION OF
MEDICAL SCIENCES
(INCLUDING PHYSIOLOGY)**

President : Prof. Manjushree Ray

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I

PRESIDENTIAL ADDRESS

President :
Prof. Manjushree Ray

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CHALLENGES IN POSTOPERATIVE PAIN MANAGEMENT

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The International Association for the Study of Pain (IASP) defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage”. The IASP also states that pain is always subjective and is learned through experiences related to injury in early life.

According to the American Society of Anaesthesiologists (ASA) guidelines, perioperative pain is defined as “pain that is present in a surgical patient because of pre-existing disease, the surgical procedure or a combination of disease related and procedure related sources”.

Pain is a consistent and predominant complaint of most individuals following most surgical interventions. Failure of relief pain is morally and ethically unacceptable. Adequate pain relief could be considered a basic human right.

Unfortunately nearly one third of patients still complained of inadequate relief of postsurgical pain, in spite of marvelous advances in medical science in the past century. Uncontrolled pain in the postoperative period causes several undesirable adverse events including myocardial ischaemia and infarction, pulmonary infections, paralytic ileus, urinary retention, thromboembolism, impaired, impaired immune function and anxiety. Poor pain relief can also lead to patient dissatisfaction, impaired patient rehabilitation and prolonged hospitalization. Patients with well-controlled have an improved health-related

quality of life, reduced time lost from work, and have overall greater satisfaction with their experience. Therefore complete relief of postoperative pain is no longer just a humanistic gesture but carries far reaching implications.

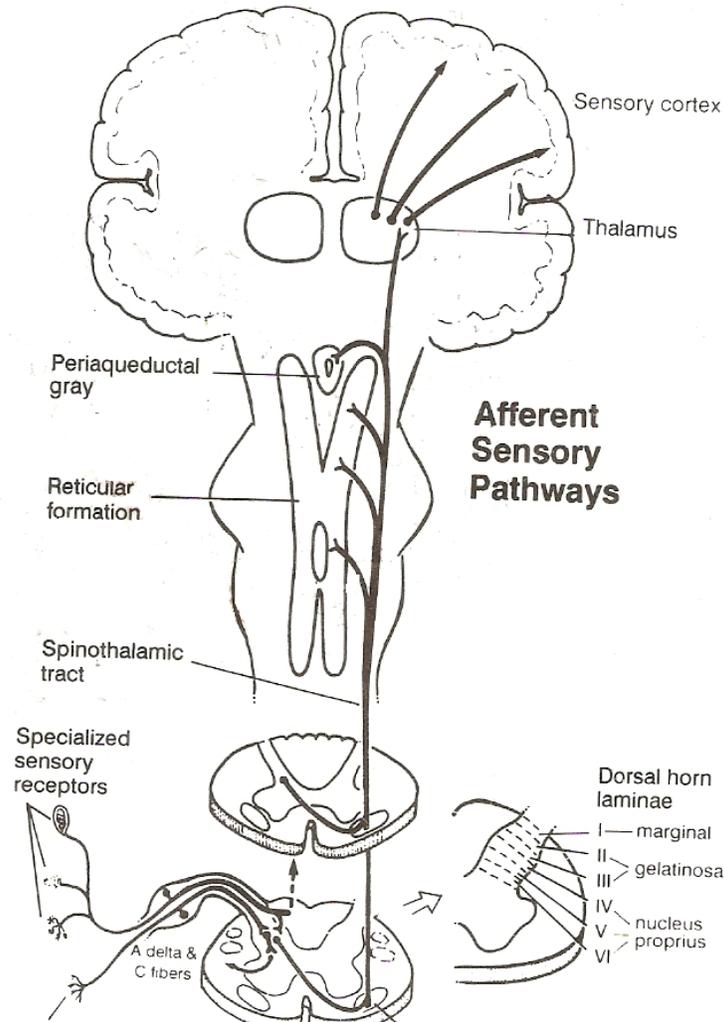
Due to these considerations, health care workers are now taking a much more aggressive and progressive stands for treatment of the postoperative pain. For optimum pain therapy, pain physician should have basic knowledge of pain pathways and the mechanism of incisional pain.

Pain Pathways and the Mechanisms of Incisional Pain :

Pain is generated from local inflammation and nerve damage caused by surgical trauma. This tissue trauma results in local release of inflammatory mediators such as bradykinins, hydroxytryptamine, leukotrienes, prostaglandins (PGE₂, PGG₂, PGH₂), substance P and histamine. They serve as activators of primary nociceptors. After activation of receptors in the periphery, they transmit afferent signals in the low threshold myelinated A β fibers or high threshold unmyelinated A δ and c fibers (fig. 1). Signals reach the dorsal root ganglion via unmyelinated and myelinated noxious fibers and synapse in the dorsal horn of the spinal cord. The stimulus is then carried by second order spinal neurons through the neospinothalamic, and paleospinothalamic tracts. Modulation of pain transmission can occur at the level of spinal cord dorsal horn or supraspinally at the brainstem and mid brain. Modulation involves a balance between excitatory effects of glutamine and the inhibitory effects of endogenous analgesics such as enkephalin, norepinephrine, γ -aminobutyric acid, opioids, and α -adrenergics. After modulation, noxious stimulus ascends along axons from dorsal horn to thalamic cells and finally to the somatosensory cortex, which is involved in perception and localization of the stimulus.

Injury causes peripheral and central sensitization of nociceptive system, which may ultimately alter the response to nociception. Peripheral sensitization involves the primary afferent fibres and is characterized by lowering of response threshold, an increase

in response magnitude, an increase in spontaneous activity and an increase in receptive field size. This peripheral sensitization leads to primary hyperalgesia or exaggerated responses of pain at the site of injury.



Nociceptive input can also enhance the response of pain transmission in the central nervous system. This is called central sensitization, which is responsible for secondary hyperalgesia. Secondary hyperalgesia means increased pain responses evoked by stimuli from outside the area of injury.

Consequences of Inadequate Pain Relief :

Inadequate relief of postoperative pain may produce harmful physiological and psychological consequences, leading to increased morbidity and mortality. It may delay recovery and return to daily normal activity.

1. Physiological consequences :

Inadequate relief of postoperative pain is associated with various physiological consequences caused by endocrine, metabolic and inflammatory responses. Pain activates the autonomic system, which produces adverse effects on various organ systems.

a. Cardiovascular System : The autonomic over activity results in an increased heart rate, peripheral vascular resistance, increased arterial blood pressure and myocardial contractility. As a net result cardiac work and myocardial oxygen consumption are increased.

Intense sympathetic stimulation may also produce coronary vasoconstriction and decrease myocardial oxygen supply. This increased oxygen demand and decreased supply may lead to myocardial ischaemia, anginal pain and myocardial infarction.

b. Respiratory System : Inadequate pain relief particularly following upper abdominal and thoracic surgery may cause pulmonary dysfunction and postoperative pulmonary complications. Involuntary spinal reflex responses to noxious stimulus cause reflex muscle spasm in the immediate region of the injury and the surrounding muscle groups. This restrict movement of the surrounded area, leading to hypoventilation and hypoxemia.

c. Gastrointestinal Tract : Increased sympathetic activity increases gastrointestinal secretion, increases smooth muscle sphincter tone and decreases intestinal

motility. This may lead to gastric stasis and paralytic ileus. Postoperative pain may also increase the incidence of postoperative nausea and vomiting.

d. Renal System : Increased sympathetic activity may lead to increased urinary sphincter tone, reflex inhibition of urinary bladder tone and subsequent urinary retention.

e. Coagulation : Normally postoperative patients are at increased risk for deep vein thrombosis and thromboembolism due to hypercoagulable state. Inadequate pain relief may further aggravate the situation due to reduced physical activity.

f. Immunological System : Impaired immune function may lead to an increased incidence of infection and spread of tumour.

g. Musculoskeletal System : Reduced physical activity due to pain may cause impairment of muscle metabolism, muscle weakness, muscle atrophy and delayed return to normal muscle function.

2. Psychological Consequences :

Psychological consequences of severe postoperative pain are fear, anxiety, anger, depression and reduced patient satisfaction. This is an important cause for longlasting untoward behavioural changes in children. Pain delays the discharge from postanaesthetic care unit and hospital.

Assessment of Pain :

Assessment of pain is the most vital element in effective postoperative pain management.

1. Principles of Pain Assessment :

a. Assess the pain at rest and on movement to evaluate the functional status of the patient.

- b. Assess the intensity of pain at regular intervals (e.g., every 15 minutes initially, then every 2-4 hours as pain intensity decreases).
- c. Immediate pain therapy should be provided to the patients with severe pain, without asking for rating their pain.
- d. Define the pain score above which pain relief is offered (e.g., verbal rating score of 3 at rest and 4 on moving on a 10 point scale).
- e. Patients with cognitive impairment, children and language barrier may find difficulty in expressing the severity pain. Such patients need special attention.
- f. Pain response to treatment including adverse effects should be documented at a regular intervals.
- g. Family members should be involved, when appropriate.

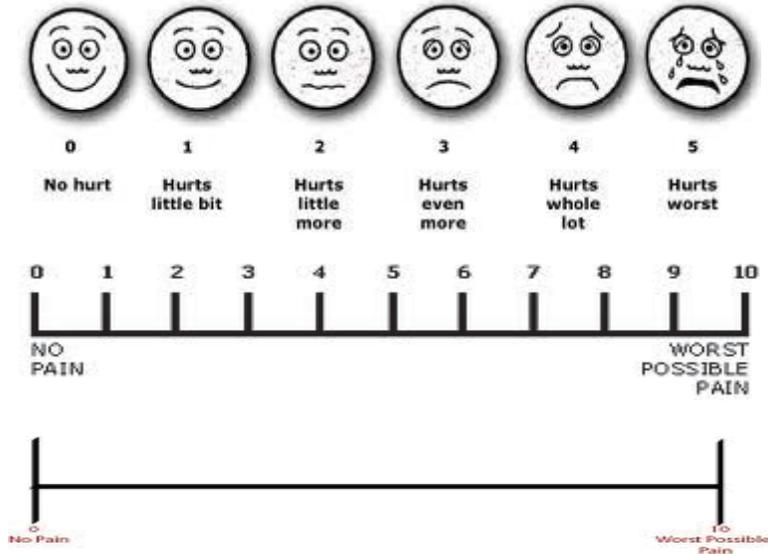
2. *Tools for Pain Assessment :*

Specific pain assessment scales are used to quantify pain. The intensity of pain should be assessed as far as possible by the patient as long as they are able to communicate. Always listen to and believe on the statement of the patient. Various pain assessment scales are as follows.

- a. ***Verbal Rating Scales (VRS) :*** The patient is asked to rate their pain on a five point scale as “none, mild, moderate, severe or very severe”.
- b. ***Numerical Rating Scale (NRS) :*** This consists of a simple 0 to 10 scale. Zero correlates to no pain, while 10 indicates worst possible pain. The patient is asked to rate the pain intensity as a number.
- c. ***Visual Analogue Scale (VAS) :*** This consist of an ungraduated, straight 100 mm line marked at one end with the term “no pain” and at the other end “the worst

possible pain”. The patient makes a cross on the line at the point that best approximates to their pain intensity. The VRS and NRS are the most frequently used assessment tools in the clinical settings while the VAS scale is primarily used as a research tool.

Fig 2: Pain Scale



d. **Facial Expression** : This scale consists of a pictogram of six faces with different expressions from smiling or happy to tearful. This scale is suitable for patients where communication is a problem, such as children, elderly patients, confused patients or patients with language barrier.

3. Selection of suitable Assessment Tool :

While selecting a pain assessment tool, ensure that it is appropriate for the patients’ developmental, physical, emotional and cognitive status. It should also meet the needs of both the patient and the pain management team.

4. Documentation :

Document the intensity of pain at regular intervals and take appropriate action. Monitor the efficacy as well as side effects of pain therapy and alter the therapy as per necessity.

Treatment of Postoperative Pain :

In addition to systemic administration of opioids and COX-inhibitors, the analgesic modalities available for postoperative pain management include regional or local analgesic techniques. Cyclo-oxygenase (COX) enzyme inhibitors such as acetaminophen, nonsteroidal anti-inflammatory drugs or COX-2 inhibitors are now considered as an essential component of postoperative pain management. Use of analgesic adjuncts such as NMDA receptor antagonists, α_2 -agonists, anticonvulsants and corticosteroids have increased.

1. Systemic Analgesics :

a. **Opioids** : Opioids are very suitable analgesics for moderate to severe postoperative pain. But they produce dose-related adverse effects such as nausea, vomiting, sedation, dizziness, drowsiness, bladder dysfunction and constipation.

Table – 1: Opioids for PCA and Continuous Infusion

Drug concentration	Size of Bolus	Lockout Interval (min)	Continuous Infusion
Morphine (1 mg/mL)			
Adult	0.5-2.5 mg	5-10	-
Paediatric	0.01-0.03 mg/kg (max, 0.15 mg/kg/hr)	5-10	0.01-0.03 mg/kg/hr
Fentanyl (0.01 mg/mL)			
Adult	10-20 μ g	4-10	-
Paediatric	0.5-1 μ g/kg (max, 4 μ g/kg/hr)	5-10	0.5-1 μ g/kg/hr
Alfentanyl (0.1 mg/mL)	0.1-0.2 mg	5-8	-

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Methadone (1 mg/mL)	0.5-2.5 mg	8-20	-
Meperidine (10 mg/mL)	5.25 mg	5-10	-
Oxymorphone (0.25 mg/mL)	0.2-0.4 mg	8-10	-
Sufentanil (0.002 mg/mL)	2-5 µg	4-10	-

Although opioids reduce spontaneous pain, their ability to control dynamic pain is limited. Therefore, it is now a well established fact that opioids should be used sparingly. Now, it is recommended that nonopioid analgesics and techniques should be used as the first line of therapy and opioids should be reserved for more severe pain that is not adequately controlled with nonopioids.

b. **Paracetamol** : Although paracetamol is a most commonly used analgesic and antipyretic drug, it is a weak analgesic. Therefore it is only suitable for the treatment of mild pain or it may be combined with other analgesics to provide superior analgesia and reduce opioid requirements.

Action of paracetamol is due to inhibition of the COX-3 isoenzyme and reduction of prostanoid release in the central nervous system. Probably it also act on the opioidergic system and NMDA receptors.

Paracetamol is devoid of some of the side effects of NSAIDs such as impaired platelet aggregation, gastrointestinal ulceration, haemorrhage and cardiorenal adverse effects. It does not affect bone and ligament healing.

c. **Nonsteroidal anti-inflammatory drugs**: The nonsteroidal anti-inflammatory drugs are one of the most widely used analgesics during perioperative period. It inhibits the COX-2 enzyme and thus reduces sensitization of nociceptors, attenuates inflammatory pain response, prevents central sensitization and finally reduces postoperative pain.

Potential side effects include impaired coagulation, gastric irritation and renal dysfunction. NSAIDs should not be used following surgical procedures like tonsillectomy and plastic surgery. NSAIDs should be avoided in patients with pre-

existing coagulation defects, renal dysfunction, hypovolemia, cardiac failure, sepsis or end-stage liver disease.

d. **Cyclo-oxygenase-2 Inhibitors** : COX-2 inhibitors selectively act on COX-2 enzyme and spare COX-1. Thus it carries all the benefits of NSAIDs without any side effects caused by inhibition of COX-1. Analgesic efficacy of COX-2 inhibitors is similar to NSAIDs. Risk of gastric ulceration and platelet dysfunction is minimal.

Prostaglandins have a critical role in renal function by affecting blood flow, glomerular filtration, natriuresis, and antidiuretic hormone secretion. COX-2 inhibition may transiently decrease urine sodium excretion and induce mild to moderate elevation of blood pressure. So like conventional NSAIDs, also COX-2 inhibitors may cause hypertension and oedema.

Rofecoxib, a COX-2 inhibitor has been withdrawn from the market due to higher incidence of cardiovascular complications such as myocardial infarction and stroke. However, other COX-2 inhibitors, celecoxib and valdecoxib have not associated with increased incidence of adverse cardiovascular events. The possible mechanism for increased cardiovascular risk associated with COX-2 inhibitors is the alteration in the balance between of prostacyclin I₂ and thromboxane A₂. NSAIDs inhibit both thromboxane A₂ and prostacyclin I₂, whereas COX-2 inhibitors do not inhibit thromboxane A₂. Thus the selective depression of prostacyclin I₂ may be responsible for raised blood pressure, thrombogenesis, and cardiovascular complications. Controversy still exists regarding the safe use of COX-2 inhibitors in clinical practice, particularly in high risk patients.

Sulphonamide allergy is other contraindication for celecoxib as well as valdecoxib.

e. **NO Releasing Derivatives NSAIDs** : Nitric Oxide-donating NSAIDs and paracetamol such as NO aspirin, NO paracetamol, NO-diclofenac and NO ibuprofen have anti-inflammatory and antinociceptive effects similar to that of their parent compound. But they do not have adverse effects such as gastrointestinal and hepatic toxicity because of the protective effects of nitric oxide on the gastric mucosa and hepatocyte.

f. **Analgesic Adjuvants :**

(i) *NMDA receptor antagonists* : Analgesic property of ketamine is well known for a long period. In addition to its effect on the NMDA receptor, ketamine also acts on opioidergic, cholinergic and monoaminergic systems. Local anaesthetic property of ketamine is due to sodium channel blockade.

Low dose ketamine reduces opioid consumption, prolongs analgesia, improves pain relief and prevents tolerance to opioids. So ketamine may play a role in perioperative pain management. However, the optimum dose and route of administration is not yet established. Associated haemodynamic and psychomimetic effects are other drawback. Therefore, ketamine may be reserved for situations in which routine analgesics are ineffective or limited by their side effects.

(ii) *Alpha-2 Receptor agonists* : α_2 receptor agonists have analgesic sparing effects through central actions in the locus ceruleans and dorsal horn of spinal cord.

Clonidine reduces opioid requirements and improves analgesia. But its routine use for perioperative pain management is limited due to associated side effects like bradycardia, hypotension and excessive sedation.

Dexmedetomidine is more selective and has a shorter duration of action. Because of its opioid sparing effects, it is used with opioids, by continuous infusion of 0.4 $\mu\text{g}/\text{kg}/\text{hour}$.

(iii) *Gabapentin are Pregabalin* : They are structural analogs of γ -aminobutyric acid and are used for treatment of persistent neuropathic pain. Preoperative use of gabapentin (1200 mg) reduces postoperative requirements of opioid and movement related pain. The main side effects are dizziness and somnolence.

(iv) *Glucocorticoids* : They block COX and lipoxygenase enzymes and thus reduce inflammatory response and pain associated with surgery. Preoperative

dexamethasone (4-8 mg, iv) not only reduces postoperative pain but also the nausea-vomiting. Single dose dexamethasone does not increase the risk associated with steroid therapy.

2. *Regional Analgesia :*

a. *Epidural Analgesia :*

Epidural analgesia is effective in preventing dynamic pain. It also reduces the endocrine – metabolic stress response to surgery and thus reduces postoperative complications and enhance recovery.

Key to the success of epidural analgesia includes placement of catheter in epidural space near to the surgical incision dermatome. Lower concentrations of local anaesthetic agents are used to achieve analgesia without any motor block. Continuous infusion of local anaesthetic with or without opioid should be administered for at least 24-48 hours. Routine use of adjuncts are not recommended at present.

Table – 2: Placement of Catheter in Different Surgical Procedure

Location of Incision	Examples of Surgical Procedures	Congruent Epidural Catheter Placement
Thoracic	Lung reduction, radical mastectomy, thoracotomy, thymectomy	T4-8
Upper abdominal	Cholecystectomy, esophagectomy, gastrectomy, hepatic resection, Whipple procedure	T6-8
Middle abdominal	Cystoprostatectomy, nephrectomy	T7-10
Lower abdominal	Abdominal aortic aneurysm repair, colectomy, radical prostatectomy, total abdominal hysterectomy	T8-11
Lower extremity	Femoral-popliteal bypass, total hip or total knee replacement	L1-4

L= Lumbar level; T=Thoracic level.

Table – 3: Dose of Local Anaesthetics & Adjuvants for Epidural Analgesia

Analgesic Solution	Continuous Rate (mL/hr)	Demand Dose (mL)	Lockout Interval (min)
General Regimens			
0.05% bupivacaine + 4 µg/mL fentanyl	4	2	10
0.0625% bupivacaine + 5 µg/mL fentanyl	4-6	3-4	10-15
0.01% bupivacaine + 5 µg/mL fentanyl	6	2	10-15
0.2% ropivacaine + 5 µg/mL fentanyl	5	2	20
Thoracic Surgery			
0.0625% - 0.125% bupivacaine + 5 µg/mL fentanyl	3-4	2-3	10-15
Abdominal Surgery			
0.0625% bupivacaine + 5 µg/mL fentanyl	4-6	3-4	10-15
0.125% bupivacaine + 0.5 µg/mL sufentanil	3-5	2-3	12
0.1% - 0.2% ropivacaine + 2 µg/mL fentanyl	3-5	2-5	10-20
Lower Extremity Surgery			
0.0625%-0.125% bupivacaine + 5 µg/mL fentanyl	4-6	3-4	10-15
0.125% levobupivacaine + 4 µg/mL fentanyl	4	2	10

Epidural analgesia does not modify the inflammatory responses to injury. Therefore current practice is to use combination of systemic COX-inhibitors and epidural analgesia for optimum pain relief with fast recovery.

b. Peripheral Nerve Blocks and Plexus Blocks :

Peripheral nerve blocks and plexus blocks provide superior dynamic pain relief, reduce surgical stress and enhance rehabilitation. However, the duration of analgesia

after a single shot injection is limited. In fact, the abrupt termination of the analgesic effect may lead to an increased perception of pain after the recovery from regional analgesia.

Therefore, continuous peripheral nerve blocks should form the basis of postoperative pain management, whenever possible. However, the technique is not risk free. Potential side effects include patient injury related to the insensate extremity, catheter migration, local anaesthetic toxicity, masking of surgical related nerve injury and compartment syndrome.

Optimal Multimodal analgesic Techniques :

An ideal analgesic combination would reduce the intensity of movement evoked pain, surgical stress response, improve postoperative outcome and reduce the need for hospitalization. Combination therapy should also reduce the side effects of individual drugs or techniques.

Regional analgesia, in the form of local anaesthetic infiltration of the surgical wound, field blocks, nerve blocks or plexus block should be used whenever possible. The choice of local anaesthetic technique would depend on the type of surgical procedure.

In addition to regional analgesic technique, all patients should receive NSAIDs or COX-2 specific inhibitors with or without paracetamol, if there is no contraindication. Combining regional analgesia with NSAIDs improves analgesia, reduce requirement of local anaesthetics and associated side effects. If regional analgesia is contraindicated, combination of intravenous patient controlled analgesia with opioid and NSAIDs may be chosen. Day care patients may be treated with NSAIDs or COX-2 specific inhibitors and oral opioids.

Patients at risk of development of persistent postoperative pain may be benefited by administration of corticosteroids, ketamine, α_2 -agonists and gabapentin along with the regional and systemic analgesics.

New Analgesic Agents and Technique :

1. Sustained – Release or Extended Release Formulation :

Opioids or local anaesthetics provide effective pain relief, when administered for epidural or peripheral nerve block analgesia. Continuous infusion of these agents via catheter is necessary for complete postoperative analgesia. Insertion of catheter requires technical expertise and might be contraindicated in certain situations.

Sustained release formulations of conventional analgesic agents have been developed to prolong the duration of analgesia up to 24 hours.

Extended – Release Local Anaesthetics :

Local anaesthetic agents have been encapsulated in various biodegradable agents such as liposomes, lipospheres, polyglycolic acid microspheres and hydrogels. These agents are responsible for gradual release of local anaesthetic agents and prolongation of action up to several days. However, safety profile is yet to be established. Therefore extended release local anaesthetics are not available for routine clinical practice.

Extended release epidural morphine

Single dose of epidural morphine provides postoperative analgesia for 12-24 hours. An extended release formulation of epidural morphine, enclosed in microscopic lipid-based particles, can provide postoperative pain relief up to 48 hours following single injection. However, preliminary report suggests increased incidence of respiratory depression as compared to IV. PCA morphine.

Iontophoretic Transdermal Fentanyl :

Transdermal fentanyl patch is used in patients suffering from chronic pain. It takes about 6-12 hour to achieve adequate plasma fentanyl concentrations. A low intensity direct current (iontophoresis) is used to intensify transfer of fentanyl from the patch into the skin and local circulation. Iontophoretic transdermal fentanyl patch can deliver a

demand dose of 40 µg of fentanyl with a lock out interval of 10 minute. Drug has been temporarily withdrawn from the market for technical advancement.

Peripherally acting µ-opioid receptor antagonists

Use of opioids for postoperative pain exacerbate postoperative ileus. Peripherally acting µ-opioid receptor antagonists such as methyl naltrexone and alvimopan can attenuate the adverse effects of opioids and accelerate the return of gastrointestinal function in patients undergoing bowel surgery, without compromising centrally mediated opioid analgesia.

Continuous Infusion of Local Anaesthetics

Subcutaneous infiltration of local anaesthetic agents provide analgesia for a period of 4-6 hours. Therefore continuous infusion of local anaesthetics has been advocated. At the end of the surgical procedure, catheter is placed into the wound under direct vision and local anaesthetic agent is infused either continuously or as intermittent boluses over a period of days.

Chronic Post Surgical Pain (CPSP) :

It is a pain syndrome that develops postoperatively and last for at least 2 months in the absence of other causes of pain such as recurrence of malignancy or chronic infection.

Pain continuing from a preexisting disease is not considered as CPSP.

Incidence of CPSP after Various Interventions

- Limb amputation 60-80%
- Total hip arthroplasty 30%
- Hysterectomy 5-30%
- Caesarean section 10%
- Breast surgery 20-50%
- Groin hernia surgery 10%
- Sternotomy 20%
- Thoracotomy 25-60%

Mechanism :

Exact mechanism of CPSP has not been completely understood. However, some type of stimulus or continuous nociceptive process provides the impetus for chronic pain to develop. The mechanisms are multifactorial and complex. They include inflammatory and neuropathic processes, multiple ligand and voltage gated ion channels which activate intracellular cascades. Pain is also tissue-specific, influenced by underlying genetics and mental state. The duration and intensity of the initial insult play a very important role in peripheral and central sensitization, which synergistically act to exacerbate the pain perception. These are the various factors and susceptibilities related to chronic surgical pain syndrome.

Risk factors of developing CPSP :

1. Type of surgery :

Surgeries associated with higher incidence of CPSP are invasive procedures, redo interventions, long-lasting surgery and surgery in a previously injured area.

2. Genetic Predisposition :

There are some protective genotypes or phenotypes related to pain perception and metabolism of analgesic drugs. At present, lack of adequate data prevents to allow systemic genotype screening for identifying the patient at risk of development CPSP.

3. Gender :

In female population, CPSP occur at 2 : 1, when compared with male.

4. Age :

Younger patients are more to develop CPSP, despite the fact that the elderly patients have no significant change in pain thresholds.

5. Preoperative anxiety and Negative Psychological Condition :

Preoperative anxiety predisposes to more intense acute postoperative pain. High preoperative anxiety, catastrophization personalities and negative psychological factors have strong correlation with CPSP.

6. Obesity :

Modifications of proinflammatory / anti-inflammatory balance in obese patients favours the development of CPSP.

7. Poorly controlled acute postoperative pain, preexisting pain (not necessarily related to the surgical site), history of inflammatory process in the area of surgery, and conditions like irritable bowel syndrome, migraine, fibromyalgia are frequently associated with CPSP.

Strategy for Prevention of CPSP :

Intensity of acute postoperative pain is an important predictor for chronic pain. Therefore, it is important to identify patients likely to suffer intense postoperative pain.

Risk Scale for Prediction of Severe Postoperative Pain (15 point scale)

Predictors		Score	
1	Sex	Female	1
		Male	0
2.	Age	<30 years	2
		31-65 years	1
		>65 years	0
3.	Pain before surgery at site	Severe	2
		Moderate	1
		None	0
4.	Regular use of opioid	Yes	1
		No	0
5.	Regular use of anxiolytic / antidepressant	Yes	1
		No	0
6.	Open surgery	1	
7.	Type of surgery	Thoracic	3
		Abdominal	2
		Orthopaedic	1
		Other	0

8.	Duration of procedure	>120 min	1
		<120 min	0
9.	Obesity	BMI >30	1
		BMI <30	0
10.	Preoperative Anxiety	High	1
		Normal	0

Risk of Severe Postoperative Pain, if score ≥ 4

Patients at risk of severe postoperative pain should be assist to face the psychological stress associated with surgery. Counselling, autohypnotic conditioning, light exercise, inflammatory preconditioning are helpful to reduce anxiety and incidence of CPSP.

During Surgery, prevention of CPSP is based on protective surgery and protective anaesthesia.

Protective Surgery :

Surgery preserving nerve roots and producing minimal inflammatory reactions reduces the intensity of acute pain and incidence of CPSP.

Protective Analgesia :

Aim of protective analgesia is to prevent / reduce primary and secondary hyperalgesias by reducing excitatory input from damaged peripheral tissue to central nervous system. Therefore, it has been advocated to use potent analgesic techniques with antihyperalgesics and prevent sensitization of central nervous system.

Tissue trauma and inflammation causes a widespread induction of cyclooxygenase 2 in the spinal cord and central nervous system, which elevate prostaglandin E₃ levels in the CSF. PGE₂ is principle mediator of peripheral and central sensitization. NSAIDs, by Cox inhibition help to alleviate acute pain and influence the development of CPSP. Therefore, NSAIDs should be considered as a part of a multimodal analgesic approach.

Opioids remain the cornerstone of postoperative analgesia. These drugs efficiently relieve primary hyperalgesia but produce opioid induced secondary hyperalgesia. This opiate-induced hyperalgesia is also depend upon the excitatory neurotransmission. Therefore, it is logical to add an antagonist of the excitatory neurotransmission (NMDA receptor) such as ketamine to opioid.

Antihyperalgesic Drugs :

Most of antihyperalgesic are not potent analgesics for primary hyperalgesia but they prevent secondary hyperalgesia.

Antihyperalgesic Drug :

- Ketamine / magnesium
- Gabapentin – pregabalin
- Cox 2 inhibitors
- α_2 adrenoceptor agonists (perimedullary)
- Free radical scavengers (mannitol, vitamin c)
- N₂O, systemic local anaesthetics
- Drugs active against glial activity (minoxidel, propentofylline).

Challenges in Acute Pain Management :

1. Opioid Induced Hyperalgesia :

Opioid-induced hyperalgesia (OIH) is a state where patients treated by opioids show diminished pain threshold and increased sensitivity to pain. OIH is due to hypersensitization of pronociceptive pathways in the peripheral or central nervous system.

Management of OIH includes a multimodal analgesic approach targeting NMDA receptors, μ_2 -agonists and Cox-2 specific inhibitors. Low dose ketamine, an effective antagonist of NMDA receptor reduces postoperative pain and opioid consumption. Methadone and clonidine also reduce hyperalgesia.

2. Opioid Tolerance :

Tolerance occurs in patients with prolonged opioid exposure. This is because of desensitization of opioid anti-nociceptive pathways. In opioid tolerance, there is no change in baseline pain perception. Only dose of opioid is increased.

Management strategies of patient with opioid tolerance include –

- Identification of patients before surgery.
- Assessment of preoperative opioid requirement.
- Perioperative use of multimodal analgesic regimen.
- Before surgery, use of acetaminophen, celecoxib, gabapentin or pregabalin.
- Intraoperative low dose ketamine infusion (4 μ g/kg/min)
- Regional anaesthesia techniques are very beneficial.

3. Substance Abuse and Addiction :

Patients with a history of opioid abuse and illicit drug addiction are at risk for opioid withdrawal and severe acute pain after surgery. Commonly abused illicit drugs are marijuana, cocaine and 3,4-methylene-dioxymethamphetamine and heroin.

Perioperative management of the known substance abusing patient includes -

- Careful planning of preoperative, intraoperative and postoperative period.
- Preoperative screening for drug.

- Premedication : long acting opioids such as methadone, on the morning of surgery to minimize withdrawal effect.
- A preoperative dose of pregabalin, acetaminophen, and celecoxib reduce primary and secondary sensitization.
- Transdermal clonidine patch (0.1 – 0.2 mg/h) is helpful to minimize side effects and withdrawal effects.

4. Sickle Cell disease :

Patients with sickle cell disease can develop painful sickle cell crisis following certain physiological stresses like infections, dehydration, cold or other external stressors. Sickling of RBCs in microvascular causes ischaemia, release of vasoconstrictors and activation of inflammatory pathway.

Strategies to prevent painful sickling in perioperative period include prewarming of operating rooms, adequate hydration and use of opioids. First line treatment for painful sickling crisis includes NSAIDs, acetaminophen, celecoxib and ketorolac.

5. Elderly and Cognitively Impaired Patients :

Due to altered volume of distribution and decreased clearance in elderly patients, increased sensitivities to opioids are observed. Perioperative use of regional anaesthesia is very effective in controlling pain and reducing perioperative morbidity.

Use of epidurals and peripheral nerve blocks improve surgical outcome by reducing opioid consumption, increasing ambulation and decreasing length of hospital stay. NSAIDs or paracetamol should be a component of multimodal analgesia.

Intravenous PCA may not be effective in patients suffering from dementia or delirium, due to technical difficulties of operating the device.

6. Sleep Apnoea :

Sleep apnoea can be obstructive sleep apnoea or central sleep apnoea.

Use of opioids during postoperative period can cause obstructive apnoea and hypoxia even in patients without OSA or CSA. Therefore use of opioids and other sedatives should be minimum in patients with known or suspected OSA or CSA. Route of opioid administration or technique does not affect the clinical risk. Use of regional anaesthetic technique using local anaesthetic agent with continuous delivery by catheter should be used, whenever possible.

7. Neurological disease :

Although patients with neurological disease may be benefited from neuraxial or regional anaesthesia. But these patients are vulnerable to a second neurologic insult, called double-crush phenomenon. It also raises question of litigation.

Multiple sclerosis should not be considered as an absolute contraindication to neuraxial or regional anaesthesia. Although spinal and epidural anaesthesia may exacerbate multiple sclerosis. Therefore, clinician should carefully assess risk versus benefit of regional technique on an individual basis.

Similarly regional anaesthesia may not be safe in patients suffering from demyelination disorders such as Guillan-Barre Syndrome (GBS). Neurological condition may be worsen after epidural anaesthesia.

However, regional anaesthesia may be possible if the patient is treated effectively with intravenous immunoglobulin or plasmapheresis. Caution must be taken to prevent toxic effects of local anaesthetic on unmyelinated nerves.

8. Renal Disease :

Acute pain management for patients with end stage renal disease (ESRD) and chronic kidney disease (CKD) is challenging.

Several commonly used opioids like fentanyl, alfentanil, sufentanil and remifentanyl display safety profile in CKD or ESRD patients.

Morphine, hydromorphone can be used, but closed monitoring is required for side effects. Chances of accumulation of acute metabolites are very high.

Several commonly used analgesics are contraindicated in the presence of CKD. Use of meperidine codeine and propoxyphene is risky due to accumulation of toxic metabolites causing unacceptable side effect profile.

Although, aspirin and NSAIDs do not produce toxic metabolites, they are contraindicated due to their adverse effect on renal function.

Provision of analgesia to ESRD patients not receiving haemodialysis is challenging.

According WHO analgesic ladder for ESRD patients :

Step 1 : Paracetamol

Step 2 :

- No clear cut safe opioid for mild to moderate pain.
- Tramadol is the safest choice.

Step 3 : Include fentanyl and methadone

9. Hepatic Disease :

Most opioids undergo hepatic metabolism. Therefore, hepatic dysfunction can cause accumulation of the parent drugs or active metabolites.

Opioid must be administered cautiously. Long acting or sustained release opioids require extra caution. Codeine converts to morphine for analgesia in the liver. It should be avoided in severe hepatic dysfunction patients.

Future Considerations :

Current concept of multimodal analgesia has not improved the outcome of the patients as far as their return to normal activity or chances of persistent postoperative pain is concerned. Therefore future therapies may be directed more specifically to the pathophysiology of pain process. Future multimodal analgesic therapy may also include α_2 adrenergic agonists, NMDA receptor antagonists, anticonvulsants and glucocorticoids. Brady kinin, substance antagonists may also be part of balanced analgesic regimen. Future postoperative pain management may be patient specific as well as procedure specific. So that optimum result can be achieved with minimal adverse effects.

99th Indian Science Congress
January 3-7, 2012, Bhubaneswar

II

ABSTRACT OF
PLATINUM JUBILEE LECTURE

PLATINUM JUBILEE LECTURE

ROLE OF ANAESTHESIOLOGIST IN PAEDIATRIC CARDIAC CATH-LAB

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ABSTRACT

In paediatric cardiac cath-lab anaesthesiologists have to administer anaesthesia to infants and children with congenital heart diseases undergoing diagnostic and therapeutic interventional procedures. Anaesthesia for children with congenital heart disease is a challenging task for every anaesthesiologist, requiring proper understanding of haemodynamic changes pertaining to the disease and their possible outcomes.

A number of issues are pertinent to a safe and effective provision of care for these patients. There is no specific anaesthetic technique for a specific lesion. The choice of anaesthetic technique and agents is made with the objective to ensure haemodynamic stability, provide real life circumstances to ensure diagnostic accuracy with reliability to titrate in order to cope with rapidly changing loading conditions and intense but short lived haemodynamic disturbances.

A prudent anaesthetic technique should cover every aspect of the child's management starting from pre-operative evaluation, sympathetic approach towards the patient to allay anxiety, judicious choice of anaesthetic agents to ensure haemodynamic stability, prompt management of intra-operative complications of achieving control of haemodynamic variable within the limits imposed by the lesion of congenital heart disease and the state of compensation of the child at the time of surgery, ensuring an uncomplicated postoperative recovery.

In recent years, new agents have been introduced in anaesthetic care of these patients. New and older drugs have been combined in newly invented balanced techniques to improve the interventional outcome and decrease the side effects associated with monotherapy.

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III

ABSTRACT

**YOUNG SCIENTIST AWARD
PROGRAMME**

YOUNG SCIENTIST AWARD PROGRAMME

Partial deletions at the AZFc locus are strong risk factor for infertility in Indian sub-continent

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Keywords : Male infertility; Y chromosome; AZFc deletions; AZFc partial deletions

Abstract

Complete AZFc deletions are a proven risk factor for male infertility; however, partial deletions are now emerging as a risk factor. We have analyzed 1463 individuals in two cohorts of case-controls. One of the cohorts included 775 infertile and 287 normozoospermic fertile men from Kolkata and adjacent regions and the other cohort included 301 infertile and 100 fertile control subjects from Lucknow, Uttar Pradesh. All the subjects were analyzed for complete and partial deletions of AZFc region using STS and SNV markers recommended by European Academy of Andrology. Twelve individuals in the Kolkata cohort and one individual in the Lucknow Cohort displayed classical AZF deletions. In total, 101 infertile and 5 control men in Kolkata cohort displayed deletions only in AZFc region. Microdeletions involving the entire AZFc region (b2/b4 recombination) were observed in 45 infertile individuals and strongly associated with azoospermia and infertility. AZFc [artoa; de;etopms characterized by gr/gr recombination were observed in 39 infertile and 4 fertile men, and strongly associated with azoospermia, oligozoospermia and infertility. Partial deletions characterized by b1 / b3 recombination associated with azoospermia and infertility

only marginally. The b2 / b3 deletion was completely absent in our samples. On the other hand in Lucknow cohort only 14 patients displayed deletions in AZFc region which were completely absent in the controls. Of these 14 individuals, 3 had deletions of complete AZFc deletions and 11 had partial deletions. In conclusion, complete and partial deletions in AZFc region are the risk factors for male infertility in Indian population. The data from the two cohorts establishes gr/gr partial deletions to be strong risk factors and that b2 / b3 deletions were completely absent in Indian sub-continent. Population specific differences in the existence of AZF partial deletions are also evident in comparison of the data for two cohorts and its comparison with genotypes of Indian populations.

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IV

ABSTRACTS

SYMPOSIUM / INVITED LECTURES

PROCEEDINGS
OF THE
NINETY NINTH SESSION OF THE
INDIAN SCIENCE CONGRESS
BHUBANESHWAR, 2012

PART IV :
ABSTRACTS OF SYMPOSIUM & INVITED LECTURES

SECTION OF
MEDICAL SCIENCES (INCLUDING PHYSIOLOGY)

President : **PROF. MANJUSHREE RAY**

SYMPOSIUM I: Back Pain

(1) Functional pathology of low back pain

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The lumbar spine changes starting from embryo to old age. Micro-structural changes become common by the age of 15 years, even macroscopic defects can be found in MRI scans in 3- 8% of 13 year-olds.¹ Micro-structural defects affect all spinal levels, although macroscopic changes mostly occur between L4 and S1.

During most of the sitting postures lumbar spine is flexed, and the L4-5 and L5-S1 levels are almost fully flexed. Spinal mobility decreases with age, full flexion and extension both decrease by about 20% between the age of 20 and 55 years. Mobility continues to decrease so that by 85 years 50% of lumbar range of motion is lost. Patients with back pain show reduced lordosis in the lower lumbar spine and a particularly flat back is risk factor for future low back pain.² The proportion of compressive force acting on the spine and transmitted through zygapophysial joint rises from 1% in neutral position to 16% in 2° of lordosis.³

Back pain can rise from gross left- right asymmetries in the back muscle or imbalance in flexor- extensor muscle strength. Lordotic postures reduce nucleus pressure, only by transferring load- bearing to the posterior annulus fibrosus and zygapophysial joints. Old discs are narrower and this bring adjacent neural arches closer. As a result, the zygapophysial joints resist an increasing proportion of compressive force acting on the spine. The zygapophysial joints are often pain generator, where as the nucleus is not.

Early degenerative changes are accelerated age- related changes in a structurally intact disc. *Degenerative disc disease* should be applied to degenerate disc which also is painful. Various combinations of compression, bending and torsion can cause all of the

major structural features of degeneration including endplate defects, radial fissures, radial bulging, disc prolapse and internal collapse of annulus. Physical and chemical effects appear to act synergistically for pain sensitization. Musculoskeletal and neurovascular system along with altered biomechanics act together to produce low back pain.

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(2) Back Pain: Evaluation, current management options & outcome

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Back pain is the most common cause of pain and disability in modern world. Overall occurrence ranges from 13.8% ⁽¹⁾ to 31%⁽²⁾ and the health care costs related to these disorders amount to Billions of dollars each year⁽³⁾.

Pain may be generated not only from the components of the spinal column, e.g., intervertebral discs, vertebral bodies, facet joints, spinal nerve roots, adjacent muscles, ligaments and also from the areas including abdominal and pelvic organs.

Patients with back pain (both upper and lower back) are commonly referred to pain specialist for evaluation and management plans. A detailed history in a systemic manner (duration of symptom, location of the pain, intensity, character of the pain, relieving or aggravating factors, present and past medical and surgical history, psychological evaluation) to be taken first.

Physical Examination both general and spine (inspection, palpation, range of motion and thorough neurological examination, straight leg raise test, FABER test etc) to be conducted. Diagnostic tests including routine blood tests, simple x-ray to be done. In few cases magnetic resonance imaging and computerized resonance imaging necessary. Electrodiagnostic tests (EMG, NCV), and also PET/CT scan, radioisotope imaging rarely may be necessary. Diagnostic interventional procedures are recent advancements in evaluating back pain.

Conservative management including simple analgesics, muscle relaxants, limited bed rest for 2-4 days are the key of the primary management in all acute back pain patients till initial 4-6 weeks. Physical therapies are also useful.

Failed conservative management or early chronic phase cases are called sub-acute back pain and should be managed with multidisciplinary approach including interventional pain management and rehabilitation programmes (unfortunately this management is rarely available in India!)

Urgent evaluation is needed in those patients with appearance of signs or symptoms of severe mechanical compression of nerves (pain with numbness or weakness or lower legs or hands , progressive neurologic/ neuromotor deficit, loss of bladder or bowel control), unrelenting night time pain or pain at rest, Fever > 38°C (104°F) for >

48hours and history of injury. Urgent action including surgery is necessary for this group of patients.

Chronic back pain patients are also managed with multidisciplinary approach including special medicines for neuropathic pain, interventional pain procedures and other alternative approaches (acupuncture, massage, relaxation, meditation etc).

Ninety percentage of patients with acute back pain improve within 4 to 6 weeks⁽⁴⁾ of conservative treatment alone.

More than 40- 60% patients who undergo back surgery including spinal stabilizing procedures end up with chronic back pain and leg or hand pain with same or more intensity than before. In view of poor results of additional surgeries, no further surgery is done. With prolonged sufferings they became victims of depression and patients with system medical illness. The condition is gradually increasing now a days and is called Failed Back Surgery Syndrome, Post Laminectomy syndrome or Chronic Back and leg syndrome.

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(3) Back Pain: Newer management options

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Common causes of back pain according to age are myofascial pain in younger adult, discogenic back pain in middle age and facet & Sacro-iliac joint degeneration in older age group. A management option varies according to etiology. Apart from conservative management & surgery there are different interventional pain management procedures which are proved to be very effective.

Trigger point injections are very effective way to manage myofascial pain. Trigger point injection with local anaesthetic, depo-steroid, ozone gas, or even dry needling gives pain relief in Myofascial Pain Syndrome. It can be utilized as diagnostic intervention to diagnose Myofascial pain syndrome. (1-2) Injection of Botulinum toxin in the trigger points is a safe and effective way to treat recurrent myofascial pain. Pulsed radiofrequency is another newer way to manage this kind of pain.

Different kinds of epidural steroid injection like caudal, inter-laminar, transforaminal have proved to be safe and effective way to manage discogenic back and leg pain. (3-6) In some situation they give short term relief, but they are safe and may be repeated often. Epidurals are commonest interventional procedure. Ozone nucleolysis is another procedure for the disc prolapsed which is very effective and safe. (7)

Based on controlled diagnostic blocks of facet joints, in accordance with the criteria established by the International Association for the Study of Pain (IASP) (8), facet joints have been implicated as responsible for spinal pain in 15% to 45% of patients with low back pain. Therapeutic facet joint injection with steroid/ RF ablation of medial

branch of dorsal rami gives long-term relief. Open, controlled and uncontrolled clinical studies that evaluated the long term relief of back and leg pain from intra-articular facet joint injections are abundant.(9)

Sacro-iliac joint may be the source of low back pain in about 15% cases. Percutaneous radiofrequency procedure of sacroiliac joints or steroid injection into SI joint has been reported to provide long-term relief (10-11).

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SYMPOSIUM II

Management of Trauma Victims – Rescue to Resilience

(1) Intensive care Management of Trauma Patients

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Intensive care unit management of trauma victims is challenging. These are patients who can deteriorate because of unrecognized injuries, complications of injuries or the treatment received for these injuries in the Emergency or Operating room and complications of general critical illness.

Initial and ongoing assessment for trauma victims in the ICU is very important. This is very much true in the era of damage control surgery wherein patients are received with the lethal triad of acidosis, bleeding and hypothermia. Also blunt injuries are being managed conservatively leading to the need for careful initial and continuing assessment as per the ATLS guidelines. Immediate attention is given to the Airway, Breathing and

circulation and evaluating further with Documenting Disability and ensuring Exposure to evaluate external injuries.

It is important for the ICU physician to then obtain past medical history, allergies, drug and alcohol use. This becomes incumbent for the ICU physician as the patient family and friends may not have been available when the patient is first brought to the hospital. Patients with ongoing alcohol or drug dependence are more likely to have complications during their ICU stay, while patients with medical comorbidities have an increased risk of mortality.

A repeat head-to-toe trauma survey on all patients within 24 hours of hospital admission decreases the frequency of missed injuries. Potentially life-threatening injuries that may be missed during the initial evaluation include intracranial hemorrhage, traumatic aortic disruption, intraabdominal injuries, and rhabdomyolysis. Missed injuries are more common in multisystem trauma patients requiring emergent surgical intervention shortly after hospital arrival.

In addition to the risk of delayed recognition of injuries, ICU care of the trauma patient may involve managing complications of the initial resuscitation or evaluation. Common issues that arise in these patients include complications from transfusions, contrast media-associated nephrotoxicity, abdominal compartment syndrome, venous thromboembolism, upper gastrointestinal bleeding, and shock.

Trauma care is a continuum and a good outcome depends not only in the initial resuscitation and care but also by providing good intensive care support.

(2) Management of the Traumatized Airway

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Trauma is a multifaceted problem. It is a complex issue where victims may range widely in age and may have unknown medical histories. The nature of trauma itself may

be unpredictable. Causes may range from automobile accidents, to violent crime, to terrorism. The number and severity of injuries is yet another variable.

The primary survey (“ABC” algorithm) in a trauma victim involves rapid evaluation and stabilization of vital functions that are crucial to survival. As a part of the “A” (airway) assessment it is necessary to determine whether there is an immediate need to artificially secure the airway.

The goal of airway intervention is to relieve or prevent airway obstruction and to secure the unprotected airway from aspiration. This goal can be difficult to achieve in the traumatized airway because of the frequent presence of blood, secretions, tissue oedema and debris (such as avulsed teeth) that can interfere with the identification of the airway anatomy, which may already be distorted. In addition the assumption of a full stomach and an instable cervical spine makes the management of the airway even more difficult & challenging.

As a consequence, managing the traumatized airway can prove to be the ultimate test of a physician’s technical skill, which includes familiarity with available equipment and airway management strategies as well as the ability to improvise under, stressful and often fast changing circumstances.

(3) Administrator’s Role in Trauma Management

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Trauma or Injuries leading to disabling morbidity and mortality has been rightly called as the “Neglected Disease of Modern Developing Nations”. Everyday more than 16,000 people die from injuries worldwide and in India more than 10% of ALL deaths are due to accidents or injuries. In fact 1 death occurs every 1.9 minutes due to trauma and it is well recognized that most of these unfortunate victims are in the prime age of their life.

The most important aspect is obviously in 'prevention' by developing facilities with better engineering, road building, traffic planning etc. Coming to the medical ways of prevention these critical elements have to focus on reducing morbidity and mortality from trauma.

The role of Medical Administrators in this overall management of trauma is very crucial for every country. World Health Organisation's seminal work on 'Guidelines For Essential Trauma Care' gives elaborate steps towards the correct approach for optimal standards in trauma care. The Administrator should first understand the available human and physical resources at the health facility since it varies from place to place. A study looked at the overall mortality rate for all seriously injured adults [Severity score more than 9] in 3 countries at different economic levels. The mortality which was only 35% in high income country rose to 55% in middle income country and almost doubled to 68% in the low income country. In addition to the excess mortality there is tremendous burden of disability from severe head and spinal injuries. The administrator has to plan management priorities depending on the resource matrix available in terms of men and machines. There also are certain ESSENTIAL facilities like airway management, haemorrhage control, fracture splinting, I/V fluids etc which are mandatory at every level to save lives. The other DESIRABLE facilities like blood transfusion, operating rooms, specialised diagnostics etc must be available within close reach of the primary facility with safe means for transport. The medical administrator thus plays the vital role of putting together all these factors so that the outcomes of trauma management improve to the highest standards.

(4) Medico Legal aspects of trauma management in India

Hon'ble Justice Biswanath Somadder

Judge, High Court at Calcutta.

The essential aspect of trauma management is to ensure quickest possible medical attention to the trauma victim in order to ensure his/her survival. However, in India more

often than not this gets hindered due to the prevailing mindset amongst most of the qualified trauma care specialists. There is a feeling that if anything happens to the victim they will get unnecessarily entangled in a legal mesh involving visits to the Police Stations & Courts.

This mindset can change easily if only we are able to comprehend and understand what are the legal obligations attached to a trauma care case. One may be surprised to learn that such legal obligations are actually very few. Essentially such obligations are limited to the specialist keeping a record of his / her clinical findings and ensure that the hospital administration keeps the local police authorities informed. However the most important obligation, legal or moral of a trauma care specialist is in the rendering of the best possible treatment to the trauma patient.

The laws relating to medical negligence of doctors treating non-trauma patients are equally applicable in respect to trauma patients. Therefore the trauma care specialist need not get saddled with greater worry while handling a trauma care patient viz-a viz any other patient.

1 Delivery Challenges For The Development of RNAi Therapeutics

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The ability of RNAi to specifically silence target genes has raised the concept of developing medicines based on RNAi. RNAi works through the targeting of mRNA via sequence-specific matches and results in degradation of target mRNA or its translational inhibition, leading to the loss of protein expression. Availability of a suitable delivery system is a major challenge in the development of RNAi therapeutics for diseases like

cancer. Unmodified, naked siRNAs are relatively unstable in blood and serum as they are rapidly degraded by endonuclease and exonucleases, thereby having very short *in vivo* half-life. The administered siRNA, should be suitably internalized by the target cell, must avoid endosomal uptake & errant siRNA compartmentalization for exerting gene-silencing activity. Selection and formulation of siRNA with an appropriate biocompatible and possibly “genocompatible” delivery system is necessary for improving biological stability, targeted cell uptake, and pharmacokinetics of siRNA. Inappropriate selection of a delivery vector can thereby reduce gene-silencing activity and even enhance off-target effects.

Delivery systems can also alter the pharmacokinetics of siRNA by altering their molecular and physical size so as to reduce excretion via the kidneys and thereby prolong *in vivo* half-life. Targeting to diseases cell is necessary for efficient gene silencing. Once inside the cell, siRNA has to escape compartmentalization into cell organelles such as endosomes and lysosomes, be intracellularly bioavailable, and interact with its intended mRNA targets in the cytosol to affect highly potent and sequence-specific gene-silencing activity. Strategies for delivering siRNA to specific tissue/organ *in vivo* following systemic administration involves hydrodynamic intravenous injection, cationic liposomes, cationic polymer and peptide based delivery systems, local *in vivo* delivery systems, etc.

Modifications of terminal nucleotides of the siRNA (also called siRNA conjugate) have been found as an efficient delivery strategy, which includes peptide modification such as TAT peptide, cholesterol conjugation, PEGylation of siRNA and aptamer conjugation. Among cationic polymers, dendrimers are found to be superior agents for the delivery of siRNA for gene silencing. Cationic liposomes have also been applied with substantial success for the *in vitro* as well as *in vivo* delivery of siRNA. Conjugation of cell targeting ligands to delivery systems carrying siRNA has been found to be effective in delivering siRNA to specific target cells.

The success of RNAi therapeutics for cancer lies in formulating siRNA/shRNA involving a suitable delivery system, which can overcome these challenges.

Keywords: siRNA, cancer, gene delivery, RNAi therapeutics, Dendrimer, Dendrosome, Drug Targeting, Novel drug Delivery Systems.

2 Role of Nutraceuticals in Male Infertility

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Infertility has been a major medical and social problem since the dawn of humanity. It affects one in seven couples. Approximately half of them have causal or associated male factor as a cause of infertility. Poor semen parameters and defective sperm function are prevalent causes and a difficult condition to treat. With the advent of ART procedures such as in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI), achievement of fatherhood is no more impossible for men with seminopathies or azoospermia. However, fertilization potential of selected sperms is often compromised leading to low rate of fertilization and pregnancy outcome. ‘Nutraceutical’ is a term combining the words ‘nutrition’ and ‘pharmaceutical’. It is defined as a product isolated or purified from foods, sold in medicinal forms, and shown to have a physiological benefit or provide protection against chronic disease. A wide range of nutraceuticals are available to treat apparent causes of male infertility. The current study aims to evaluate the efficacy of various nutraceuticals in improving sperm fertilization potential. A total of 256 patients were included in this prospective study conducted at Institute of Reproductive Medicine, Kolkata, from September 2010 to June 2011.

In the above study we have seen an enhancement of sperm fertilization ability as fertilization rate and pregnancy outcome were significantly improved in couples with male factor infertility following at least 3 months nutraceuticals therapy.

3. Killer immunoglobulin-like receptor gene polymorphism in the endemic population of Puttaparthi.

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Natural killer (NK) cells are a subset of lymphocytes. They play a crucial role in early innate immune response against infection and tumor. NK cells distinguish unhealthy cells from the healthy ones through an array of cell-surface receptors called killer immunoglobulin-like receptors (KIRs). The ligands for these KIRs are the different subsets of HLA class I molecules. Through the interaction of KIRs and HLA class I molecules, NK cells discriminate healthy cells from non-healthy/infected cells. This interaction between NK cells and target cells is made possible because NK cells are endowed with a plethora of inhibitory and activating KIRs.

KIRs are reported to be positively associated with Type-I diabetes, AIDS, Cervical Neoplasia, Malignant melanoma, Psoriatic arthritis, PreEclampsia and several other autoimmune disorders. Therefore, it is proposed to study the polymorphism in this class of genes among the endemic population of Puttaparthi. This study will forecast the health ailments primarily because of the reason that there must have been a mismatch between ligand molecules and KIRs that is to say that there must not have been the sufficient matching ligands or lack of ligands to bind to the corresponding iKIRs to protect the target cells. This type of mismatch would be known through the genotyping studies and enables the disease prognosis.

In the present work, DNA was extracted from blood samples, collected through informed consent, of the ethnic population of Puttaparthi. Out of the 186 samples collected, 48 samples were taken for analysis. Of these 48 samples, 8 samples were not

considered due to the deficiencies in their framework genes. Of all genes, KIR 2DL2, KIR 2DS5 and HLA CI were found to be absent in all individuals. The possible resistance and vulnerability to a set of pathological conditions need to be evaluated.

4 Emergence of Life Style Diseases in Punjab

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The components of the disease burden in India remain poorly understood. Earlier the infectious diseases were predominant but now some populations have undergone socio-economic changes with modernization, the vital statistics have described a change in the pattern of disease. The geographic regions spread across the country are extraordinarily diverse and the health systems which serve the populations living there are often inadequate.

Cardiovascular diseases, diabetes and cancers are already costing the country dear in terms of the health bills and productive life span of the citizens. But scourge of what the *World Health Organization* calls the "non-communicable diseases" (NCDs) is rapidly spreading across all parts of the country, fuelled by obesity as a result of bad diet and sedentary lifestyles. This picture has become alarming especially in Punjab.

In 1997, it was stated that the prevalence of obesity in India as 7 - 9%. The prevalence of obesity and overweight was 14.8% and 45.3% in Punjab in the year 2004. However in the current study conducted in the year 2010, the prevalence of obesity and overweight has increased to 18.8% and 46.6%, respectively. The other associated life style diseases have also shown increasing trend in this region of the country. It is observed that this epidemic is spreading to low-income and middle-income group population too due to improved living conditions and nutritional intake.

5 Strategies in Cancer Detection and Therapy using Nanotechnology

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Early detection of cancer is a challenge and after its recognition, surgery followed by chemotherapy/radiation therapy seems to help the patients in extending the life expectancy. In this direction, nanotechnology came as a boon for its early recognition in imparting effective patient compliance therapy. In this paper, the production, efficacy, materials used, strategies of nano-materials will be discussed. The recent materials like nano gold, silver, selenium, carbon, silicon, graphene have shown interest in cancer therapy. Early detection of cancer via improved imaging techniques using nano-materials, biomarkers and nano-strips are becoming popular. As a preventive measure, the nano quantity detection of carcinogenics in food, environment, water and air have added advantage in controlling cancer. Tagging nano-particles with monoclonal antibodies, proteins, polymers and pharmaceuticals have proved to improve the therapeutic efficacy with least toxicity. Some of the strategies include, Nano filtering the cancer cells in circulation, targeting the drug to the cancer site, antigen-antibody conjugation, loading As_2O_3 to the site of cancer etc proved to be effective compared to traditional chemotherapy agents. This therapy proved to be effective in controlling colon, breast, oral, ovary, lung, liver and various other types of cancers. Packaging antibodies into the silica cage, functional polymeric micelles, sensors in effective delivery system, molecular manipulations, Oxygen therapy are the recent strategies gaining importance in controlling and treating cancer. Our group has evaluated certain potent plant sources as nano materials in cancer therapy which will be discussed. It is felt that there is an urgent need to put serious effort in the early detection and control of this dreadful disease for the safe existence of our next generation. It is recommended to improve our life style in controlling this disease.

6 Evaluation of acute Organophosphorous Poisoning cases in a tertiary care hospital(S C B Medical College,Cuttack)in Odisha, India.

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Acute poisoning with agricultural pesticides is an emerging global public health problem particularly in developing countries like India. The study aimed to evaluate the pattern and outcome of acute poisoning cases in a tertiary care hospital in Odisha.

A prospective study was conducted with organophosphorous compound poisoning patients admitted to S C B Medical college cuttack between October 2009 to February 2011.

50 cases of acute OP poisoning (18 males and 32 female)were included in the study. The most prominent of affected age group was 20 -29 (38%). The most common OP compound was phorate (Danadar 46%). The most common reason of poisoning was for suicidal purpose(90%). The common modes of presentation were increased salivation, miosis, bradycardia, muscular fasciculations,tachypnoea,pulmonary edema. ABG analysis shows respiratory alkalosis,respiratory acidosis, metabolic acidosis ,metabolic alkalosis. Mortality was highest in metabolic acidosis group.The mortality rate was18% and causes were respiratory paralysis,pulmonary oedema and aspiration pneumonia. Metabolic acidosis in patients with acute OP compound poisoning is a bad prognostic indicator. Serum cholinesterase level has no prognostic value but has immense value in diagnosis of acute OP compound poisoning.

Conclusion: Timely transport and intervention of all critically ill OP compound poisoning cases is required to prevent high mortality among victims.

7. A Survey on Medical Professional on the Concept and Management of Palliative Care

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Implementation of palliative care service in cancer patients has well recognized guidelines. A study was aimed to assess its concept and management among medical professional from 4 types of hospitals. They were Regional Cancer Centre (group1), Medical College (group2), Private hospitals (group3) and District hospitals and PHC (group 4).

Two hundred 10- point questionnaires were distributed equally among the groups. Group 1 consisted of primarily the oncologists, group 2 and 3 were non-oncologist but with sizeable oncology practice and group 4 were nononcologist without any defined oncology practice. The questions were 1- Is pain the predominant symptom? 2-Nausea and vomiting the second common and most distressing? 3-What is the role of morphine and midazolam in dyspnoea? 4-Is constipation a regular feature in half of patients, 5- Can emergencies occur in palliative care? 5- Psychosocial issues - how many treat patients, who consider cancer infectious, suffer the problems of loss of body image or unsightly look bad smell of fungating ulcer? 6- How many prescribe or are aware of the role of morphine? 7- Multimodal drug therapy and 8- Interventions in pain relief? 9- Were doctors aware that patient professional communication is a skill in palliative care? 10- Timely referral to palliative centre improves QOL and palliative care is a team work?

The study showed there is an immense need for palliative care education and networking in peripheral hospitals doctors followed by doctors from medical college and private hospitals, for better management and providing good quality of life to patients.

8 Effects of acute supplementation of caffeine and *Panax ginseng* on endurance running performance in a hot and humid environment

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Key Words: VO₂, heart rate, RPE, insulin, free fatty acid, lactate.

Abstract :

Acute supplementation of *Panax ginseng* (PG) did not impose any significant effect on endurance performance of recreational Malaysian runners. Caffeine augments the ergogenic property of some herbs. The present study was aimed to examine the effects of acute supplementation of caffeine and PG on endurance running performance in a hot and humid condition. Nine heat adapted Malaysian recreational runners (age : 25.4±6.9 years, body mass : 57.6±8.4 kg; body height : 168.3±7.6 cm) ingested either placebo or combined dose of 5 mg.kg⁻¹ of body weight of caffeine and 200 mg of PG one hour before the running on treadmill at 70% of VO₂max in this placebo-controlled double blind randomised study in a laboratory environment of 31°C and 70% relative humidity. They drank 3 ml.kg⁻¹ of body weight of cool water every 20 minutes during the exercise to prevent dehydration. Blood samples were withdrawn and oxygen uptake was recorded every 20 minutes while heart rate, core body temperature, skin temperature and ratings of perceived exertion (RPE) were recorded every 10 minutes during the trials. Endurance time was significantly different (P<0.05) between experimental and placebo trials. Heart rate, skin temperature, core body temperature, oxygen uptake, RPE, plasma insulin, glucose, free fatty acid and lactate levels during the endurance exercise did not show any significant difference between the trials. Thus, we conclude that combined and acute

supplementation of caffeine and PG in the said doses improved the endurance running performance of the heat-adapted male recreational runners.

9. Efficacy of Recovery of Enzymes from Human Anatomical Waste with Special Emphasis on Affinity Ultrafiltration Technique

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Keywords: affinity ultrafiltration, recovery of enzymes, washing phase modeling, elution phase modeling,

Abstract

Potentiality of utilizing human anatomical waste like placental extract for isolation and purification of proteolytic enzymes has opened up a new avenue in the field of bio-separations. Affinity Ultrafiltration is now well understood because of its inherent advantages over the conventional techniques like salt precipitation, foam fractionation, solvent extraction, gel chromatography etc. Some of the advantages include easy permeation of target bio-molecules, faster permeation rate, simple technology etc. Efficient management and recovery of enzymes from bio-medical waste need special attention today. While most of the developing countries are now paying a considerable emphasis on efficient utilization of clinical waste, particularly, towards isolation and purification of bio-molecules, there is enough scope in India to develop such applications centering on Affinity Ultrafiltration as an emerging technology.

The background of the investigation lies on the fact that commercial realization of biotechnology depends on the ready availability of purified enzymes, proteins and other bio-molecules. Nowadays, the availability of suitable feedstock for commercial exploitation of a bioprocess is of paramount importance. The bottleneck of commercialization is not only to produce large quantities of heretofore-rare products, but also to approach 100% in purity. Literature survey shows that there are number of

methods available for the recovery of valuable bio-chemicals from human anatomical waste. The present research group has conducted series of investigations using conventional techniques. Analysis of performance was presented in details. The concept of Affinity Ultrafiltration was shown using an affinity ligand in conjunction with a cross-linking agent to bind with one of the target bio-molecules in order to make a larger conjugate molecule. This is considered as a plausible method here. In dead ended mode of ultrafiltration, the process operates in two steps, viz. washing and elution. In the present paper the feasibility of using affinity ultrafiltration system for recovery of enzymes from placental extract was amply described. A semi-batch affinity ligand-based ultrafiltration system fabricated in our laboratory has been used for separation of trypsin from its mixture of bio-molecules. The two such sequences were compared to study the performances.

Deterministic mathematical models have been developed to explain the behaviour of the ultrafiltration system during the washing and the elution phase. The simulated results of both the models have been compared with the experimental observations. The experimental data fit well in the model equation, the correlation coefficient being 0.97. A thorough performance analysis of using affinity ultrafiltration over conventional techniques was also presented.

10. Pathogenesis of diarrhoea caused by of enterotoxigenic *Escherichia coli*

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Heat-stable enterotoxin (STa), a major cause of watery diarrhoea in human was secreted by enterotoxigenic *Escherichia coli* (ETEC). 280-400 million episodes of diarrhoea and about 380000 deaths annually due to ETEC were estimated annually in children less than 5 year old in developing countries. The bacteria produces a 18-19 amino acid containing heat-stable enterotoxin (STa), which exerts intestinal secretion by binding to specific receptors and alters intracellular cyclic guanosine monophosphate

(cGMP), by activating particulate guanylyl cyclase. Moreover, it is still not clear whether cGMP alone accounts for full secretory response to STa. Although it was reported that STa stimulation of GC-C is greater in the human small intestine than in the colon and in general, fewer STa receptors are present in human colon, the short circuit current in response to STa is greater in colon. The reason behind this is still unknown. Therefore, to study the mode of action of STa, colonic cells may help to understand the in-depth mechanism. We reported that in a hitherto unreported human colonic carcinoma cell line COLO-205, *E. coli* STa not only bound and accumulated cGMP but also involved IP₃-mediated calcium mobilization from intracellular calcium store. Our laboratory also demonstrated that STa increases [Ca²⁺]_i involving IP₃, this caused activation and translocation of PKC- α from cytosol to plasma membrane in COLO-205 colonic cell line. Recently, we have shown that actin cytoskeleton organization is rapidly rearranged following induction of STa in COLO 205 cells and STa stimulation promotes the polymerization of actin either directly or indirectly without modification of the total actin content. Rapidly occurring changes in the actin cytoskeleton arrangement is involved in the translocation of PKC alpha cytosol to specific plasma membrane location. Our studies undoubtedly will lead to an improved understanding of STa-pathogenesis.

11 STUDY OF BODY ALERTNESS (REACTION TIME) UNDER THE THREATS OF BOTH PHYSICAL AND ENVIRONMENTAL (HEAT) STRESSORS

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Five keywords: Reaction time, Exercise, Heat stress, Cognitive performance

Objective(s)

The specific effects of exercise and heat stress on physiological processes have been widely studied. Several studies have also shown that heat stress caused deterioration in cognitive performance, particularly in sustained attention tasks, to which some sports activities could be compared. Performance decrements were observed under heat stress, and these decrements became more important with the prolongation of the exposure.

The present study was conducted with an intension to study how the different heat load and exercise affect the body alertness (reaction time) of young people. All participants volunteered for this study. Their visual and auditory Simple Reaction Times (RT) for both right and left hand were recorded with a simple reaction timer, before and after a scheduled exercise programmes in the climatic chamber at the prevailing room temperature. Then they were asked to do the same exercise in a climatic chamber with two different heat loads and their RT was measured immediately after exercise.

Results

The results clearly revealed that heat increases simple reaction time and this RT increases with the increase in heat load. The study also revealed that visual RT is significantly longer than the auditory RT in each condition. But the comparison of RT for preferred and non-preferred hand showed that there is no significant difference between these two hands in normal resting condition but differ significantly in some cases after exercise in heat stress condition.

Conclusions.

So our results suggest that especially, in case of hot industries, increased temperature has a specific rather than general effect on cognitive processes, perception, attentiveness etc.

This may ultimately lead to increased chances of human errors which may even lead to fatal accidents and decrease in productivity

12 Rape Of the Mind

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Key words: Mental trauma ,Lie detection ,Torture

In day to day life we suffer lot of stresses which has a burn out effect of our mind. Some expectations are not fulfilled some relations turn off, anyway those are inevitable and part of life. But it will be torture when science becomes part of it. In modern day criminal investigations lots of so called lie detection techniques cropped up which actually traumatized our mind in such an extent and may be called rape of mind. Attack is most painful, non-physical .They are made powerless and numb with horrifying memories. Nothing sexual but resembles rape having helplessness, Mental and emotional agony, Traumatized victim suffers all side effects:

Isolation, Depression, Insomnia and Paranoia. As rape a sexual assault has more mental trauma than physical sufferings similarly these methods rape our mind.

In this small article the lacunae of so called science behind lie detection and its various applications along with legal implications will be discussed. Legal system should imbibe advances in science as long as they do not violate the fundamental legal principles and are for the good of the society. Scientists should inspire police with scientific methods not to violate the norms. They will be accused of conspiring with them if they are a party in using such psychological coercive methods.

13 An Ergonomics Study on the Effect of Different Working Postures of the Porters of a Central Market Area in Kolkata

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Abstract

Background: It is a well acclaimed fact that the workers of the informal sector in India perform the most extensive and severe manual material handling jobs. The porters of the central market area, belonging to the same category, have no other alternative apart from lifting, carrying and unloading stupendous vegetable baskets.

Hypothesis: The aim of the investigation is to assess the health status and physiological effect of different adopted postures among the porters of a Central Market area in Kolkata.

Materials and Methods: The study was conducted among 50 randomly selected porters of a central market area in Kolkata. After performing a comprehensive questionnaire, their physiological parameters were measured by means of Bioharness. Posture analysis was performed by OWAS method.

Results and Discussion: The load comprises of raw vegetables, stacked in large baskets varying from 100-550 kg. The minimum range of load as mentioned is handled by a single porter whereas with the increment of load, the number of porters may increase up to 4 for a single operation. Similar operations are performed 35-40 times throughout the day in a 10 -12 hour work schedule. In terms of the different postures adopted during a single operation, a porter has to lift the load from the ground just outside the entrance of the market (squatting and stooping posture), place it overhead, walk with it for some

distance inside the market and eventually unload it at the deposition site. From the posture analysis by OWAS method, it is revealed that postures related to walking with load and unloading are the most harmful and corrective measures are required immediately. They are followed by squatting and stooping for which corrective measures are required as soon as possible. The physiological data as observed from Bio Harness records highly corroborates with the results of posture analysis. The incremental heart rate data reveals that unloading = walking with load > standing with load > stooping > squatting. Similarly the recorded respiratory rate data shows an increasing pattern with unloading \geq walking with load > squatting > stooping > standing with load. These parameters are a definite indication of the fact that heavy load handling is physiologically strenuous.

The porters reported of discomfort feeling with pain seems to be predominant in the lower limbs (knees, lower leg, ankle and feet), followed by neck, low back, upper limbs (hands, wrist and forearm) and this can be the result of sustaining such awkward postures with load for a considerable length of time.

Moreover as the market is too congested with very narrow passageways and the housekeeping is so poor, that while carrying these huge loads with hazardous postures, the risk of getting injured is premium. Not only the uncalled for expenses of accidents haunt them but also the apprehension of losing job or absenteeism for prolonged period occupy their mind.

Conclusion: Thus it can be concluded that poor working postures not only hinder the activities of the porters physically and physiologically but also affect their mental well being to a significant extent.

14 Existing workstation of Indian working women and recommended work console

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Keywords: Indian Women, Workstation, Chair, Table, Ergonomics

There is no standard in India for the design and dimension of the chair, table and other workstation facilities for the women working population. These facilities are constructed mostly based on the standards and dimensions of foreign population. Present study is aimed at evaluating the compatibility of the chairs and worktables used by female employees in India with their body dimensions. Recommendation based on their anthropometry is also proposed for ergonomic sitting workstation.

Anthropometric data of 1072 Indian women in the age group of 18-60 years was collected from different research laboratories of India. Popliteal height, buttock-popliteal length, sitting shoulder height, sitting elbow height of the 5th-95th percentile females were not compatible with the existing workstation used by them. Present seat height did not fit to our female employees below 75th percentile. Maximum and minimum seat depths were uncomfortable for the 95th and 25th percentile user respectively. Armrest height was not appropriate for our female population. Worktable height was high for the population below 95th percentile. Mean values of all the anthropometric variables of Indian females showed significant difference ($p \leq 0.001$) with British, Swedish and Turkish females.

A great degree of incompatibility was observed between anthropometry of women employees and their office furniture. This indicates that Indian women employees are at

high risk of developing musculoskeletal disorders. The study stressed the need for developing separate standard of workplace furniture design for Indian women.

15 Somani-Ambade Method for Ceruloplasmin Estimation : In Less Than A Rupee Within A Minute

BL. Somani & Vivek Ambade

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Abstract

Objectives: Ceruloplasmin, an acute phase protein containing 93% of serum copper has ferroxidase activity. It is a marker of Wilson's disease and its levels are increased in conditions like rheumatoid arthritis, malignancy, tuberculosis. Methods based on ferroxidase activity exist but have limitations of either not being kinetic or using biomolecules such as apotransferrin as chromogen.

Design and Methods: The method developed to estimate ferroxidase activity of ceruloplasmin uses dithiothreitol to stabilize the substrate and quinolones to complex the product of reaction. The ferroxidase activity (IU/L) was determined from the absorptivity of Norfloxacin (NF)-FeIII complex. To serum with buffer containing quinolone was added stabilized substrate to initiate the reaction, which is monitored at 377 nm for 30 sec with lag period of 10 sec. Absorbance change per minute with a factor gives activity.

Results: We observed a mean \pm SD of ferroxidase activity in healthy male adults (n=51), Wilson's disease (n= 28) and in pregnancy (n=31) to be 787.29 ± 128.26 , 178.5 ± 87.2 and 1828.09 ± 300.24 IU/L, respectively. The correlation coefficient (r^2) of ferroxidase activity by NF method vis-a-vis copper estimation by atomic absorption,

ferroxidase by ferrozine method and ceruloplasmin by immunoturbidimetry were observed to be 0.90, 0.94 and 0.92, respectively.

Conclusions: The invented method for determination of ceruloplasmin is simple and inexpensive, kinetic assay which can be easily automated.

Key words: Ceruloplasmin; Ferroxidase; Kinetic assay; Ferric estimation; Norfloxacin; Wilson's disease; Acute phase protein;

16 Combined ameliorative effect of *Curcuma longa* and Vitamin C on oxidative stress, protein profile and DNA fragmentation against Aceclofenac-induced liver damage

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Introduction

Non-steroidal anti-inflammatory drugs (NSAIDs) are the centerpiece of pharmacotherapy for most rheumatological disorders, and are used in large numbers as analgesics and antipyretics, both as prescription drugs and over the counter purchases (OCT)¹. Nearly all the NSAIDs have been implicated in causing liver injury, and tend to be hepatocellular in nature: the mechanism is thought to be immunological idiosyncrasy^{2,3}.

Objective

The present work was conducted to study the effect of *Curcuma longa* (CL) in combination with vitamin C compared with *Curcuma longa* alone on Aceclofenac (ACE) induced liver injury in rats.

Experimental methods:

1. ANIMALS

Forty eight adult albino rats weighing $150\text{g} \pm 5\text{g}$ were used in this study. They were maintained standard laboratory condition. The experiment was carried out according to the guidelines of the CPCSEA, Chennai, India.

2. STUDY DESIGN

Rats were divided into 8 groups comprising 6 animals in each group. Group 1 Normal, Group 2 (Positive Control) received 300 mg/kg CL, Group 3 to 8 received ACE (30 mg/kg), Group 4, 5 and 6 received CL 75, 150 and 300 mg/kg orally, Group 7 received only Vit C and Group 8 CL plus Vit C.

3. BIOCHEMICAL ASSESSMENT

At the end of the experimental period, animals were fasted for 12 h and blood samples were obtained from the experimental and control rats by puncturing retro-orbital plexus. AST, ALT were measured with a spectrophotometric method, whereas colorimetric determination of ALP activity was carried using commercial kits. MDA in liver was assayed by spectrophotometric method. SOD, CAT, GSH, GPx, total ATPase and tissue thiol were measured according to the standard protocol.

4. GEL ELECTROPHORESIS

Serum and liver protein was analysed by SDS-PAGE system following the method of Laemmli et al., 1970, in 10% separating gel and 3% stacking gel using a discontinuous buffer system. An agarose gel electrophoresis was also performed to analyse DNA fragmentation.

5. STATISTICAL ANALYSIS

Data was analyzed by ANOVA using Duncan's posthoc test for comparisons among means at $p \leq 0.05$ when appropriate.

Results and Discussion

The levels of AST, ALT and ALP increased significantly in the ACE-treated animals, while the content of protein decreased significantly when compared to the control. Treatment with CL plus Vit C was found to reduce the concentration of AST, ALT and ALP while increasing the protein content ($p < 0.01$). ACE brought about a significant depletion of GSH, SOD, CAT and GPx with increased MDA ($p < 0.01$; $p < 0.05$). The level of non-enzymatic and enzymatic antioxidants in CL plus Vit C treated groups were found to be higher than the untreated animals with significantly lower MDA generation ($p < 0.05$). Pretreatment with CL plus Vit C showed a significant prevention in the impairment of ATPase activity and of tissue protein thiol as compared with their ACE intoxicated counterpart. Animals pretreated with CL plus Vit C showed considerable mitigation of serum and liver protein alteration and DNA fragmentation compared with ACE alone.

Conclusion

In conclusion, the results of this study demonstrate that *Curcuma longa* in combination with Vitamin C has a potent and better hepatoprotective action in comparison to pretreatment of *Curcuma longa* alone against Aceclofenac induced hepatic damage in rats.

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17 Nutritional Status of Pre, Peri and Post Menopausal Rural Santal Women of Two Districts Of West Bengal.

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Nutritional status of 457 adult Santal women of two tribal dominated districts were estimated using nutritional ANTHROPOMETRY and daily food intake pattern through personal interview and anthropometric measurements. Women of age group 18 to 50 years were entertained in the study with a study period of about six months (May 2009 to October 2009). All pre and perimenopausal women were selected randomly from four blocks of each of the districts. For selection of post menopausal women snow ball method was adopted. The result of the study reveals a gloomy picture regarding their nutritional status which denotes 46.4% of the premenopausal, 62.7% of the perimenopausal and 68.82% of the post menopausal women to suffer from CED of different grades.

18. Cadmium-induced oxidative stress in rat heart: protection by Curry leaf aqueous extract – A new approach

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Cadmium is a known environmental pollutant that can produce adverse toxic effects in various organs, including heart. Involvement of oxidative stress in cadmium-induced pathophysiological processes is getting increasingly recognized. Studies have

indicated that free radicals contribute to cadmium-induced damage. Our studies demonstrate that administration of aqueous extract of Curry leaves (*Murraya koenigi* L.) (100 mg/kg bw fed orally) to rats prior to cadmium treatment (0.44 mg CdCl₂ / kg bw sc) was found to protect against cadmium-induced oxidative stress. When the rats were pre-treated with the extract, the alterations in the antioxidant level and the activities of the antioxidant enzymes of heart were prevented from occurring. These biochemical studies were supported by our studies on tissue morphology. The results suggest that the curry leaf extract may be beneficial in ameliorating the cadmium-induced myocardial damage in experimental rats and may have future therapeutic relevance in the prevention of cadmium-induced cardiomyopathies in humans exposed occupationally or environmentally to this toxic heavy metal.

19 Chromium and Vanadium in Testicular Toxicity

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Objectives: Gonadal disruption under the influence of environmental pollutants has got great interest for research in reproduction. The objective of the study is to evaluate the physiology of testicular disruption under exposure of chromium and vanadium respectively in animal model, their mode of action and possible prevention.

Methodology: The study was conducted in adult Sprague Dawley rats after exposure of chromium and vanadium respectively at sublethal doses with different concentrations for different durations. The parameters studied were morphology and histology of testis, accessory organs, sperm count followed by assay of the activities of steroidogenic enzymes viz. Δ^5 3 β HSD and 17 β HSD, assay of hormonal profiles viz. FSH, LH and testosterone for the evaluation of testicular degeneration. Possible mode of action investigated through generation of oxidative stress by LPO, SOD and Catalase in testis. Subsequently, prevention was assayed after supplementing Vitamin C, E, zinc chelator and curcumin including testosterone therapy.

Results: The results revealed that the morphology, histology and even the epididymal sperm count significantly altered after the exposure of these heavy metals depending on dose and duration. Biochemical observations showed marked alteration in the activities of steroidogenic enzyme activities and alteration of hormonal profile developing a hypogonadal state. Decreased SOD and Catalase activities followed by enhanced LPO were noted in the treated animals compared to control while testicular morphological, histological and histometric parameters, testicular stress enzymes status remained almost unaltered in treated animals which were simultaneously supplemented with antioxidants.

Conclusion: Exposure of sublethal doses of these heavy metals has testicular disruptive activities depending on dose and duration generating oxidative stress. However simultaneous antioxidant supplementations have the role in possible prevention.

20. Severe *Plasmodium falciparum* malaria treatment failure is associated with a novel single nucleotide polymorphism in *dhfr* gene in some malaria endemic zone of Eastern India

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Keyword: Malaria treatment failure, drug resistance *Plasmodium falciparum*, Single nucleotide polymorphism, *dhfr*, *dhps*.

Abstract

Malaria is a major public health problem in India, accounting for sizeable morbidity, mortality and economic loss. To define the cause of severe treatment failure (*Plasmodium falciparum* infection) to sulfadoxine pyrimethamine combination drug (Formel), in some malaria endemic zone of a Eastern India. Samples were collected from

176 patients in Kolkata, Purulia and Bankura from November 2008 to September 2009. At first in vitro susceptibility test was performed in all isolates. Parasitic DNA was isolated, then PCR and restriction fragment length polymorphism analysis of different codons of *dhfr* gene (51, 59, and 108) and the *dhps* gene (436, 437, 540, 581, and 613) were assessed and finally sequencing of this product was done for conformation of mutation.

The response of 176 patients to sulfadoxine- pyrimethamine was determined. The prevalence of double *dhfr* (77.28%) mutation (108, 51 codon) and single *dhps* mutation (29.54%) was found respectively, some triple *dhps* mutation (18.18%) also found here. But most importantly there are 36.36% early treatment failure cases have been found predominantly with a novel SNP in 108 codon and 51I mutation of *dhfr* gene in 96.8% cases. (P = 0.01) Our present findings implicate that of SP treatment failure in this area of India is related mainly due to the combination of novel *dhfr* (108I and 51I) and one *dhps* mutations (S436A or A437G or A581g or A613T/S). The increase in the number of these mutations was strongly correlated to SP resistance (P < 0.0001) in eastern India.

21 Ergonomics risk factors and design relevance

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Keywords: Ergonomics, risks and human issues, good design

Posture, force and frequency impose ergonomic risks in any occupational set up as well as experienced in daily practices even in leisure time. If intensity of these, alone or in combination, is reduced it would positively effect to keep the stress within psycho-physiological tolerance limits. Ergonomic principles work well with the basic philosophy of better design for people ensuring safe and comfortable operation. Design is a problem solving process that considers safety, health and usability. This deliberation looks into such issues of design relevance of risks in our conventional daily practices that we often face and being ignorant invite problems of long term effect. It focuses on ergonomic design principles specific to fitting interface issues between human body dimensions and product/space geometry to have a good design. This paper cites some examples conceived

with reference to context specific applications as design ideation exercises at IIT Guwahati. These were conceptualised in tune to human issues that make a design effective and acceptable by the users.

22 Composite mixtures of *Ocimum sanctum* & *Eupatorium ayapana* enhance cytotoxic, apoptotic, antiproliferative and antioxidant effects against Dalton's ascites lymphoma (DLA)

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Keywords: Mixture of *Ocimum Sanctum* & *Eupatorium ayapana* leaf extracts; Dalton's lymphoma ascites (DLA) cell; Antitumor and antioxidant potency; *in vitro* cytotoxic and apoptotic properties; Hematological parameters.

Abstract:

Herbs used in the folk and traditional medicine have been accepted currently as one of the main source of cancer chemoprevention drug discovery. *Ocimum Sanctum* & *Eupatorium ayapana*, belonging to the Lamiaceae & Asteraceae family respectively, are common medicinal plants in tropical region which are used as antidiarrheal, antibacterial, antiseptic and haemostatic agents. The aim of this study was to investigate the *in vitro* cytotoxic and apoptotic properties of the mixtures of ethanolic (EEOS+EEEE) and water (WEOS+WEEA) extracts of *Ocimum Sanctum* & *Eupatorium ayapana* leaf against Dalton's lymphoma ascites (DLA) cells as well as to evaluate the antitumor and antioxidant potency in DLA-bearing Swiss albino mice. The mixtures of *Ocimum Sanctum* & *Eupatorium ayapana* leaf extract treated cells were subjected to cell morphology study and cell cycle analysis against DLA cells at the dose of 300µg/ml. Both mixtures produced higher degree of membrane blebbing in DLA cells. *In vitro* cytotoxicity study showed that DLA cell viability was decreased after the treatment of

extracts. In cell cycle analysis, DLA cells treated with both mixtures were associated with cell cycle arrest at G₀/G₁ phase. The mixtures were administered intraperitoneally at the dose level of 150 mg/kg body weight per day for consecutive 21 days after 24 hour (day zero) of DLA cell inoculation (2×10⁶ cell) to mice using 5-fluorouracil as standard drug. The *in vivo* study was performed in DLA-bearing mice by assessing the tumor volume, viable and non-viable cell count, hematological and antioxidant parameters such as liver and kidney lipid peroxidation (MDA), glutathione (GSH), catalase (CAT), etc. Decrease in tumor volume, and viable cell count were observed in extract-treated mice groups compared to DLA-control mice. The extracts also decreased the body weight of the DLA-bearing mice and restored all the hematological parameters to approximately normal levels. Treatment with the extracts decreased the levels of MDA, GSSG and increased the levels of GSH, and CAT. This present investigation revealed that the mixtures of ethanolic (EEOS+EEEA) and water (WEOS+WEEA) extracts of *Ocimum Sanctum* & *Eupatorium ayapana* leaf possessed *in vitro* cytotoxic, apoptotic and *in vivo* antitumour and antioxidant activities against Dalton's ascites lymphoma (DLA) tumor cells.

23. Studied on some of the prognostic markers in HIV-1 infected Indian individuals

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Keywords: CD8+CD38+, CD4+CD38+, HIV-1, Prognostic markers, CD4 counts, Viral load

Abstract

The lymphoid activation during HIV-1 infection is associated with an increase in expression of lymphocyte surface antigens such as CD38 and thus can act as a surrogate marker of CD4+ T cell depletion in HIV infected patients. The expression and Median Fluorescent Intensity (MFI) of CD38 on CD8+ and CD4+ T-cell was measured by flow cytometry in 38 HAART naive, 16 HAART treated HIV infected individual and 17 HIV negative healthy controls. The percentage of CD8+ and CD4+ T cells expressing CD38

molecule and CD38 MFI was higher in HAART naïve study subjects when compared to control subjects (median % of CD8+CD38+, 26.76% and 4.54%; $p < 0.001$; median % of CD4+CD38+, 30.77% and 11.02%; $p < 0.001$; CD38 MFI on CD8+ T cell, 67.35 and 14.98; $p < 0.001$; CD38 MFI on CD4+ T cell, 50 and 16.2; $p < 0.001$; respectively). The percentage of CD8+ and CD4+ T-cells expressing CD38 molecules and MFI increased from healthy control to HAART naïve HIV-1 infected subjects when segregated based on immunological stage. There was observed a significant decline in CD38 expression and CD38 MFI after 24 months of HAART treatment. We found significant negative correlations for activated CD8+ and CD4+ T cell subsets expressing CD38 molecule and MFI with absolute CD4+ T-cells counts ($r = -0.516$, $p < 0.001$; $r = -0.521$, $p < 0.001$ and $r = -0.555$, $p < 0.001$; $r = 0.403$, $p = 0.01$ respectively). Significant positive correlation was found between CD4+ CD38+ T cell percentages and plasma viremia ($r = 0.400$, $p = 0.01$). The expression of CD38 on CD8+ and CD4+ T cell negatively correlates with absolute CD4+ T cells counts and positively correlates with plasma viral load and thus CD38 can be used as disease progression marker along with CD4+ T cell count and plasma viremia.

24 Assessment of lumber stress of the agricultural workers engaged in different rice cultivation tasks

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Abstract:

Agricultural jobs are executed by hard manual labour and the workers are exposed to extreme environmental and postural stress. They have to face many job related problems during work. Lumber stress is one of the striking occupational problems of the agricultural laborers. The present study was aimed to evaluate the lumber stress of the

agricultural workers during performing different rice cultivation jobs. The study was conducted on 64 male workers from different villages of East and West Midnapore districts. The lumber spinal angle, which was measured by a flexicurve, showed larger degree of deviation from the reference posture during transplantation and uprooting tasks. The decrease in hip angle from the normal erect posture was the highest in uprooting and reaping tasks. The range of motion (ROM) at hip joint was lower in uprooting task than that of other rice cultivation tasks. The Lumber Stress Index (LSI), which was determined from the degree of deviation of lumber spinal angle and duration of adopting bend posture during work, represented severity of lumber stress in different rice cultivation tasks. It was revealed that most of the rice cultivation tasks had moderate degree of lumber stress but transplantation-uprooting combined task showed very high degree of lumber stress.

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V

ABSTRACTS
INVITED FOREIGN LECTURES

1. Exploiting nature's bounty for cancer management

**Gong J.J., Robson, C., Li, G., Rivas, P., Praveen, J., Swanson,
G., Basler, J., Ghosh, R and Kumar, A. P.**

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The use of medicinal plants to help sustain good health and vitality and to reduce inflammation has an ancient and respected history. Herbal medicine compositions offer a potential advantage in that they usually comprise multiple components that interact and act simultaneously through multiple molecular targets and signaling pathways. These complex and often synergistic botanicals may also decrease toxicity and increase bioavailability and offer potential as strategies for cancer management. In addition toxic problems associated with standard of care such as radiotherapy and chemotherapy can be prevented or reduced by combining with natural products. Recent studies from our laboratory have shown potential of several natural products including complex botanicals in preventing tumor development in preclinical animal models. Our studies also demonstrate modulation of critical cell survival signaling pathways including Akt/NF B/mTOR/CREB in mediating these biological effects. These findings have led to phase I/II clinical trial. The advantages and limitations of potential use of various natural products into mainstream medical practice will be discussed. Supported by NCCAM, VA-Merit Award and CTSC pilot funds (APK).

2. Insights in Platelet Integrin $\alpha_{IIb}\beta_3$ Regulation and Platelet Activation

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DE 19716

The major cause of death in humans is cardiovascular diseases. Circulating platelets, anucleated cells, play an important role in the pathogenesis of these diseases.

They respond to blood vessel injury by changing shape, secreting granular contents, and aggregation. During vascular injury, pro-stimulatory mechanisms, such as signaling by various physiological agonists, override the anti-stimulatory machinery to achieve platelet aggregation. Research in our laboratory is focused on elucidating the molecular mechanisms that are regulated by JAM-A and Plk3 in order to suppress the accidental platelet activation and CIB1 to support events occurring upon ligand binding to integrin α IIb β 3. The identification and characterization of such regulatory mechanisms may define new targets for developing potential therapeutic agents toward thrombotic disorders.

3. Regulation and function of novel class of PKC isoforms in platelets

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Philadelphia PA 19140 USA

Protein kinase C (PKC) has been known to regulate multiple functions in platelets. We have demonstrated that platelets express all the four novel class of PKC isoforms, viz. δ , ζ , η , and θ . We have used complementary pharmacological and molecular genetic approaches to evaluate the function of each of these isoforms. PKC δ isoform positively regulates multiple platelet functional responses. The PKC ζ isoform differentially regulates dense granule release by thrombin and collagen. We conclude that nPKC isoforms are differentially activated by platelet agonists and these isoforms play important functional role in platelets.

4. **Telomeres, Telomerase and DNA repair: At the crossroads of ageing and cancer**

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Genome Stability Laboratory
Department of Physiology
Yong Loo Lin School of Medicine
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Singapore

Loss of telomere equilibrium and associated chromosome-genomic instability might effectively induce replicative senescence and promote tumourigenesis. Telomere function may have contrasting roles: inducing replicative senescence and promoting oncogenesis. Such diverse functions may vary between cell types depending on the expression of the enzyme telomerase, the level of mutations induced, and efficiency/deficiency of related DNA repair pathways and oxidative stress levels in the cell milieu. An alternative telomere maintenance mechanism with amplification of non-telomeric sequences adjacent to existing short stretches of telomere repeats was identified in mouse embryonic stem cells lacking telomerase RNA. Our quest for identifying telomerase-independent or alternative mechanisms involved in telomere maintenance in mammalian cells has implicated the involvement of potential DNA repair factors in such pathways. We have reported earlier, for the first time in mammalian cells, on the telomere equilibrium in severe combined immunodeficiency (*scid*) mouse cells which suggested a potential role of DNA repair proteins in telomere maintenance. Subsequently, studies by us and others have shown the association between the DNA repair factors and telomere function. Mice deficient in DNA damage response or repair factors have increased levels of chromosomal instability associated with extensive telomere shortening. Inactivation of such essential genome caretaker genes resulted in dysfunctional telomeres and severe chromosome instability leading to advanced onset and increased tumour incidence in mice. This talk will focus mainly on the role of DNA repair/recombination and DNA damage signalling molecules such as PARP-1, DNA-PKcs, Ku70/80, XRCC4 and ATM

which we have been studying for the last few years. Important areas for future research on association of telomeres in both ageing and cancer will also be discussed in greater detail. We have also observed that telomere-mediated chromosome instability triggers TLR4 induced inflammation and death in mice. Finally, I will also summarise role of telomeres and telomerase in human ageing and associated diseases, and carcinogenesis.

5. Adolescence, cognition and underage drinking: an animal model

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Till recently it was thought that the brain's key developmental events ended within the first few years of life. However, recent findings have shown that different parts of the brain mature at different rates, and the brain undergoes significant changes in important brain regions even as late as the early twenties. Adolescence is associated with increased independence, maturity in thinking and decision-making, and development of executive functioning. But it is also the time when individuals are exposed to peer-pressure, tend to exhibit high-risk behaviors such as drinking and abuse of illicit substances, and this is when mental illnesses make their first appearance. The National Institute on Alcohol Abuse and Alcoholism, USA, has reported that alcohol is the number one abused substance by teenagers and young adults. Alcohol-induced anterograde amnesia (commonly referred to as alcohol "blackouts") is relatively common among this age group. We and others have shown that alcohol significantly impairs the acquisition of memory in adolescent animals. We have also shown that alcohol-induced cognitive deficit during adolescence is associated with neuroadaptations at the cellular and molecular levels. (*Supported by National Institute on Alcohol Abuse and Alcoholism*)

**6. Environmental Health and Safety of Engineered Nanomaterials:
Scientific Research Needs for Safer Exploitation of Nanotechnology**

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Health Sciences, Research Triangle Park NC 27709.

The novel physical and chemical properties stemming from the nano-scale size of engineered nanomaterials (ENMs), such as their tunable nature, and unique electrical and magnetic properties, make ENMs tremendously attractive industrial applications that range from cosmetics to medicine. The relative ease with which the ENMs physical and chemical properties (size, shape, surface area, surface charge, and reactivity) can be manipulated to generate thousands of ENMs in larger quantities and presents many opportunities for unanticipated human exposures. The NIEHS is leading efforts to address the environmental health and safety (Nano-EHS) of nanotechnology. Current NIEHS supported research efforts are focused on addressing two key and fundamental issues: 1) to develop reliable and reproducible methods to predict toxicity of ENMs through a consortium-based efforts using well defined and characterized ENMs; and, 2) to gain a comprehensive understanding on how the physical and chemical properties of ENMs dictate their interaction with biological systems at multiple levels (molecular, cellular and target and secondary organ toxicity). And, to utilize this knowledge to develop predictive models to assess health effects/risks associated with exposure to ENMs. In this presentation I will provide an overview of the NIEHS and NIH Nano EHS programs and describe the important research needed to ensure safe development of nanotechnology.

7. XMRV Accelerates Cellular Proliferation, Transformational Activity, and Invasiveness of Prostate Cancer Cells by Downregulating p27^{Kip1}

Dr. Chandravanu Dash, Center for AIDS Health Disparities Research, Vanderbilt-Meharry Center for AIDS Research, Meharry Medical College School of Medicine, USA

BACKGROUND: Xenotropic murine leukemia virus-related retrovirus (XMRV) is a recently discovered gammaretrovirus that has been associated with prostate cancer. A causal correlation between XMRV and prostate cancer remains a hotly debated issue due to conflicting reports on its etiologic occurrence. Several mechanisms including insertional mutagenesis, proinflammatory effects, oncogenic viral proteins, immune suppression and altered epithelial/stromal interactions have been proposed for a role of XMRV in prostate cancer. However, biochemical data supporting any of these mechanisms are lacking. Therefore, our aim was to evaluate the effects of XMRV infection on prostate carcinogenesis.

METHODS: Growth kinetics of prostate cancer cells are conducted by MTT assay. *In vitro* transformation and invasion was carried out by soft agar colony formation, and Matrigel cell invasion assay, respectively. p27^{Kip1} expression was determined by western blot and MMP activation was evaluated by gelatin-zymography. Up-regulation of miR221 and miR222 expression was examined by real-time PCR.

RESULTS: We demonstrate that XMRV infection can accelerate cellular proliferation, enhance transformation and increase invasiveness of slow growing prostate cancer cells. The molecular basis of these viral induced activities is mediated by the downregulation of cyclin/cyclin dependent kinase inhibitor p27^{Kip1}. Downstream analyses illustrated that XMRV infection upregulates miR221 and miR222 expression that target p27^{Kip1} mRNA.

CONCLUSIONS: We propose that downregulation of p27^{Kip1} by XMRV infection facilitates transition of G1 to S, thereby accelerates growth of prostate cancer cells. Our findings implicate that under appropriate cellular microenvironment, XMRV may serve as a cofactor to promote tumorigenesis and cancer progression in human prostate.

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ABSTRACTS
ORAL PRESENTATION

PROCEEDINGS
OF THE
NINETY NINTH SESSION OF THE
INDIAN SCIENCE CONGRESS
BHUBANESHWAR, 2012

PART II : ABSTRACTS

SECTION OF
MEDICAL SCIENCES (INCLUDING PHYSIOLOGY)

President : **PROF. MANJUSHREE RAY**

ORAL PRESENTATIONS

1. Ameliorative effects of *Tinospora cordifolia* in sciatica pain induced rats

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Keywords: *Tinospora cordifolia*, Free radicals, Sciatica pain, Sciatic nerve root ligation.

Abstract

Tinospora cordifolia (TC) is traditionally used in sciatica, inflammation and algia. We aimed to validate its use in sciatica pain (sciatic nerve root ligation) induced rats. The alcoholic and aqueous extracts of TC was administered at a dose of 100 and 200 mg/kg/p.o for 15 days to sciatica induced rats. Tail cold-hyperalgesia, motor coordination, foot deformity, and total calcium were estimated to assess the extent of sciatica. Superoxide dismutase, catalase, and lipid peroxide levels were estimated to evaluate the extent of oxidative stress. TC dose-dependently reversed the behavioral and biochemical parameters and ameliorated sciatica pain in rats due to its antioxidant potential.

2. Ameliorative effect of selenium and vitamin B₁₂ co-administration against arsenic-induced oxidative stress in male Wistar rats

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Key words: Arsenic, oxidative stress, free radical, selenium, vitamin B₁₂, antioxidant

Abstract:

The protective effect of selenium and vitamin B₁₂ co-administration was assessed against arsenic-induced oxidative stress in liver tissue of male Wistar rats. Intraperitoneal

administration of sodium arsenite at a dose of 5.55 mg/kg body weight/day (equivalent to 35% of LD₅₀) produced depletion of reduced glutathione (GSH) content of liver, associated with enhanced lipid peroxidation (LPO) level and free hydroxyl radical (·OH) formation. Activities of antioxidant enzymes like glutathione reductase (GR), superoxide dismutase (SOD), catalase were inhibited after arsenic exposure, indicating disturbed pro-oxidant-antioxidant equilibrium in rat liver tissue. Liver NADPH oxidase activity increased significantly following arsenic treatment, and thus enhances superoxide radical production. The same treatment of arsenic also causes liver injury as reflected by the elevated levels of serum γ -glutamyl transpeptidase (γ -GT), glutamate-oxaloacetate transaminase (SGOT), and reduced serum glutamate-pyruvate transaminase (SGPT) activity.

Concomitant administration of selenium and vitamin B₁₂ with arsenic appreciably restored almost all of these parameters to their control levels. Combination of selenium with vitamin B₁₂ restored liver NADPH oxidase and serum GPT activities to their respective control values. In addition, they exhibited better efficacy to restore liver LPO level, SOD and catalase activities, and serum γ -GT activity. These results suggest that co-administration of selenium and vitamin B₁₂ is capable of reducing arsenic-induced oxidative and degenerative changes in rat liver.

3. Acute liver failure in a case of Bancroftian filariasis.

Dr. Dwijesh Kumar Panda, M.D. Ph.D (FILARIA)

Summary: We report a case of acute liver failure associated with Bancroftian filariasis in a young male. Absence of other etiological factors rule out other causes of liver failure. Treatment of the filariasis condition improved the liver function.

Introduction:

Bancroftian filarisis is associated with multiple clinical presentations. Peripheral blood eosinophilia is a common association in patients with filariasis. Tropical pulmonary

eosinophilia is a common condition in filarial endemic areas wherein peripheral blood eosinophilia is associated with pulmonary symptoms. Acute eosinophilic glomerulonephritis has been described in association with bancroftian filariasis. The presentation of a case of Bancroftian Filariasis with liver failure is described below and an etiological association between the two conditions is discussed.

Case report:

A 10 year old male child presented pain abdomen, fever, loss of appetite, nausea and yellowish discoloration of the skin and eyes for 3 days. Fever was a low grade continuous type. Pain abdomen was more pronounced in the right upper quadrant. There was no history of trauma or drug intake of any kind. There were no complaints pertaining to the respiratory or neurological system. A provisional diagnosis of acute Viral hepatitis was made and hematological tests including routine hemoglobin count, differential count, leukocyte count, liver function tests, Hbsag, urine for bile salt and pigments and an Ultrasonogram of the abdomen and pelvis was ordered. While the hemoglobin was in normal range, the differential count revealed eosinophilia (79%) with a low neutrophil and lymphocyte count(10% each). Hbsag test was negative. Liver function tests revealed a raised SGOT (2039 U/L), SGPT (1670 U/L), Alkaline phosphatase (533U/L), LDH (495 U/L), total bilirubin (12.24 mg/dl), Bilirubin direct (10.27mg/dl), Bilirubin indirect (1.97 mg/dl). Serum protein was in normal range and serum globulin was high (4.8g/dl) with a low albumin to globulin ratio (0.7). bile salts and bile pigments were detected in the urine sample. Ultrasonogram of the abdomen revealed an enlarged liver and a distended gall bladder with thickened walls. Rest of the intraabdominal structures appeared normal. Based on these findings conservative treatment along the line of viral hepatitis was instituted. At the end of ten days, when the patient did not report any clinical improvement, a repeat of the liver function tests was carried out. Repeat tests revealed a mild decrease in liver enzymes with a mild increase in the total and direct bilirubin. The patient was continued under a conservative regimen for 4 weeks and repeat liver function tests performed. At this time the SGOT and SGPT values showed definite improvement, alkaline phosphatase values were normal but total

and direct bilirubin values were still high. Differential count repeated at this time showed persistent eosinophilia (75%), elevated total leukocyte count (1 lac 12 thousands). No premature cells in peripheral smear or toxic granules were seen in the neutrophils. Absolute eosinophil count was 39,640 (normal range: 50 – 400/cmm). Since the patient belonged to a filarial endemic zone, a test for filarial antigen OG4C3 was carried out. The test for filarial antigen was positive (512 AU). A diagnosis of Bancroftian filariasis with acute liver failure was made and patient started on a course of diethylcarbamazine. Over the next three weeks, patient reported rapid clinical improvement with improved appetite, resolution of abdominal pain and fever. At the end of three weeks a repeat of differential and leucocyte count revealed improvement in both the parameters. A repeat of liver function tests at this time showed normal values of the liver enzymes and bilirubin count.

Discussion:

A raise in eosinophil differential count and absolute eosinophil count in a young male with fever coming from a filarial endemic zone raised the suspicion towards bancroftian filariasis. Persistently high liver enzymes with raised bilirubin values that did not improve with conservative measures prompted us to search for infective causes in absence of othe common etiologic factors for liver failure. Og4c3 antigenic test for filarial has been proven to be of benefit to detect infection with *Wuchereria bancrofti* in case of inability to detect microfilaria in peripheral smear. Raised eosinophil values in the absence of any premature cells in peripheral smear ruled out the diagnosis of eosinophilic leukemia. The improvement of both the clinical and hematological parameters with a course of diethylcarbamazine clinches the diagnosis of acute liver failure with bancroftian filariasis. The patient was last seen at a six month follow up and a repeat clinical and hematological evaluation showed persistent improvement without any recurrence of symptoms.

Addition- OG4C3 ELISA Test= It is a semi-quantitative ELISA test for the detection of adult Filarial antigen on 50 micro-litre of serum. Different titre groups are-

32,000, 8192 , 2048 , 512, 128, 32, <10 Antigen Units. 512 and above antigen Units are considered Positive and less than 512 Antigen Units are Negative.

4. **cOFM: A novel technique to explore extracellular milieu in brain**

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Key words – cerebral open flow microperfusion (cOFM), blood-brain barrier (BBB).

Abstract –

Microdialysis (MD) is widely accepted technique for in-vivo collection of extracellular fluids but it has certain limitations. Large and lipophilic substances can't cross MD membrane and excluded from analyses. Herein, we propose cOFM to overcome these limitations. The aim is to determine re-establishment of BBB after cOFM probe implantation in the frontal lobe of rats, testing BBB intactness during measurement and recovery. Maestro imaging reveals BBB re-establishment after 11 days. Ratio of sodium fluorescein concentration in left and right hemisphere show evidence for BBB intactness during measurement. Recovery of sodium ion is 30% and 45% at 1 & 0.5 μ l/mint. respectively.

5. **Role of Alternative Medicine in the treatment of Cancer**

Sumitra Singh
Amity University, Noida

Abstract

Where cure is unlikely there is always a place for hope and spiritual support. Furthermore whether dealing with the early stages or with the advanced disease patients require symptomatic control that encompasses pain relief, control of nausea and vomiting

and psychological distress. To achieve all of these goals there is a need that goes beyond the role of scientific medicine. My papers describes the guidelines for the use of complimentary and alternative medicine in the treatment of cancer. Complementary and alternative medicine (CAM) use among cancer patients varies according to geographical area, gender, and disease diagnosis. Most cancer patients use CAM with the hope of boosting the immune system, relieving pain, and controlling side effects related to disease or treatment. Only a minority of patients include CAM in the treatment plan with curative intent. This paper focuses on practices belonging to the CAM domains of mind-body medicine, CAM botanicals, manipulative practices, and energy medicine, because they are widely used as complementary approaches to palliative cancer care and cancer symptom management. In the area of cancer symptom management, auricular acupuncture, therapeutic touch, and hypnosis may help to manage cancer pain. Music therapy, massage, and hypnosis may have an effect on anxiety, and both acupuncture and massage may have a therapeutic role in cancer fatigue. Acupuncture and selected botanicals may reduce chemotherapy-induced nausea and emesis, and hypnosis and guided imagery may be beneficial in anticipatory nausea and vomiting. Transcendental meditation and the mindfulness-based stress reduction can play a role in the management of depressed mood and anxiety. Black cohosh and phytoestrogen-rich foods may reduce vasomotor symptoms in postmenopausal women. Most CAM approaches to the treatment of cancer are safe when used by a CAM practitioner experienced in the treatment of cancer patients. The potential for many commonly used botanical to interact with prescription drugs continues to be a concern. Botanicals should be used with caution by cancer patients and only under the guidance of an oncologist knowledgeable in their use. Some of the customized cancer treatment plan and supportive Therapies in Alternative mode include the following: Nutrition Therapy, Naturopathic Medicine Pain Management Oncology Rehabilitation Mind-Body Medicine Spiritual Support Acupuncture Chiropractic Care Image Enhancement Survivorship Support.

6. Proactive Analysis of Visual performance in Pilots of a Fighter Aircraft under Virtual Reality Conditions

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Abstract

Ergonomic evaluation of visual performance of pilots in the cockpit of a fighter aircraft was carried out in the virtual reality environment using the digital models of Indian Air Force (IAF) pilots and solid model of a fighter aircraft that is being currently designed. Such proactive analysis is necessary for ensuring that the physical prototype of the cockpit would absolutely compatible with the pilot while operates it using various controls and displays under extreme time domain constraint.

The digital models of 97.5th p, 50th p and 2.5th p IAF pilot population were interfaced with the solid model of the cockpit in Simulation and Human Modelling software to identify what the pilot could see with viewing angles of 15⁰ and 30⁰, whether any anomaly in the positioning of the controls and visual displays existed that could hinder the optimal visual performance of the pilot.

Using 'Vision analysis' of the software it was observed that the pilot could see the Head Up Display with 150 'view cone' while sitting at Design Eye Point in the cockpit comfortably. With a 300 'view cone' he could see most of the displays without moving his eyes. None of the displays was placed within the blind spot region of pilot's visual field. No anomaly in positioning of the displays in the visual field of the operators could be identified. Thus it may be concluded that the cockpit was designed optimally with respect to visual requirements of the IAF pilots. It is recommended that the existing design should fulfill visual need of the pilots and could be replicated in the real physical prototype.

7. Prevalence of Early-onset sepsis in very low birth weight neonates in Surat, Gujarat and its controlling measures

Manisha N. Shah

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Abstract:

Objective is to study the prevalence of Early Onset of Sepsis -within the first 72 hours of life and in Low Birth Weight (<2.5Kg) in neonates of Surat, Gujarat. Despite increasing knowledge of pathophysiology and upcoming novel therapeutic approaches, the mortality associated with sepsis remains high, specifically in EOS in LBW babies. 460 blood cultures were studied from suspected neonates; the prevalence of different isolates and their antibiotic susceptibility pattern were checked in EOS and LBW babies at our Lab. Among 96 culture positive cases 60 (62.5%) were LBW and 75% had EOS (≤ 72 hours). *E. coli* were the predominant organisms causing EOS. Case fatality rate of sepsis was 34%, among them.

8. History of Medical Science in India since British Rule

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Abstract

Preservation of European health in new and hostile land like India was colonial medicine's 1st responsibility. History of medicine in India dates back to 600 B.C. when Susruta, the doyen of surgery and physiology taught at the University of Banaras and wrote Charaka Samhita which is the oldest known surgical text in the world. Post upanishadic period from 800 B.C. to 1000 A.D. is considered as "The Golden Age of Indian Medicine". Tropical diseases like kala-azar, cholera, beriberi, plague and chicken-

pox show the new breakthrough to establish Calcutta Medical College, School of Tropical Medicine etc to train a class of native doctors in western medical system. Madhusudan Gupta was the 1st modern Asian to dissect a cadaver at CMC. Madras Medical College, formerly the Government General Hospital was also set up in the same year with CMC and Mumbai Medical College in 1835. Although the Indian hump was used for anesthesia in pre-ether era, CMC witnessed 1st ether anesthesia on 22nd March, 1847 under the supervision of Dr. O'Shaughnessy and perhaps the 1st woman anesthetist in the world was from Hyderabad, British Residency Hospital in 1889. Mahatma Gandhi was operated upon 12th January, 1925 with open drop chloroform for emergency appendicectomy in Sassoon Hospital, Pune. On the other hand, India's 1st plastic surgery case was published in Madras Gazette in 1793 and it was done by 2 British surgeons James Findlay and Thomas Crusoe at Pune. Under forensic science, 1st Chemical Examiner's Laboratory was set up at Madras Presidency in 1849 and then at Calcutta in 1853 to test viscera, semen etc. Although nursing was 1st introduced by Portuguese at Royal Hospital, Goa, the 1st Indian nurse with western nursing training was Bai Kashibai Ganpat in 1891 from Mumbai. A legend in the history of pediatrics was Dr. K.C.Chowdhury who founded 1st independent journal – "The Indian Journal of Pediatrics" in Calcutta in 1933. At the same time, public health was in deplorable condition in British India due to very small budget. Contemporary newspapers like Sambad Prabhakar, Hitabadi, Antahpur, and Bamabodhini Patrika also highlighted the pathetic scenario of women health in British India. Although Kadambini Ganguli, Bidhumukhi Bose, Virginia Mary Mitra, Jamini Sen and Haimabati Sen deserves a special mention in the milestones of Indian Medical Science. Many acts like Quarantine Act 1825, Birth and Death Registration Act 1896, Epidemic Disease Act 1897, Bengal Medical Act 1914, Indian Medical Degrees Act 1916, Indian Medical Council Act 1933 also introduced for high standard of medical education. SSKM and NRS Hospital in Kolkata, Osmania Medical College at Hyderabad, Mysore Medical College in Karnataka, Amritsar Medical College were also established in 19th century. Thus with the positive gesture of colonial government, western medicine and treatment is welcomed by Indians since and before independence.

9. Stress : The Negative modulator of NGF

Dr. Amal C. Mondal* Ritabrata Banerjee, Dr. Anup K. Ghosh

[Corresponding Author]

Raja Peary Mohan College (Affiliated to University of Calcutta)

Jadavpur University, Kolkata

Abstract:

Depression is associated with deficiencies in monoaminergic transmitters and possibly neurotrophins. Stress induced helplessness in rodents constitutes a well defined model to investigate neurobiological mechanisms of depression and to test the efficacy of antidepressant drug. Neurotrophins like Nerve Growth Factor (NGF) has been shown to be involved in neurobiological changes of physiological and pathological reactions to stress. In this study, we investigated NGF protein levels in the hippocampus in rat brain treated with an established model of learned helplessness and compared to untreated controls. NGF protein levels were significantly decreased in the hippocampus of chronically stressed rats than normal control. This decrease of hippocampal NGF constitutes the most striking correlate of neurobiological changes in this stress induced behavioral model of depression. [SERC Sponsored Project SR/SO/HS-57/2008]

**10. Myocardial Infraction and Depression in Patients Admitted In All India
Institute of Medical Science & Satya Sai Institute of Higher Medicine**

Dr Soumen Acharya, Dr P Venugopal

All India institute of medical science and Satya Sai Institute of Higher Medicine.

The total number of patients taken up were one hundred who were admitted with mi. to find out the prevalence of depression we used dsm-1v criteria 26 patients were found to have major depressive disorder. among them 10 were severe, 13 were moderate and 3 were mild according to HDRS score. another 26 patients showed evidence of depressive symptoms which may be due to extreme subjective distress. There was no significant difference of demographic variables between patients with major depressive

disorder. mean frequency of life events was significantly higher in major depressive disorder group. except type a behaviour ,depression was not associated with duration,types,risk factors,treatments and complications of myocardial infraction.past and family history of depression were identified as risk factors for major depressive disorder after infraction.

The patients with myocardial infraction ,sub-syndromal depression is suggestive of self limited reaction while treatment of major depressive disorder may reduce overall distress of the patients.

The type of result which was obserbed in aiims &ssihm were found to have no difference at all.

11. Effect of 12 Weeks of Training on Physiological Variables of Adolescent Soccer Players

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Abstract

To study the effect of 12 wk training on physiological parameters, 60 males [30 soccer players, SP (age: 17.6 ± 0.4 yrs); 30 control group, CG (age: 17.6 ± 0.5 yrs)] were selected. The SP received 4 h of training/day for 12 wks; with no training in CG. A decrease ($P < 0.05$) in body fat, heart rates; an increase ($P < 0.05$) in LBM, strength, VO_{2max} , anaerobic power were observed in SP after training. The CG showed higher ($P < 0.05$) body fat, heart rates; lower ($P < 0.05$) strength, VO_{2amx} , anaerobic power than SP. The present study may be helpful for development of training program.

12. Optical Microscopic Analysis of Liver of Albino Mice Treated With Sildenafil Citrate (Caverta) and Ethanol

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KEYWORDS: Albino mice, Sildenafil citrate, Ethanol, Histoarchitecture and Lipid Peroxidation

ABSTRACT

Seven groups of Albino mice were chosen for the present study and treated with the combined dosage of Sildenafil citrate and Ethanol. Liver samples of these animals were collected and subjected to Histopathological studies using Optical microscopic technique. Loss of Histoarchitecture of the Liver, increased congestion of central vein and odema have been noticed for the long term (30 days) drug treated animals. Similarly, in the case of Liver of 30 days Ethanol treated animals, the disturbances in the over all Histoarchitecture, increased number of vacuolated cells and the occurrence of some fat droplets have also been detected. Besides these symptoms, the occurrence of necrotic spots has also been observed for 30 days animals treated concomitantly with Sildenafil citrate and Ethanol. Therefore, the results of the present study are indicative of the fact that the combined dosage of Sildenafil citrate and Ethanol produces drastic changes in the structure of the Liver of Albino mice.

13. The influence of pomegranate fruit extract in comparison to regular pomegranate juice and seed oil on nitric oxide and arterial function in obese Mullikan rats

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Keywords: Pomegranate; Arterial function; Nitric oxide; Metabolic syndrome

Abstract

Metabolic syndrome includes most widely distributed clinical conditions such as obesity, hypertension, dislipidemia, and diabetes. Pomegranate fruit extract (PFE), rich in polyphenolic antioxidants, reduces the expression of oxidation-sensitive genes at the sites of perturbed shear-stress. The aim of this study was to evaluate the effect of PFE in comparison to regular pomegranate juice (PJ) and seed oil on the biological actions of nitric oxide (NO) and the arterial function in obese Zucker rats, a model of metabolic syndrome. Our results indicated that supplementation with PFE or PJ significantly decreased the expression of vascular inflammation markers, thrombospondin (TSP), and cytokine TGF β 1 ($P < 0.05$), whereas seed oil supplementation had a significant effect only on TSP-1 expression ($P < 0.05$). Plasma nitrate and nitrite (NO $_x$) levels were significantly increased by PFE and PJ ($P < 0.05$). Furthermore, the effect of PFE in increasing endothelial NO synthase (eNOS) expression was comparable to that of PJ. These data highlight possible clinical applications of PFE in metabolic syndrome.

14. Preparation and characterization of novel unnatural amino acids modified collagen matrix for design of scaffold

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Keywords: Biomaterial; Collagen matrix; Unnatural D-amino acids; Biodegradation; Biocompatible.

Abstract

This work involved incorporation of unnatural amino acids (AA) with the biomaterial for possible uses in biomedical such as drug delivery and regenerative medical applications. This work discusses the preparation and characterization of unnatural D-amino acids (D-AA) crosslinked collagen matrix with presence of 1-ethyl-3-(3-dimethylaminopropyl) -carbodiimide (EDC)/N-hydroxysuccinimide (NHS). The mechanical and thermal stability, morphological characterization, resistance to biodegradation, anti-microbial effect and cell viability of this collagen matrix were investigated. The results clearly show that unnatural D-AA imparts high mechanical and thermal stability and also stabilize the collagen matrix against biodegradation by collagenase. The results from Thermo mechanical (TMA), Differential scanning calorimetric (DSC) and Thermal gravimetric (TGA) data of the crosslinked collagen matrix also indicate an increase in the tensile strength (TS), denaturation temperature (T_D) and significantly decreases the weight loss. Scanning electric microscopic (SEM) and Atomic force AFM images indicate the morphological changes. The unnatural D-AA stabilizes the collagen matrix against degradation by collagenase. This crosslinked collagen matrix demonstrates a higher resistance to microbial activities. The collagen

matrix incubated for 3 days began to show microbial growth; while the unnatural D-AA incorporated collagen which was incubated for 6 days had no microbes, showing significant anti-microbial effect. The cell viability assay showed cytocompatibility of fibroblast viability (NIH 3T3) after 48 hours of culture matrix when compared with native collagen matrix. Unnatural D-AA incorporated collagen matrix has been produced in thermally stable and highly biocompatible forms that can be further manipulated into functionalized matrix suitable for biomedical such as drug delivery and regenerative medical applications.

15. Close Range Phenomena of Firearm Injuries by Country Made Firearms: Modification of Effects and Medico Legal Interpretations

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Key words: Gun shot injuries, Scorching Blackening, Tattooing, Country made firearms, 12 bore pistols, 0.315 caliber pistols.

Abstract

Forensic Scientists and Medico Legal experts often confronted with firearm injuries and expected to render an ‘opinion’ or a medico legal interpretations regarding - direction and distance of fire, possible type and caliber of firearm used and reconstructional evolutions to decide ‘homicidal – versus – suicidal’ controversies etc. A majority of such incidences involve country made firearms, rather than regular factory made firearms, which behave in accordance with a standard patter or specific limits of effects viz. Burning / Scorching, Blackening, Tattooing etc. around the gunshot wound. On the other hand, Country Made Firearms, being crudely manufactured, do not behave as per these standard patterns, and often the deviation from standards is more pronounced and somewhat erratic. As a result, for an accurate opinion, such standard patterns can not be considered as sole basis of analysis.

In present communication, the results of a series of experiments are reported, in which different country made firearms – three 12 bore pistols and two 12 bore guns, five 0.315 caliber pistols and three 7.65mm caliber pistols – of varying barrel lengths and muzzle diameters, were fired from different distances / orientations on human body like target and consequent effects around the gunshot holes viz. Burning / Scorching, Blackening, Tattooing etc. were recorded and analyzed. The skin pieces of site of gunshot wound seized during autopsy and sent to the forensic laboratory for analysis, in some actual cases, in which use of country made firearms was established, were also considered.

It was found that there was a large deviation or ‘modification’ of gun shot effects from the standard patterns (of regular firearms). At the same time, the country made firearms showed an appreciable ‘variation’ of such effects, within themselves.

16. Customized differential extraction method for excess female DNA in sexual assault case: A case study

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Quality control: Author(s) have passed Proficiency testing of the GITAD, Spain (<http://gitad.ugr.es/principal.htm>) and quality control exercise of the YHRD, Germany (www.yhrd.org).

Keywords : Forensic science; DNA typing; Y-chromosome; Differential extraction

Quality control: Author(s) have passed Proficiency testing of the GITAD, Spain (<http://gitad.ugr.es/principal.htm>) and quality control exercise of the YHRD, Germany (www.yhrd.org).

Abstract

Differential extraction is usually performed to get a relatively pure profile of the male contributor in sexual assault cases. In a sexual assault case received for DNA examination, the routine differential extraction yielded a male Y DNA profile from the articles of complainant which matched with one of the suspects in the case. However a pure or mixed autosomal STR profile which is needed to give a conclusive opinion for involvement of suspect could not be generated with this DNA. The husband of the complainant and the accused (whose Y DNA profile matched with Y DNA profile found on the victims exhibits) were from the same cast and community. A customized DNA protocol for differential extraction was proved helpful in getting not only a mixed autosomal profile from the vaginal smear slide but also a clear male profile from the petticoat of the complainant. This protocol has been successfully tested on four other sexual assault cases where the complainant was a minor child with excessive bleeding.

17. Cigarette Smoking Alters Some Functional Properties of Hemoglobin In Male Human Volunteers

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KEY WORDS : Smoking, Hemoglobin, Auto-Oxidation, Co-Oxidation, Esterase Activity, Carbonyl Content.

ABSTRACT

The present study focused on the effect of cigarette smoking on some functional properties of hemoglobin (Hb) in male volunteers (20-25 yrs). Study of auto-oxidation as well as co-oxidation of Hb revealed that formation of met-Hb was higher in smokers than non-smokers; the carbonyl content in Hb was also found to be higher, which may promote augmentation of oxidative stress in the smokers. The rate of reaction in esterase like activity of Hb was found to be decreased in smokers than non-smoker. Therefore, it

may be concluded that smoking induces structural alterations in hemoglobin which in turn results in the alteration of the functional properties.

18. Manifestations and outcome of mixed species (*P. vivax* and *P. falciparum*) malaria—a prospective Study

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Key Words: Mixed malaria, Severe malaria.

Abstract:

Studies on malaria due to co-existent *P.falciparum* and *vivax* infections are negligible in India. Therefore, this study was undertaken to find out the clinical profile, prognostic factors, and outcome of mixed species malaria.

Mixed species malaria was diagnosed when both *P.vivax* and *P.falciparum* were detected from Giemsa stained peripheral blood smear. During the period 118 patients of mixed malaria were admitted. Severe malaria was found in 21 (17.8%) patients. Of them 14 (66.6%) had single and 7 (33.3%) had multiple complications. Presenting without fever, high parasite count, and long fever to treatment interval are 3 independent risk factors for developing severe mixed species malaria. The outcome of mixed malaria was good.

19. MEF₂C gene is downregulated by TNF in human retinal endothelial cell

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Key words: TNF α , MEF2C, endothelial cell

Abstract:

Myocyte enhancer factor 2C is a transcription factor which is required for vascular development. Targeted deletion of this factor results severe vascular abnormalities and embryonic lethality. Tumor necrosis factor α is a pro-inflammatory multifunctional cytokine possess different kinds of function including proliferation, differentiation, apoptosis and inflammation. Through TNFR1 and TNFR2 this ligand activates several genes as well as downregulates some genes. We show that MEF2C is strongly downregulated as well as MEF2C driven transcription is downregulated by TNF α in human retinal endothelial cell. We have reconfirmed that TNF α activates caspase 3/7 in apoptosis pathway.

20. Need For Review of Storage Conditions of Pharmaceuticals : Inhouse and During Transport

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2 Senior Sub Editor, The Hitavada, Nagpur

KEYWORDS : Stability, Storage Conditions, ICH guidelines, MKT, Cold-chain, Temperature sensitivity, Pharmaceuticals

Abstract

India has four distinct seasons and vast geographical stretch. Based upon variations in temperature and humidity, there are differences in climatic conditions and regions have starkly different microclimates. Stability is a critical quality attribute of all pharmaceutical products. Manufacturers struggle to maintain the balance between product-efficiency with diverse worldwide regulatory requirements. General precautionary statements such as “protect from light” and/or “store in a dry place”, are many times used to conceal the stability problems of the product.

The conditions regarding storage laid down by drug laws are not precise. When the products are reported to be adversely affecting due to improper storage or improper handling, the regulators find it extremely difficult to prove the failure. The result is that patients are at risk of consuming sub standard drugs.

The trans shipment from manufacturing unit–C & F Agency–stockist–whole seller–retailer–and lastly to the consumer, is complex and may include transport by Road, by Rail, road or Air. The product is thus stays at every distribution point and handled by various transport systems. The length of the stay, is unpredictable and depends on factors which are beyond the control of the manufacturer. There is very feeble control of regulation over the storage conditions at warehouses, depots and transports.

There is a drastic need to have a Good warehousing and distribution practices for pharmaceuticals. This paper tries to pinpoint some of the lacunae in the existing system and suggests some recommendations for the effective control and monitoring of major storage conditions viz. temperature, humidity, light, environmental stress during the warehousing, transport and distribution of pharmaceuticals.

21. Pharmaceuticals to nutraceuticals a strategy of pharma companies to end drug control in India.

Rajendra Diwe

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Senior Drug Inspector, Intelligence, FDA Nagpur Division, Nagpur.

Keywords : Nutraceuticals, drugs, drug prices, DPCO, NPPA, dietary supplement, nutraceutical products, FSSAI, PFA, vitamins and minerals.

According to World Health Organization (WHO) report, “one third of the world’s population lacks reliable access to required medicines and the situation is even worse in developing countries, which are finding it increasingly difficult to finance medicines as expenditure on medicines has been growing steadily.”

While people in industrialized countries generally have insurance or subsidies that cover most of the cost of their medicines, those in poorer countries with less developed health systems pay the full cost of almost all their medicines themselves. Over 80 per cent of India’s health financing is borne by patients. Thus, the price of medicines is a crucial determinant of the health of citizens. Inadequate distribution systems also affect the availability of medicines. The Government of India has established the National Pharmaceutical Pricing Authority (NPPA) to fix medicine prices in the country. The NPPA is an independent body of experts which fixes prices for only those medicines that are listed in a ‘schedule’ found in the Drugs Prices Control Order. This organization currently fixes the prices of 74 scheduled drugs using a standard formula. These medicines also contain Vitamins, Minerals, Protein Powder etc. As the NPPA has issued the circulars of price control of some formulations of multivitamins and mineral supplements, the pharmaceutical industry has found a novel way to increase the prices. They placed the Multivitamins and Mineral supplements in to Nutraceuticals or Dietary Supplement. No control is required for these companies for manufacturing of Nutraceuticals, in addition they can easily violate Drug Price Control Order (DPCO) and

can sell the products at exorbitant price. In India, it is seen that number of Multivitamins and Mineral Supplements are sold as nutraceuticals rather than drugs and many medical practitioners are prescribing the same. This paper takes a brief review of Nutraceuticals and tactics of Pharmaceutical Companies to convert drug in to food product to end drug control in India. The regulatory authorities have seen helpless as they do not have a direct control on such conversion. The ultimate sufferer is a common consumer in this country.

22. Genetics of Metabolic Syndrome

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Keywords: metabolic syndrome, CVD, obesity, diabetes, Asian Indians

Abstract

Metabolic syndrome (MS) is a common phenotype, affecting about 30% of the adult Asian Indian population. It is associated with an increased risk for type 2 diabetes (T2DM) and cardiovascular disease (CVD). Although there is no universally accepted definition for MS, affected individuals commonly have a cluster of features, including abdominal obesity, hypertension, dyslipidemia, and dysglycemia. Recently, there has been extensive interest in potential genetic contributions to MS. At present, no single gene or cluster of genes has been consistently replicated for MS among different populations, likely due to the complex interplay between gene and environment necessary for expression of this phenotype. We reviewed recent studies regarding the genetic contributions to MS. MS represents a complex phenotypic trait consisting of several clinical factors and associated with an increased risk of T2DM and CVD. Genetic studies thus far have provided conflicting associations rather than consistently reproducible associations and linkages. Nonetheless, the hope remains that understanding the genetic determinants of MS will lead to early detection of new cases and possibly preventive strategies, keeping in mind the important caveats for genetic studies of complex traits.

Thus, although genetics likely plays a crucial role in MS development, elucidating the exact genes involved has been hindered by the lack of a consistent MS definition, the varying combination of phenotypes even within a single definition, ethnic disparities, and gender influences. Furthermore, lifestyle determinants for MS development should not be ignored, and these determinants are also likely under genetic control. In short, MS development represents an intricate interaction between genetic susceptibilities and environmental influences, and genetic studies increase our appreciation of this complexity.

23. Acupuncture – Effective Therapy for Low Back Pain & Sciatica.

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Keywords : Low back pain, sciatica, electro-acupuncture, hammering, moxibustion, effective therapy.

Thirty patients with complaints of pain in low back region, restricted movement for bending and radiation of pain towards hip, thigh, leg and foot were treated by Acupuncture.

Total Patient	:	30			
Males	:	18	Females	:	12
Age of the patients	:	Ranged from 32 to 65 years			
Duration of sufferings	:	3 months to 4 years			

Acupuncture points were used :

Zhibian (U.B. 54) – Main point for Sciatica.

Yinmen (U.B. 37), Weizhong (U.B. 40), Zhengshan (U.B. 57), Kunlun (U.B. 60), Shenshu (U.B. 23), Dachangshu (U.B. 25), Yanglingquan (G.B. 34), Huatuoji points (E.M.) as and when required.

Electro-stimulation was applied in all the points for 20 minutes. Hammering and Moxibution over the roots of Sciatic nerve and along its course also applied. Out of 30 cases, 18 had remarkable improvement after having 10 sittings. Pain diminished after completion of 20 sittings in 6 cases. After 30 sittings 3 cases showed satisfactory result. In 3 cases, there were poor result even after 30 sittings.

It appears that acupuncture therapy for Sciatica and Low Back Pain is very effective. Evidences suggest that acupuncture often cures the condition and increasing tone of the erector spinae and also helps in relieving excruciating pain.

24. Acupuncture in hyperglycaemia

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Key words Acupuncture, hyperglycaemia

Abstract

Acupuncture needling was done in hyperglycaemia patients. In 36 cases of hyperglycaemia patients acupuncture was applied at Dr. B.K. Basu Memorial Research & Training Institute of Acupuncture during October 2008 to August 2011. Age of patients ranged from 42 to 70 years. Male – 24, female-12. Plasma sugar level (post-prandial) varied from 170 to 320 mg%. 31 cases had under diet restriction, life style modification

and hypoglycaemic drugs. 5 cases (plasma sugar below 199) were under diet restriction and life style modification.

Acupuncture needles were applied generally at acupuncture points (Ren 12, Ren 4 and St. 36) at abdomen and legs. Electro-stimulation 100 Hz per minute was applied to punctured needles. Thrice a week for 10 sittings (1st course), then a gap of 7 days followed by 2nd course, then a gap of 15 days followed by 3rd course. After 3 courses maintenance therapy of once a week sitting was applied for six months.

In 7 (19.4%) cases there was no need of drugs. In 19 (52.7%) cases plasma glucose level was well controlled with acupuncture and drugs. Previously, with the same drugs plasma glucose was not well controlled. In 10 (27.7%) cases treatment was discontinued due to various reasons.

Acupuncture needling has role to control plasma sugar level alone or ad adjuvant to drugs. Probable mechanism is modulation of body's own nerve-immune-endocrine-immune network.

25. Gastric Lesions and Poisoning Medico Legal

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Key words :- Gastric carcinoma, EBV, H. Pylori, GI bleeding, Atrophy, Gastropathy

Abstract :

Gastric mucosal and sub-mucosal hemorrhages with bleeding episodes in stomach are common findings at Forensic autopsy and toxicological analysis. GIB and lesions may be due to organic diseases, stress factors, chemical poisoning, drug interactions etc. But in usual poisoning and UD cases, very often the cause of stomach lesions of importance remains unnoticed and unexplained in the Forensic Toxicology and PM reports. But it is

necessary to elucidate the exact application of legal medicine in court trial. This communication delineates the risk assessment of gastric toxicity and poisoning matrices in clinical and medico legal studies. In clinical findings the Pan-endoscopic surveillance of gastric lesions reveals the presence of *Helicobacter pylori* infection and/or Epstein - Barr virus in patients compared to normal control. The infection is crucial and early detection is essential for safety. Gastric adenocarcinomas have been analyzed in histopathological study for clinicopathologic features in EBV association. Medico legal study reveals that UGIB bleeding and syncope on ASA and other NSAID consumption are common, gastric carcinoma and / or UGIB risk, contiguous injury to the esophagus and stomach on poison, acid and alkali ingestion in UD cases. Recording of medication status in terminal illness due to NSAID consumption and treatments in poison control centre is always necessary to rule out other possibilities of foul play. The UD cases, as reported on history of FIR of the investigating authorities, have to be authenticated through the series of check points as in magistrate inquest report, necropsy, histopathology, microbiology, toxicology reports and court trial Justice. The risk characterization of gastric toxicity matrices in Medical Jurisprudence is necessary to set and enrich the prosecution witness evidences in criminal Justice system for its meaningful purposes.

26. Lactational exposure to atypical antipsychotic drugs disrupt pituitary-ovarian axis of mice

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Abstract

Sexual and reproductive dysfunctions induced by atypical antipsychotic drugs olanzapine (OLNZ) and risperidone (RISP) have been recognized both in clinics and in preclinical studies. As both these drugs transfers through milk, the neonates are susceptible to their adverse side effects. The pituitary-ovarian axis of mice lactationally

exposed to olanzapine (OLNZ; 4, 8, 10 mg/kg) and risperidone (RISP; 1, 2 mg/kg), was examined to evaluate the adverse drug effects on the reproductive axis during postnatal development.

The assessment was done at postnatal day 28 (pre pubertal age) to see the direct exposure effect through milk and at postnatal day 63 (post pubertal age) to address the persistence of the adverse effect to adulthood. Weight analysis, histopathology and follicular dynamics study of ovary, immunocharacteristics and morphometry of pituitary PRL and LH cells, and plasma levels of PRL, LH, Estradiol and corticosterone were carried out.

Ovarian regression was revealed as weight and the numbers of healthy follicles were significantly reduced with a parallel increase of follicular atresia. Lactotrophs immunointensity was increased along with plasma elevation of PRL levels. On the contrary, immunointensity of LH cells and plasma levels of LH were decreased. The plasma estradiol levels were decreased as well. Effects were more prominent in risperidone-exposed groups than olanzapine groups. The antigonadal effects of the drugs might have mediated through their hyperprolactinemic effects which further inhibited LH and estradiol synthesis/secretions ultimately affecting the follicular development. The adverse impact was persisted to adulthood with higher doses of the drugs.

27. Medical Techniques vis a vis medical technology, (Technique involves science of medical examination & treatment)

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KEY WORDS: **Medical Techniques, medical technology,** (Technique involves science of medical examination & treatment)

ABSTRACT:

The field of health profession is in the constant process of renovation by the emergence of new techniques, products & procedures using sophisticated technology. But the least invasive complication free diagnostic tools, treatment & management protocols with long standing success are to be considered as the pillars of progress of medical science. Human body is the most precious creation on earth. Long productive life span for the human body being the objective of medicine, the philosophy of each treatment protocol should not be oriented merely around the use of Mainly sophisticated technology & products those can not replace basic fundamental meticulous principles of treatment procedures. Now there is enough need of identification & projection of the science of ideal treatment planning's involving in depth knowledge & experience with understanding of complex physiologic & metabolic management, rather than over dependence on technology to save the future of medicine to meet a sequence where coming generation can not think of diagnosing without application of technology.

28. Acupuncture therapy in Irritable Bowel Syndrome

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Key words : Acupuncture, irritable bowel syndrome, nerve-endocrine-immune network

Abstract

Irritable Bowel syndrome (IBS) is a problem to manage in modern medicine. Drugs used for relief of symptoms often have adverse side-effects which hinder normal day to day activities. Acupuncture, a non-drug therapy was applied in 8 cases of IBS for a period of six months to one year. All cases (8) were female, age ranging from 38 to 50

years. All of them had diarrhoea predominant. Diagnosis was made clinically. Pain abdomen, distension, increased bowel movements, mucus in stool and psychological stress were main features. No other signs were present.

Acupuncture needling with electro-stimulation was applied at various sites of body. Acupuncture points were Tianshu (St.25), Neiguan (P6), Zusanli (St. 36), Baihui (Du 20), Hegu (L.I. 4). Needling was done generally three days in a week. Later frequency was reduced to once a week. Duration and follow up of treatment was six months to one year.

Numbers of motions, pain abdomen, general well being were assessed for therapeutic result. 6 cases (75%) showed very good improvement, 1 case (12.5%) showed satisfactory improvement, 1 case (12.5%) showed non-persistent improvement.

Acupuncture needling produces holistic body-friendly effects through body's nerve-immune-endocrine network to produce symptomatic relief.

29. Serum Electrolyte Levels in Preeclamptic Women

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Key Words: Preeclampsia, Hypertension, Serum Electrolyte Levels, Anion Gap

Abstract

One of the most potential complicating factors during pregnancy is preeclampsia, a hypertensive disorder resulting in a variety of problems. Serum electrolyte levels and anion gap, mean weights, SBP/DBP of preeclamptic age-matched women (devoid of diabetes, UTI, renal and liver disorders) in their third trimester, as compared to their normotensive counterparts, have been measured, analysed and compared with results of earlier studies. The preeclamptic group exhibits significant

lowering of serum K^+ (- 3.85 %) and significant enhancement of each of serum Na^+ (+ 6.93 %), Cl^- (+ 7.25 %), HCO_3^- (+ 8.74 %) and an insignificant and small increase in anion gap (+ 1.5 %). Most plausible explanations are offered for the observed results.

30. Peak expiratory flow rate and anthropometric determinants among students of Kalinga Institute of Medical Sciences and Dental Sciences, Bhubaneswar, Orissa

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Abstract

Peak Expiratory flow rate (PEFR) was measured in 181 healthy adult male and female students of Kalinga institute of medical and dental sciences. The instrument used for the purpose was “The Peak”, Individualised Peak flow meter from Multispiro Inc. Best of three readings was considered. The variations of Peak Expiratory Flow Rate (PEFR) with respect to height (ht) and weight (wt) were determined in these subjects. There was a positive correlation of PEFR with height and weight in the young adult males and females. In the males PEFR correlated better with height and in the females it correlated better with weight.

31. “Efficacy of Physiotherapy biofeedback in management of Hypertension”

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Key Words: Physiotherapy, Audiovisual Biofeedback, Hypertension (HTN)

Introduction:

Hypertension is one of the most prevalent diseases and disorders effecting Quality of Care and Quality of Life of worldwide population. Activity of Daily Livings (ADLs) and Life Style has showed great impact on high prevalence of HTN. Moreover, secondary complications of HTN have added challenges to medical science. Physiotherapeutic intervention with audio video biofeedback will be efficient mode of management of HTN.

Aim of the study:

To find the efficacy of physiotherapy in management of HTN. **Materials:** sphygmomanometer, stethoscope, vital monitor.

Methodology:

138 HTN (Grade I) patients (M=93) were selected by screening for inclusive and exclusive criterions. Initial first 6 days of (half an hour daily) training sessions includes physiotherapy biofeedback (visual feedback of vital parameter) with vital monitoring system followed by 15 days of self management programs where pre and post treatment changes in vital parameters (SBP, DBP, PR) were recorded for the data analysis.

Data analysis:

SPSS (ver. 16) was utilized to analysis the change from pre to post management of vital parameters at LoS 0.05 and CI 95 %.

Result:

The study has showed significant changes in DBP and PR as compared to SBP, however, elder have shown greater response as compared to younger people with physiotherapy biofeedback HTN.

Discussion:

The relaxation exercise with audio visual feedback for close monitoring changes in basal parameters has provided self control and target oriented approach for people with HTN. On other hand visual biofeedback assisted to learn the correct method of relaxation exercise. Self control of breathing pattern helps to reduce respiratory rate and increase chest expansion at one hand and on other hand muscles relaxation techniques helps to minimize isometric muscles works and static postures are common factor reducing vascular resistance and maintain hemodynamic stability.

Conclusion:

In context to modern medicine, physiotherapy plays vital role in management of HTN. Activity specifies modification, self control and goal oriented approach by biofeedback for maintenance of vital parameters must be taken into consideration for HTN patients.

32. Association of Toll-Like Receptor 3 with Disease Severity in Indian Patients with Chronic Hepatitis C Virus Infection

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Running title: TLR3 and its association with chronic HCV Infection

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Keyword : TLR3, HCV, SNP

Abstract

Introduction: TLR-3 involved in innate immunity has been identified to respond to ds RNA, a molecular signature of viruses like hepatitis C virus (HCV).

Objective: TLR3 gene polymorphism and its expression associated with disease severity in patients with chronic HCV (CHC) infection were studied.

Methods: 180 chronic HCV RNA positive patients and 180 controls were analysed for TLR3 polymorphism by PCR-RFLP, TaqMan assay, SSCP and direct sequencing. Expression analysis of TLR3 was done by real-time PCR and Immunohistochemistry.

Results: Two new variants -288G/A and -705A/G were observed in TLR3 promoter region, and the later were associated with high risk of HCV infection OR 2.79(1.46-5.42). In silico sequence analysis showed the presence of Ectropic viral integration site 1 encoded factor, in which G at -705 results in the loss of this site. The expression of TLR3 is upregulated in chronic HCV patients ($\Delta\Delta C_T = 2.33$) then controls ($\Delta\Delta C_T = 4.54$). At rs5743316 the minor allele A expression ($\Delta\Delta C_T = 2.54$) is comparatively less from the major allele T ($\Delta\Delta C_T = 3.13$).

Conclusion: TLR3 SNP of -705 and rs5743316 is associated with chronic HCV infection. rs5743316 was found to be associated with histological manifestation and mRNA expression was downregulated among the patients with minor allele A.

33. Influencing clinical markers of early motor development using NFDR technique in children with cerebral palsy

Author

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3. Dr. V.P. Sharma Director professor & Head, Dept of PMR, C.S.M. Medical University, Lucknow, U.P. India (Applied for Membership)

KEY WORDS: Cerebral Palsy (CP); Postural reactions; Postural control.

ABSTRACT

Objective: To see the Influence of Neuro Facilitation of Developmental Reactions (NFDR) technique on clinical markers of early motor development in cerebral palsy.

Method: Randomized Controlled trial. 30 CP children age 6 month to 2 years included. Baseline evaluation was done for developmental reflexes, postural reactions (in sitting) & motor development. The subjects were allocated to two treatment groups i.e. group A (NFDR) and group B (NDT) for 3 months.

Result: Between group analyses done. The p value was significant ($P < .05$) for NFDR group.

Conclusion: NFDR technique is effective for influencing clinical markers of early motor development in CP.

34. Acute liver failure in a case of Bancroftian filariasis

Dr. Dwijesh Kumar Panda, M.D. Ph.D (FILARIA)

Summary:

We report a case of acute liver failure associated with Bancroftian filariasis in a young male. Absence of other etiological factors rule out other causes of liver failure. Treatment of the filariasis condition improved the liver function.

Introduction:

Bancroftian filariasis is associated with multiple clinical presentations. Peripheral blood eosinophilia is a common association in patients with filariasis. Tropical pulmonary eosinophilia is a common condition in filarial endemic areas wherein peripheral blood eosinophilia is associated with pulmonary symptoms. Acute eosinophilic glomerulonephritis has been described in association with bancroftian filariasis. The presentation of a case of Bancroftian Filariasis with liver failure is described below and an etiological association between the two conditions is discussed.

Case report:

A 10 year old male child presented pain abdomen, fever, loss of appetite, nausea and yellowish discoloration of the skin and eyes for 3 days. Fever was a low grade continuous type. Pain abdomen was more pronounced in the right upper quadrant. There was no history of trauma or drug intake of any kind. There were no complaints pertaining to the respiratory or neurological system. A provisional diagnosis of acute Viral hepatitis was made and hematological tests including routine hemoglobin count, differential count, leukocyte count, liver function tests, Hbsag, urine for bile salt and pigments and an Ultrasonogram of the abdomen and pelvis was ordered. While the hemoglobin was in normal range, the differential count revealed eosinophilia (79%) with a low neutrophil and lymphocyte count(10% each). Hbsag test was negative. Liver

function tests revealed a raised SGOT (2039 U/L), SGPT (1670 U/L), Alkaline phosphatase (533U/L), LDH (495 U/L), total bilirubin (12.24 mg/dl), Bilirubin direct (10.27mg/dl), Bilurbin indirect (1.97 mg/dl). Serum protein was in normal range and serum globulin was high (4.8g/dl) with a low albumin to globulin ratio (0.7). bile salts and bile pigments were detected in the urine sample. Ultrasonogram of the abdomen revealed a enlarged liver and a distended gall bladder with thickened walls. Rest of the intraabdominal structures appeared normal. Based on these findings conservative treatment along the line of viral hepatitis was instituted. At the end of ten days , when the patient did not report any clinical improvement, a repeat of the liver function tests was carried out. Repeat tests revealed a mild decrease in liver enzymes with a mild increase in the total and direct bilirubin. The patient was continued under a conservative regimen for 4 weeks and repeat liver function tests performed. At this time the SGOT and SGPT values showed definite improvement, alkaline phosphatase values were normal but total and direct bilirubin values were still high. Differential count repeated at this time showed persistent eosinophilia (75%), elevated total leukocyte count (1 lac 12 thousands). No premature cells in peripheral smear or toxic granules were seen in the neutrophils. Absolute eosinophil count was 39,640 (normal range: 50 – 400/cmm). Since the patient belonged to a filarial endemic zone, a test for filarial antigen OG4C3 was carried out. The test for filarial antigen was positive (512 AU). A diagnosis of Bancroftian filariasis with acute liver failure was made and patient started on a course of diethylcarbamazine. Over the next three weeks, patient reported rapid clinical improvement with improved appetite, resolution of abdominal pain and fever. At the end of three weeks a repeat of differential and leucocyte count revealed improvement in both the parameters. A repeat of liver function tests at this time showed normal values of the liver enzymes and bilirubin count.

Discussion:

A raise in eosinophil differential count and absolute eosinophil count in a young male with fever coming from a filarial endemic zone raised the suspicion towards bancroftian filariasis. Persistently high liver enzymes with raised bilirubin values that did

not improve with conservative measures prompted us to search for infective causes in absence of other common etiologic factors for liver failure. Og4c3 antigenic test for filarial has been proven to be of benefit to detect infection with *Wuchereria bancrofti* in case of inability to detect microfilaria in peripheral smear. Raised eosinophil values in the absence of any premature cells in peripheral smear ruled out the diagnosis of eosinophilic leukemia. The improvement of both the clinical and hematological parameters with a course of diethylcarbamazine clinches the diagnosis of acute liver failure with bancroftian filariasis. The patient was last seen at a six month follow up and a repeat clinical and hematological evaluation showed persistent improvement without any recurrence of symptoms.

Addition- OG4C3 ELISA Test= It is a semi-quantitative ELISA test for the detection of adult Filarial antigen on 50 micro-litre of serum. Different titre groups are- 32,000, 8192 , 2048 , 512, 128, 32, <10 Antigen Units. 512 and above antigen Units are considered Positive and less than 512 Antigen Units are Negative.

35. Multifactorial Aetiology of Myocardial Infarction

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Myocardial infarction (MI) (Heart attack) is an avoidable, though complications are life threatening. Patients generally survive the first attack. M.I means lack of blood supply to the heart. Clinically associated with severe squeezing pain, sweating, vomiting, etc. age affected is 35-54 years. Males are three times more prone than females. High cholesterol levels, over weight individuals, with no physical exercise exhibit sudden death (SD) syndrome even when on defibrillators. Psychosocial factors some of them are loss of job, loss of near or dear one, extreme irritation due to family problems, bankruptcy, loneliness etc. Type A personality is twice at more risk.

36. EMG Biofeedback for hand function retraining in spinal cord injury patients with level C5-6.

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Abstract

Objectives: To compare the efficacy of biofeedback for retraining of hand functions in S.C.I. patients with level C5-6. Method: It was an Experimental Cross Sectional Design. Procedure: 30 subjects were included & baseline evaluation done using biofeedback, FIM & set of activities. The subjects were allocated to two groups namely group A (Biofeedback group) & B (conventional group) and intervention was given for 9 weeks. Result: Statistical analysis done & P value was significant for Biofeedback group. Conclusion: Biofeedback is more effective than conventional treatment for retraining of hand functions in SCI patients with level C5-6.

37. Role of Scalp Acupuncture In Autism

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Autism is a disorder of neural development, characterized by impaired social interaction and communication, and by restricted and repetitive behavior. These signs all begin before a child is three years old. Autism affects information processing in the brain by altering how nerve cells and their synapses connect and organize; how this occurs is not well understood. It is one of the recognized disorders in the autism spectrum (ASD), the another one being Asperger syndrome, which lacks delays in cognitive development and language, and Pervasive Developmental Disorder. Assessment should be a comprehensive and consistent process. Its duration varies from one to number of sessions. It is based on the principles and competencies of therapy for the specific and desired services and needs of the individual client. Assessment is an ongoing process.

Acupuncture treatment plays an important role in treatment of Autism.

Since autistic patients can have a difficult time following directions and being cooperative, body acupuncture is not always an ideal method. However, during scalp acupuncture procedure, children do not need to lie down and stay motionless. While the needles are in place on their head, they can play, learn to read speech and walk. So scalp acupuncture is a safe and easy way to needle autistic children. Scalp acupuncture is also known as head acupuncture. All meridians will reach the head, so the head is also called the Sea of Meridians. Except the connections with meridians based on the foundation of Traditional Chinese acupuncture, scalp acupuncture also has developed on modern anatomy and neurophysiology theory. Acupuncture is applied to specific areas of the head, using a precise needling technique, to deal with various diseases. Scalp acupuncture has been proven to be the most effective technique for treating diseases of Central Nervous System. In recent studies, the effect of acupuncture was hypothesized and proven in animal and human studies to be due to direct neural stimulation, changes in

neurotransmitters such as endorphin, immunological markers and endocrinological signals. Traditional acupuncture treatments for autism have shown some good results, although they do not suggest that complete cures are possible. Some cases have shown that patients have improved to such a degree that a fairly normal life is possible. The recommended scalp acupuncture areas to be used for autism are sensory area, Speech area, Vertigo-auditory area, Usage area, reproduction area, Gallbladder meridian points and Du meridian points. Body points sometimes used as an adjunct to the scalp acupuncture therapy. Proper manipulation techniques are crucial for obtaining the desired results. The needles are usually retained for 15 to 30 minutes with manual stimulation every 5 to 10 minutes. Patients are often treated two to three times a week (at least once a week). Although there certainly are other acupuncture techniques that can be effective, such as ear acupuncture and body acupuncture, scalp acupuncture is a more effective and safe model that brings out quicker progress for autism. Scalp Therapy with speech therapy plays a significant role in development of verbal Expression in Autistic children. Body points play significant role in elderly children.

38. Factors associated with the natural course of life domains affecting sex and sexuality in ageing people

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Abstract

The aim of this study is to elucidate and evaluate factors affecting sexuality in ageing people. Data were extracted from literature for years 2005-10. Ageing men's sexual problems are not an inevitable consequence of ageing but are responses to the presence of stressors in multiple domains of life. Erectile dysfunction of men and sexual dysfunction of women increase with age. Unlike menopause in women, andropause in men has no biological speed. Ageing women reported low sexual desire, difficulties with vaginal lubrication and inability to climax. Many domains of man's life become

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destabilized at around 50 years of age. Nevertheless, men are able to adapt to their changed physical and mental abilities. Significant decrease in sex-hormones was related to increasing age. Age-related morbidities: hypertension, obesity, and heart disease are common among elderly people and significantly associated with erectile dysfunction, impairing sexual life of the affected ageing men.

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VII

**ABSTRACTS OF
POSTER PRESENTATION**

PROCEEDINGS
OF THE
NINETY NINTH SESSION OF THE
INDIAN SCIENCE CONGRESS

BHUBANESHWAR, 2012

PART II : ABSTRACTS

SECTION OF
MEDICAL SCIENCES
(INCLUDING PHYSIOLOGY)

President : **PROF. MANJUSHREE RAY**

POSTER PRESENTATIONS

Clinical Epidemiology

1. Snakebite mediated acute kidney injury: In search of prognostic markers

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Keywords: SAKI, Hemodialysis, Predictors, Clinical presentation, Protein modification.

This study aims to evaluate the prognostic importance of clinical and new biochemical markers of uremia in final outcome of snakebite mediated acute kidney injury (SAKI) requiring hemodialysis. Heparinised blood was collected from SAKI patients before first session of hemodialysis. Among the clinical parameters disseminated intravascular coagulation and hypotension at initial presentation were come out as independent predictor of death. Plasma protein modification markers (advanced oxidation protein product, etc.) and methylglyoxal were found to be significantly elevated in SAKI patients. In contrast to creatinine, the conventional marker of uremia, these parameters were found to be associated with adverse outcome of patients.

2. Hemoglobin Modification in snake bite mediated acute kidney injury

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Keywords: SAKI, Hemoglobin, Fluorimetry, Hydrophobicity, Free reactive iron.

ABSTRACT:

Hemolytic activity of snake venom is well documented in literature. But hemoglobin (Hb) modification is hardly illustrated in any study. This study aims to evaluate structural modification of hemoglobin in snakebite mediated acute kidney injury (SAKI) patients. Various biophysical characterization of purified Hb including tryptophan quenching, surface hydrophobicity using 1-anilinonaphthalene-8-sulphonate, synchronous fluorimetric study, etc. were carried out with the blood sample of SAKI patients. Non-heme iron (NHI) and heme degradation product (HDP) were measured from hemolysate. Our findings indicate structural modification of Hb associated with increased NHI and HDP when compared to normal healthy subjects.

3: Evaluation of Hepatotoxic potential of pyrethroid Lambda-cyhalothrin in male albino Wister rat and its amelioration by taurine

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Key words: Lambda-cyhalothrin; Taurine; Blood glucose; Serum Cholesterol; Serum and hepatic transaminases; Alkaline phosphatase; Antioxidant status.

Liver is the primary site of detoxification and the major site of intense metabolism; therefore prone to various disorders as a consequence of exposure to the toxins of extrinsic as well as intrinsic forms. The indiscriminate use of Lambda-cyhalothrin, a chlorotrifluoro derivative of chrysanthenic acid is a type-II synthetic pyrethroid. It is highly active against a wide range of species of Hemiptera, Lepidoptera, Dipteral and coleopteran species. It is used in agricultural fields, public and animal health sector. It shows ovicidal and particularly larvicidal activity. It is highly toxic to bees, fishes and aquatic invertebrates. It produces neuropathy and decreases food consumption. The present study has been designed to study the ameliorative effect of taurine (200mg/kg body wt.) in Lambda-cyhalothrin-induced hepatotoxicity and oxidative stress on male albino Wister rats after oral treatment for consecutive 14 days at the dose level of 6.58 and 7.9 mg/kg body weight. Lambda-cyhalothrin reduced liver weight in treated rats. Blood glucose, hepatic triglyceride, liver bilirubin and serum cholesterol, serum transaminases were increased whereas liver glycogen, hepatic alkaline phosphatase, hepatic transaminases and liver protein were decreased. The hepatic antioxidant status was altered by the decrease in GSH level and by the increase of hepatic MDA, GSSG. Lambda-cyhalothrin exerted an adverse effect on hepatic tissues and altered the antioxidant status of liver in male Wister albino rats. This study demonstrates that taurine restores the abovementioned parameters towards more or less normal levels in Lambda cyhalothrin-induced male albino Wister rats.

4: Role of taurine in mitigating the nephrotoxic and renal oxidative stress effect of Lambda-cyhalothrin in male albino Wister rat

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Key words: Lambda-cyhalothrin; Taurine; Serum creatinine; Blood urea nitrogen; Renal malon-di-aldehyde (MDA); Oxidative Stress.

Lambda-cyhalothrin is one of the newer forth-generation pyrethroid type-II insecticides. Chemically it is alpha-cyano-3-phenoxybenzyl-3-(2-chloro-3, 3, 3-trifluoroprop-1-enyl)-2,2-dimethyl-cyclopropane-carboxylate. It effectively controls a broad spectrum of insects and ectoparasites. This present study is designed to find out the protective effect of taurine (200mg/kg body wt.) in Lambda-cyhalothrin-induced nephrotoxicity and oxidative stress on male albino Wister rats after oral treatment for consecutive 14 days at the dose level of 6.58 and 7.9 mg/kg body weight. Significant decrease in body weight, alteration in renal index were observed. Increase in serum creatinine, blood urea, serum uric acid level, serum protein and alteration in renal histology were seen in Lambda-cyhalothrin treated rats compared to control group in a dose-dependent manner. Kidney protein level was decreased. The renal malon-di-aldehyde (MDA) content and oxidized glutathione (GSSG) level were increased, at the same time, the diminution in renal glutathione (GSH) level and the kidney catalase and SOD activity were observed in treated rat in a dose-dependent manner compared to the respective control group. It also produces oxidative stress by the elevation of MDA, GSSG content and decrease in GSH and antioxidant enzymes. Taurine altered the renal parameters towards more or less normal levels in Lambda-cyhalothrin-induced male rats. The present study has revealed the toxic potential of orally administered Lambda-cyhalothrin on the renal biochemical parameters, histology and antioxidant status of male albino wister rats and its protective alterations by taurine.

5: Protective effect of ascorbic acid on sodium fluoride induced cardiotoxicity of rat

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Key words: Sodium fluoride, ascorbic acid, cardio toxicity, antioxidant

Protective effect of ascorbic acid on sodium fluoride (NaF) induced alteration in antioxidant system of cardiac tissue was evaluated in male rats of Wistar strain. The animals were divided into four groups of equal average body weight; control group (received 0.9% NaCl solution i.p.), NaF-treated group which was treated with 20mg/kg/day sodium fluoride (i.p.) for 14 days, rats of the third group were treated with 20mg/kg/day vitamin C only and fourth group of animals were treated with 20mg/kg/day sodium fluoride plus 20 mg/kg/day vitamin C for the last 7 days of fluoride treatment. The tissue GSH content was reduced significantly following fluoride exposure associated with significant alteration in lipid peroxidation level. The superoxide dismutase enzyme activity was also reduced significantly following exposure to fluoride as compared to control group, indicating the accumulation of free radicals in cardiac tissue. Ascorbic acid administration along with NaF exhibited significant effect in amelioration of NaF induced changes in antioxidant profile in cardiac tissue. The decrease in GSH level following NaF treatment was counteracted significantly by ascorbic acid supplementation. In addition, changes in tissue LPO level and SOD activity were also completely restored by ascorbic acid. This preliminary finding suggests that ascorbic acid may act as a protective antioxidant against fluoride induced oxidative stress in cardiac tissue.

6: Protective effects of an aqueous leaf extract of *Murraya koenigii* L. against cadmium induced oxidative stress in rat heart: possible involvement of antioxidant mechanism(s)

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KEY WORDS: Curry leaf, cadmium, cardiac injury, oxidative stress, protection.

Cadmium is a known environmental pollutant that can produce adverse toxic effects in various organs, including heart. Studies have indicated that free radicals contribute to cadmium induced damages. The present studies demonstrate that administration of an aqueous extract of the leaves of *Murraya koenigii* L. [curry leaves] (100 mg/kg bw fed orally) to rats prior to cadmium treatment (0.44 mg CdCl₂ / kg bw sc) was found to protect against cadmium-induced oxidative stress. When the rats were pre-treated with the extract, the alterations in the antioxidant level and the activities of the antioxidant enzymes of heart were prevented from occurring suggesting that the curry leaf extract may be beneficial in ameliorating the cadmium-induced myocardial damage.

7: Melatonin protects against isoproterenol-induced myocardial injury through antioxidant mechanism(s)

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Key words: Antioxidant, heart function, isoproterenol, melatonin, myocardial injury, oxidative stress, mitochondrial metabolism.

Abstract

The present study explores the protective effect of melatonin against isoproterenol (ISO) -induced myocardial ischemia. ISO treatment altered the levels of LPO, GSH and caused significant damage to the cardiac tissue. Pre-treatment of rats with melatonin (10 mg / kg bw, i.p.) prevented all these changes including amelioration of the ISO-induced alteration in the activities of antioxidant and mitochondrial enzymes and the levels of key stress proteins. Furthermore, ISO-induced changes in heart functions were restored to near control levels by melatonin. The findings raise the possibility of melatonin being considered as a therapeutic for ischemic heart disease.

8: Lifestyle as contributing risk factors for varicose veins

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Key words: Varicose Veins, Lifestyle, Obesity, Standing occupation.

Abstract

Varicose veins are swollen, twisted, and painful veins that are filled with an abnormal collection of blood and found just beneath the skin. Various risk factors responsible for the occurrence of varicose veins have been studied in 120 persons. A detailed self-administered questionnaire was completed, and a comprehensive physical examination with the help of clinicians was done to determine the presence and severity of varicose veins. There were 71 male and 49 female patients (12 female were pregnant). Rural people showed varicose veins in 62% cases while only 38% urban population showed this disease. Based on their occupation, there were 55.17% patients with prolonged standing occupation and 34.48% had sitting for long time. Obesity and smoking were observed in 41.37% and 27.58% of patients respectively. Standing occupation was found to be the most contributing risk factor for varicose veins.

9: Effect of benzene on haematological parameters of the workers from pharmaceutical industries:

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Key words: Benzene, Leukemia, Heamatotoxicity, Pharmaceutical workers

Abstract:

Benzene is an important industrial chemical and known for its carcinogenic and mutagenic effects. It is one of the established causative agent for acute myeloid leukemia

and myeloid plastic syndromes. The precise mechanism underline to induce the toxicity is not clear, but their conversion into metabolites are known to be toxic and exerts haematotoxic and leukomogenic effects. The studies dealing with the haematological effects in humans are controversial. Keeping in view the present investigation was aimed to study the effect of benzene exposure on some blood parameters of workers from pharmaceutical industries. 70 blood samples were collected randomly from the workers with due consent. The haematological parameters were performed by adopting standard experimental protocols. The result showed a significant increase in PCV, platelet count with an increase in RBC, WBC count of workers against their corresponding matching controls. In conclusion exposure of human subjects to benzene has long been a health concern and is prone towards the risk of cancer.

10: Protective effect of melatonin and aqueous tulsi leaf extract (*Ocimum sanctum L.*) against piroxicam-induced gastric ulceration in rats: a co-therapeutic approach

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Key words: Melatonin, Tulsi leaf extract, antioxidant, piroxicam, gastric ulceration, co-therapy.

The effect of different doses of melatonin or Tulsi leaf aqueous extract (TLE) was studied against piroxicam-induced gastric ulceration in rats. Melatonin or TLE was found to protect the gastric mucosa from becoming ulcerated following piroxicam treatment, individually in a dose-dependent manner. Our studies reveal that both melatonin at a dose of 20 mg/kg BW and TLE at a dose of 100 mg/kg BW, individually, could not protect the gastric tissue from developing ulcers when the rats were treated with piroxicam. However, when rats were pre-treated with melatonin and TLE in combination, at the

doses at which neither was effective individually, the combined therapy completely prevented ulcers following piroxicam treatment possibly through the direct as well as indirect antioxidant activities of this combination. The results strongly indicate that the combination of melatonin and TLE may be a safe gastro-protective co-therapy especially in situations where the use of anti-inflammatory drugs is the only choice.

11: Genome Wide Analysis For Genetic Instability In Haematological Cancer

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Key Words: Genetic Instability, HR-CGH

Abstract:

Genetic instability refers to a set of events capable of causing unscheduled alterations, either of a temporary or permanent nature, within the genome. In our preliminary studies, we have analyzed chromosomal rearrangements in patients with CML (Blood and Bone Marrow) by High Resolution Comparative Genomic Hybridisation Method (HR-CGH - Cytovision), able to screen Genome Wide Analysis. The analysis and comparison of the array of genetic changes occurring in malignancy will enable a move toward a better understanding of cancer development and improved therapies tailored to take into account the cytogenetic and molecular characteristics of specific human cancers.

12: Evaluation of a new Oral Herbal Iron Chelator Phytic acid in Thalassaemia

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Key Words: Thalassaemia, Ferritin, Phytic acid

ABSTRACT

A new oral herbal iron chelator, Phytic acid, available in Rice Bran, Wheat Bran & Soya, evaluated *in vitro* for Ferritin chelation in Thalassaemics' serum samples. Over-deposition of Ferritin cause oxidative tissue damage into several vital organs in Thalassaemics.

Evaluation of different types of Thalassaemics done by decrease of Ferritin values using ELISA method adding recommended dosage of Standard Phytic acid, compared with widely used Desferrioxamine (DFO), which leads to transient and incomplete removal of iron, whereas Phytic acid shows a sustained removal of Ferritin since the chemical binding is more specific and is effective in a wider pH range.

13: Screening strategies in West Bengal for diagnosis of β -Thalassaemia and Dilemmas in Counseling for prevention: experiences from 19,762 cases

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Key Words: HbE- β thalassaemia, β thalassaemia, HPLC, ARMS-PCR

ABSTRACT

A prevention program for β -thalassaemia was conducted by TF (1999-2006) first time in Eastern India in different districts of West Bengal. Evaluation was done by IGE for 2,242 ‘heterozygotes’ and 3,434 ‘intermedia’ cases by HPLC method and for few cases mutation analysis by ARMS-PCR method among 19,762 cases screened. Participants were School children, Pre-marriage and Pre-pregnancy cases, Affected family members and Pregnant mothers.

Dilemmas found in diagnosis of the status of some suspects, showing need to establish a strategic screening program for ‘heterozygotes’ in cost-effective way to avoid misdiagnosis and to exclude ‘heterozygote’ couples who may not need prenatal diagnosis.

14: Altered Hb switching in Beta and HbE-beta thalassaemia patients

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Key Words: HbF, Hb-switching, Haemoglobinopathies, HbE- β thalassaemia, β thalassaemia

ABSTRACT

Fetal haemoglobin (HbF) is one of the predominant haemoglobin in human, specially in the fetal stage of life. After birth Hb-switching occurs resulting significant decrease in HbF ($\alpha_2\gamma_2$) synthesis coupled with the increased synthesis of adult haemoglobin ($\alpha_2\beta_2$). Due to this switching, after 2 years of age, HbF is present as minor component of total haemoglobin in healthy persons except certain inherited conditions of Hb disorders (HPFH). But in other haemoglobinopathies there is scarcity of reports on how Hb-switching is operative in them. This study emphasizes how this Hb switching is operative in different haemoglobinopathies (HbE- β , β) among cohort patients.

15: Lipid Profile in Normal Pregnant and PIH Women From Cental Tamilnadu

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UNIVERSITY

KEY WORDS : PIH, lipid profile, placental ischemia, fetoplacental perfusion

ABSTRACT

Pregnancy induced hypertension is one of the commonest complications in pregnancy. It causes IUGR and increases maternal and perinatal mortality and

morbidity. The objective of the study was to compare the plasma lipid profile in PIH women with normotensive pregnant women. The study was carried out in a rural population in and around Trichy. 100 women with PIH and 100 normotensive pregnant women as controls were included in the study. Serum glucose, cholesterol, triglycerides, HDL-C, LDL-C and uric acid were estimated. There is significant elevation of total cholesterol, triglycerides, LDL-C, VLDL-C and decrease in HDL-C in PIH ($p < 0.0001$). Hence the estimation of maternal lipid profile in early second trimester will bring about early recognition of patients at risk of PIH for a better fetomaternal outcome.

16. Study On Prevalence of Anti TPO Antibody in Type-1 Diabetes in Rural Women

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K.A.P.V. Govt. Medical College
Tamilnadu DR. M. G. R. Medical University

KEY WORDS : Type 1 Diabetes, Autoimmune Diseases, Thyroid Abnormality, TPOAb, Thyroid Profile.

ABSTRACT

The appearance of TPOAb precedes thyroid dysfunction and increases in autoimmune diseases like type 1 diabetes. The objective of our study is to measure TPOAb in young Type-1 Diabetic Women and to find Thyroid abnormalities in TPOAb positive individuals. 60 individuals with Type-1 diabetic women of age 10-35 years were selected and estimated fasting glucose, lipid, thyroid profiles and TPOAb. 16 persons show high levels of antiTPOAb (> 40 IU). In the antiTPOAb Positive group, all values are statistically significant according to the Pearson R formula $P < 0.001$. There is significant correlation between age and antiTPOAb level, between weight, BMI and TPO Positive and Negative levels, as per the T-Test $P < 0.001$. Our results indicate that all Type-1

diabetic individuals should undergo annual screening of serum antiTPO-Ab and TSH measurement in positive individuals.

17: Review on health status by clinical analysis of blood and urine of some rural peoples of Pimpalner region, Dist- Dhule (M. S.)

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PACHORA- 424 201.

Key words: Health, rural people, tribal region, leucocytes, platelets, proteinuria, pus cells, calcium oxalates.

ABSTRACT

Health status is the sum of sign and symptoms or physical comfort of the person. It is largely depends on various factors which enabled well being. In present investigation, the health status of some rural peoples of tribal region showed, 70 % patients has very less amount of Hb, 45 % patients having less number of Red blood cells count, 22.5 % patients showing reduction in number of leucocytes and 37.5 % patients have low level of platelets. Similarly, in chemical examination of urine, 27.5 % patients showing presence of proteinuria in their urine; 17.5 % patients indicating presence of RBC's; 57.5 % patient's urine contains pus cells; 32.5 % patient urine showing epithelial cells and 10 % patient urine contains crystals of calcium oxalates. The above data of the health of people living in the tribal region is very poor.

18: n-6 and n-3 Polyunsaturated Fatty Acid Compositions of Urban and Suburban Human Mothers' Milk of West Bengal, India

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Key words: Human milk, Fatty Acids, n-6 LCPUFA, n-3 LCPUFA.

ABSTRACT:

This study is aimed to investigate the n-6 and n-3 polyunsaturated fatty acid (PUFA) profile of urban and suburban Bengali mothers' milk. Total 135 mothers were included in this study. All the mothers were belonging to the medium income group with average monthly income of Rs. 5000-10,000. Mothers of urban (Kolkata) and suburban (two adjacent districts) origin are included in this study. Their nutritional status was documented by a food frequency questionnaire which consist the usual foods taken by the mothers. The amount of n-6 PUFA is 13.59 ± 0.94 and 12.74 ± 0.89 in urban and suburban mothers respectively, and the amount of n-3 PUFA is 3.65 ± 0.49 and 4.36 ± 0.39 respectively in urban and suburban mothers' milk. Two essential fatty acids, linoleic acid (LA, C_{18:2} n-6) and α -linolenic acid (ALA, C_{18:3} n-3) are abundantly present in green leafy vegetables which are passed in human milk through diet of the mothers. Long chain polyunsaturated fatty acids (LCPUFAs) are metabolites of these two essential fatty acids. Oily fish and vegetable oils are recognized as dietary sources of n-3 and n-6 PUFAs respectively. Among LCPUFAs, docosahexaenoic acid (DHA, C_{22:6} n-3) and arachidonic

acid (AA, C_{20:4} n-6) are of special importance as these two fatty acids play important roles in brain and visual acuity development in newborns.

19: Prevalence of Early-onset sepsis in very low birth weight neonates in Surat, Gujarat and its controlling measures

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1: Assistant Professor, Shree Ramakrishna Institute of Computer Education and Applied Sciences, Surat, Gujarat.

2: Director & H.O.D. of Microbiology, Shree Ramakrishna Institute of Computer Education and Applied Sciences, Surat, Gujarat.

Key Words: Neonatal Septicemia, LBW, EOS, Mortality rate, MDR.

Abstract:

Objective is to study the prevalence of Early Onset of Sepsis -within the first 72 hours of life and in Low Birth Weight (<2.5Kg) in neonates of Surat, Gujarat. Despite increasing knowledge of pathophysiology and upcoming novel therapeutic approaches, the mortality associated with sepsis remains high, specifically in EOS in LBW babies. 460 blood cultures were studied from suspected neonates; the prevalence of different isolates and their antibiotic susceptibility pattern were checked in EOS and LBW babies at our Lab. Among 96 culture positive cases 60 (62.5%) were LBW and 75% had EOS (≤ 72 hours). *E. coli* were the predominant organisms causing EOS. Case fatality rate of sepsis was 34%, among them.

20: Effect of ARG72PRO Polymorphism of TP53 Gene on The Incidence of Neural Tube Defects Among North Indian Population

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Keywords: Neural Tube Defects, Genetics, Tp53

Tumor protein p53 (Tp53) is a well known gene that plays a key role in apoptosis, and involved in neural tube development during embryogenesis. The analysis of Arg72Pro polymorphism among 100 mothers of NTD child and 200 control mothers, indicate that no significant difference in the genotypic and allelic frequencies. However, the 'Arg' variant was found to be more in anencephalic pregnancies (0.56), than spina bifida (0.43). The study highlights the importance of NTD phenotypic heterogeneity in studies focusing on the risk factors. Therefore, further investigation with more number of samples in stratified group of NTD cases may provide an insight into the definitive role of gene mutation on the devastating malformation.

21: Role of Maternal Genetics and Environment Neural Tube Defects Among Low Socio-Economic Indian Population

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Keywords: Environmental, Genetic, Homocysteine, MTHFR polymorphism, NTD

Neural tube defects (NTDs) have a complex and imperfectly understood etiology involving genetic and environmental factors. A case-control study among the mothers of

NTD children in lower-socio-economic population of North India, confirms that raised body temperature of the mothers & drug intake during early pregnancy, higher age at conception increases the risk of NTDs in the children. The mean plasma homocysteine levels were significantly high among NTD mothers, though no correlation with Methylenetetrahydrofolate Reductase (MTHFR) polymorphism was observed. The present study highlights environment plays a major role in the incidence of Neural Tube Defect births.

22: Impact of socio-economic status and environmental factors on Japanese encephalitis cases in the state of West Bengal, India during 2005-2009

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³ Assistant Research Officer, ICMR virus unit, Kolkata, India.

Keywords: Japanese encephalitis, socio-economic status, Acute Encephalitis Syndrome (AES), West Bengal, Mac-ELISA, RT-PCR.

Japanese encephalitis (JE) is a major public health problem in West Bengal. Previous reports have been suggested that socio-economic status, demographic variables and environmental factors play an important role in the spread JE in different geographical locations.

The main aim of the current study is to examine the impact of socio-economic status and environmental factors JE cases in the state of West Bengal, India during 2005-2009.

A total of 513 blood/CSF specimens were collected and/or referred from the suspected AES cases, admitted in the different medical colleges and hospitals of the state

during the year of 2005-2009. The samples were initially subjected to Mac-ELISA test followed by RT-PCR for the detection of JE cases.

Out of 513 samples, 139 (27.1%) samples were reactive to JE IgM antibody and 46 (8.9%) were RT-PCR positive. Among the JE positive cases 60.0% were from the male individuals and 40.0% from the female population. Major cases were observed in the age group of 0-10 years; followed by 11-20 years. Regarding literacy, 58.3% cases had no education and 41.7% were literate. A total of 65.7% cases were from low income group where as only 34.3% cases were from high income group. Regarding house type, 62.3% cases lived in mud house and 37.7% cases lived in the brick house. In most of the cases (74.3%), persons were living in close proximity to rice fields/ lakes/ponds. 69.7% cases were found to occur in the monsoon and post-monsoon period whereas 30.3% cases were reported in the pre-monsoon period.

Our study concludes that socio-economic status and environmental conditions were the contextual risk factors for JE incidences in West Bengal where JE is proved to be endemic in nature and such study constitutes a new report of this kind in the region.

23: Fighting Malaria at Home With OMARIA in Koraput - Odisha

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Kedar Gouri Road, Bhubaneswar-02, India.

Key Words : *Fight Malaria at Home; OMARIA; New Drug Moiety; Prophylaxis.*

ABSTRACT

OMARIA (Orissa Malaria Research Indigenous Attempt) is a new rural bio-medicine, in use, in mono station for >12 continuous years (since 1998) in India, in core malaria endemic region, also well known for drug resistance. Is concurrently gametocidal cum trophozocidal cum schizontocidal (i.e. anti malaria all stages); cum anti-inflammatory cum process scavenging effect cum potent anti-inflammatory effect on

WBC. Globally, currently there are no other drug or drug candidate that does all this co-laterally. Only OMARIA does. It is also not an alkaloid nor is cytotoxic. Is helpful for rural clinicians in developing nations. Original, 1st time find cum report.

Table (single) indicates the prophylaxis aspect of OMARIA. That 10190 caps., (5095gms) was consumed by 940 candidates = 5.4gms of OMARIA rind powder intake by each candidate, spread over 276 days. Hence, suggests, OMARIA has very effective prophylaxis. All these in trying clinical conditions.

Apart being effective against drug resistant Asian strains, OMARIA is now showing extraordinary efficacy against African drug resistant field isolates.

Figures (only 6) indicate the details about the invented candidate.

Effort OMARIA, continues. All are welcome to join “Fight Malaria at Home” with OMARIA. See *Asian Pacific Journal of Tropical Disease*, Vol. 1, No. 2, June, 2011, pp. 142-49. <http://www.apjtc.com/zz/2011jun/13.pdf>

Clinicians and Researchers are invited to join effort “Fight Malaria at Home” and also in research OMARIA.

24: Limitation of Urea Estimation in Renal Disease with Elevated Creatinine Level

Dr Arup Das (PGT), Dr Jahir Abbas (PGT), Dr D Basu (Professor)

Department of Practice of Medicine.

National Institute of Homoeopathy. Kolkata.

Keywords: Biochemistry, Homoeopathic hospital, Urea, Creatinine, Renal disease.

Abstract:

Biochemical estimations of urea and creatinine in blood are commonly done in renal diseases. Data from a series (n=209) showed that in 185 patients where both were estimated, only 18 showed increase of both and another 18 showed increase of creatinine

alone. In addition there was estimation of creatinine alone in 22 out of which only 3 showed increased value. The results indicated that bulk of the samples did not show abnormal results and that creatinine estimation was far more useful than urea estimation. It would be scientifically and logistically quite rational to estimate creatinine alone instead of both.

25: Daytime and nighttime variability in blood pressure in southeast young normotensive Indian population

Nishtha Vaidya

School of Life Sciences, Pt. Ravishankar Shukla University, Raipur – 492 010, India

Keywords: ABPM, blood pressure, circadian rhythm, dipping pattern, gender, heart rate.

Abstract

We investigated daytime and nighttime variability in blood pressure in a cohort of young normotensive human subjects (male: 40, female: 60). All subjects wore an Ambulatory Blood Pressure Monitor (ABPM, TM 2430) for 2-4 consecutive days. One fourth of the studied population was non-dippers. Daytime and nighttime averages of SBP, DBP and mean arterial pressure (MAP) were significantly higher in males than females. Further, daytime SBP, DBP & MAP were significantly higher in extreme dippers (ED) as compared to dippers (D) and non-dippers (ND). However, nighttime DBP and MAP were highest among ND followed by ED and D. Conclusively, information on day-night variation in blood pressure using ABPM in human subjects may be paramount in clinical diagnosis.

26. Supported-Employment for Chronic Schizophrenic Patients – A Rehabilitative Initiative

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Keywords : Supported-employment, vocational rehabilitation, schizophrenia

Acknowledging the dearth of clinical initiatives and research in the area of vocational rehabilitation for individuals with chronic schizophrenia in India, this study aims to determine success level in obtaining and maintaining employment for individuals with chronic schizophrenia and to investigate factors influencing supported-employment. The study has been undertaken at Christian Medical College between May, 2008 and June 2010 considering 181 individuals who approached for vocational rehabilitation. The demographic, clinical and employment related factors were analyzed for 92 adults with chronic schizophrenia whose cases were followed-up for an average period of 12-18 months. Data showed that 57% of the individuals could be placed, out of which two-thirds continued the job, while one-third dropped out. Better adherence to supported-employment was found in individuals having lesser number of relapses and longer duration in previous job. This study suggests inclusion of supported-employment in clinical practice while managing chronic schizophrenia.

27. Biochemical Effects of Chronic Plain and Blended Indian Pan Masala (PM) on Liver in Mice.

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Huthi Venkatakrishna Bhatt, Medical Scientist (Emeritus), Ex-Senior Grade Deputy Director, Consulting Editor, ENVIS-NIOH News Letter, Ahmedabad, Gujarat, India.

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Keywords : Hepatic enzymes PMP PMT Mice

Chronic consumption of pan masala plain (PMP) or with tobacco (PMT) cause liver injury. Three sets of both sexes of mice (n=60) of 6-8 weeks old weighing 21.2±5 g were accessed for staple diet with placebo, PMP and PMT for a period of 70 weeks. 16, 56 and 70 weeks blood samples were assessed for serum alkaline phosphatase / phosphatase (ALP), glutamic oxalo acetic (GOT) and glutamic pyruvic (GPT) transferases. Significant increase in all the enzymes comparison with placebo were found but its elevation in the intermittent samples varied in the between PMP and PMT groups. PMP treated mice showed maximum rise of enzymes after 56 weeks except GOT which remained exponential whereas maximum effect was after 16 weeks in PMT group.

28. Cytogenetic and genetic Counseling of the Patient in West Bengal, Eastern India and Bangladesh

Podder Gargi, M.Sc., Research Scholar,

Adhikari Aniket, M.Sc., Research Scholar,

De Auley, M.Sc., Research Scholar,

Halder Ajanta, M.Sc., Ph.D., Associate Professor,

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Gargi Podder, Department of Genetics, Vivekananda Institute of Medical Sciences, Ramakrishna Mission Seva Pratishthan, 99, Sarat Bose Road, Kolkata-700 026, India.

Keywords : Genetic counseling, cytogenetics, chromosomal abnormality.

This brief write-up is with reference to our 4-year (1st March 2006 to 28th February 2010) experience at the cytogenetics unit of the Genetics Department of Ramakrishna Mission Seva Pratishthan, Kolkata, India. Cytogenetics of 875 patients with amenorrhoea, recurrent abortions, infertility, monosomy X, chromosome mosaics, pseudohermaphroditism and Down syndrome was carried out. The importance of chromosome studies followed by genetic counseling is stressed in this present paper.

29. Effect of Nicotine on the Intelligence Quotient (I.Q.) and Blood Pressure of Smokers and Non-smokers.

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Department of Microbiology, St. Xavier's College, Kolkata.

Anindya Bose, Mugdha Dutta, Tamoghno Haldar, Ayan Chandra,

Department of Statistics, St. Xavier's College, Kolkata.

Keywords : Nicotine, smoking, I.Q., blood pressure, nicotine patch, nicotine gum, t-test, ANOVA, Box-plot.

Cigarette smoking has been identified as the most important source of preventable morbidity and premature mortality in the world. Smoking is an addiction because it induces temporary feelings of pleasure in the smoker, but these sensations are short-lived, subsiding within minutes. Smoke addicts often say that smoking helps them to concentrate and feel more alert. This addiction is because of nicotine, an important component of cigarettes. Smoking poses to be a major risk factor for heart attacks, strokes, chronic obstructive pulmonary disease (COPD), cancer and high blood pressure. These diseases are not because of the nicotine component of cigarette smoke but because of tar, carbon monoxide, hydrogen cyanide and other dangerous components in the cigarette. It is found experimentally that if the nicotine component is taken at a particular dose without intaking the cigarette smoke, like in the form of nicotine patch or nicotine gum, then the incidence of these diseases can be cut down to a great extent. Not only that, it is found to positively impact the speed and accuracy of a person's thinking ability, thereby boosting their IQ level without damaging the system. Thus nicotine is not the villain after all. If taken at the right dose, then it has a positive effect on the person's IQ and also lowers the incidence of diseases caused due to high blood pressure.

30. Daytime and nighttime variability in blood pressure in southeast young normotensive Indian population

Nishtha Vaidya,

School of Life Sciences, Pt. Ravishankar Shukla University, Raipur-492 010, India.

Keywords : ABPM, blood pressure, circadian rhythm, dipping pattern, gender, heart rate.

We investigated daytime and nighttime variability in blood pressure in a cohort of young normotensive human subjects (male : 40, female : 60). All subjects wore an Ambulatory Blood Pressure Monitor (ABPM, TM 2430) for 2-4 consecutive days. One fourth of the studied population was non-dippers. Daytime and nighttime averages of SBP, DBP and mean arterial pressure (MAP) were significantly higher in males than females. Further, daytime SBP, DBP & MAP were significantly higher in extreme dippers (ED) as compared to dippers (D) and non-dippers (ND). However, nighttime DBP and MAP were highest among ND followed by ED and D. Conclusively, information on day-night variation in blood pressure using ABPM in human subjects may be paramount in clinical diagnosis.

31. Analysis of certain co-variates of Japanese Encephalitis

Pronab Chatterjee,

Director, Professor, AIIH & PH, Kolkata (R), Advisor, C.O.D.

Keywords : Ecological imbalance, dead end infection, amplifier hosts, rainfall, temperature, humidity, number of rainy days, close proximity.

Japanese Encephalitis (JE) is an Arbovirus infection carried by the vector *Culex tritaeniorhynchus* and *Culex pseudovishnui*. Prior to 1920 the disease was entirely restricted to pigs, cattle, horses and birds such as night herons. The first outbreak of JE was recorded in 1920's in Japan, hence the name JE. The home of JE is N. Lakhimpur in Assam whence

it spreads to Dibrugarh, Nagaon etc. In W.B. the epicenter is Burdwan with spread to Bankura, Birbhum, Hooghly etc. Among human being the first that were affected were in the sixties / seventies of the last century. Due to close proximity of Human beings living with pigs (called amplifier hosts) cattle etc., the presence of C. Vishnui and suitable environmental conditions human beings especially children were affected with high fever, neck rigidity, convulsions and coma. The CFR was up to 50%. The disease is a dead-end infection in humans and therefore goes against the laws of nature.

32: Molecular detection of multiple dengue serotypes in some fever cases in Kolkata

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ICMR Virus Unit, Kolkata, India¹.

Key words: Dengue, serotype, Kolkata, India.

Abstract:

Dengue is one of the major public health threats in Kolkata. Every year, in the monsoon, considerable number of dengue like illness are recorded from this city. Some of these cases are referred to us from different medical colleges and hospitals in Kolkata for the detection of dengue infection, if any, in them. This year we aimed to identify the circulating serotype in the different region of the city. In 2010, a total of 378 samples were referred to us for that purpose. All the samples were tested for the detection of IgM antibodies by ELISA method, followed by RT-PCR test for the detection of serotypes. Only 173 samples were ELISA positive. Out of 378 samples, 108 were RT-PCR positive. Out of 108 samples, 74 samples had monotypic infection with different sero types of DENV, 33 samples had dual infections with DENV-2 and DENV-3. Only one sample had the infection with DENV-1, DENV-2 and DENV-3. The monotypic infection was

restricted mainly in the age group up to 10 years. Multiple infections were mostly observed in the higher age group.

33: Hypoxia inducible factor-1 in asthma pathogenesis: Hypoxia and asthma

Tanveer Ahmad, Manish Kumar, Bijay Pattnaik, Ulaganathan Mabalirajan, Suchita Singh, Balaram Ghosh & Anurag Agrawal

Key Words: Asthma, pathogenesis, hypoxia

Asthma is a complex disorder of inflammation, epithelial injury, and remodeling. We investigated the effects of perturbing the PHD-HIF axis in a mouse model of asthma.

Asthmatic features were aggravated by pharmacological stimulation of the hypoxic response, using an inhibitor of PHD2 (ethyl 3, 4-dihydroxybenzoic acid, DHB). There was increased airway hyper responsiveness, increased mucus secretion and increased airway remodeling in the mice challenged with Ovalbumin and DHB compared with mice only challenged with Ovalbumin. In conclusion, excessive hypoxic response increases the severity or risk of asthma and represents a new therapeutic target in severe asthma.

34: Impact of socio-economic status and environmental factors on Japanese encephalitis cases in the state of West Bengal, India during 2005-2009

A. Sarkar¹, D. Taraphdar¹, Subhra. K. Mukhopadhyay², S. Chatterjee³

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² Senior Lecturer, Department of Microbiology, The University of Burdwan, India.

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Keywords: Japanese encephalitis, socio-economic status, Acute Encephalitis Syndrome (AES), West Bengal, Mac-ELISA, RT-PCR.

Japanese encephalitis (JE) is a major public health problem in West Bengal. Previous reports have been suggested that socio-economic status, demographic variables

and environmental factors play an important role in the spread JE in different geographical locations.

The main aim of the current study is to examine the impact of socio-economic status and environmental factors JE cases in the state of West Bengal, India during 2005-2009.

A total of 513 blood/CSF specimens were collected and/or referred from the suspected AES cases, admitted in the different medical colleges and hospitals of the state during the year of 2005-2009. The samples were initially subjected to Mac-ELISA test followed by RT-PCR for the detection of Je cases.

Out of 513 samples, 139 (27.1%) samples were reactive to JE IgM antibody and 46 (8.9%) were RT-PCR positive. Among the JE positive cases 60.0% were from the male individuals and 40.0% from the female population. Major cases were observed in the age group of 0-10 years; followed by 11-20 years. Regarding literacy, 58.3% cases had no education and 41.7% were literate. A total of 65.7% cases were from low income group where as only 34.3% cases were from high income group. Regarding house type, 62.3% cases lived in mud house and 37.7% cases lived in the brick house. In most of the cases (74.3%), persons were living in close proximity to rice fields/ lakes/ponds. 69.7% cases were found to occur in the monsoon and post-monsoon period whereas 30.3% cases were reported in the pre-monsoon period.

Our study concludes that socio-economic status and environmental conditions were the contextual risk factors for JE incidences in West Bengal where JE is proved to be endemic in nature and such study constitutes a new report of this kind in the region.

35: Evaluation of Genomic Imbalances in Idiopathic Mental Retardation (among Sick Neonate and Children with multiple congenital malformations) by High Resolution Chromosome Analysis by Comparative Genomic Hybridization (HR-CGH)

***Puspal De, *Sudipa Chakravarty, **Gorachand Bhattacharya and *Amit Chakravarty**

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Key Words: Sick Neonates, HR-CGH,CNV

Abstract:

Malformations are a major cause of morbidity and mortality in full term infants and genomic imbalances are a significant component of their aetiology. However, the causes of defects in many patients with multiple congenital malformations remain unexplained despite through clinical examination and laboratory investigations. Recent advances in resolution of comparative genomic hybridization and genomic sequence annotation has identified new syndromes at chromosome 3q29 and 9q34. Present paper is a preliminary report of idiopathic mental retardation have been scan the entire genome to identify copy number variations (CNVs) in chromosomal structural changes (CGH by Cytovision) which will help to identify new syndrome in sick neonate

36: A Study on the Severity of UTI – A Statistical Approach

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Keywords : Colony forming units, *Escherichia coli*, alcohol, antibiotics, natural remedies, ANOVA, t-test, p-value.

UTI (Urinary Tract Infection) is a bacterial infection caused mostly by uropathogenic *Escherichia coli* and can involve pyelonephritis (kidney) cystitis (bladder) or asymptomatic bacteruria.

Treatment with antibiotics (Doripenem, Gentamycin, Nitrofurantoin etc.) can cure the disease but their effectivity is largely influenced by other factors like age, sex, alcohol consumption, intake of natural remedies and even lifestyle.

A statistical analysis revealed that women are more susceptible to UTI than men for the age group 15-55 years (p value = 0.0001) but for 55 years and above frequency of occurrence of infection was roughly equal in both the sexes (p value = 0.42).

Again despite hormonal changes in menopausal women being believed to facilitate UTI, younger women were almost equally susceptible due to active sexual life, use of birth control methods etc.

Also antibiotic efficiency was reduced by alcohol consumption which lowered the decrease in colony count. A p value of 0.0001 confirmed that reduction in colony count was more in non-alcoholics than in alcoholics.

Treatment with natural remedies however helped overcome the effect of alcohol to a certain extent thereby increasing the efficacy of antibiotics.

37: Molecular detection of multiple dengue serotypes in some fever cases in Kolkata

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Key words: Dengue, serotype, Kolkata, India.

Abstract:

Dengue is one of the major public health threats in Kolkata. Every year, in the monsoon, considerable number of dengue like illness are recorded from this city. Some of these cases are referred to us from different medical colleges and hospitals in Kolkata for the detection of dengue infection, if any, in them. This year we aimed to identify the circulating serotype in the different region of the city. In 2010, a total of 378 samples were referred to us for that purpose. All the samples were tested for the detection of IgM antibodies by ELISA method, followed by RT-PCR test for the detection of serotypes. Only 173 samples were ELISA positive. Out of 378 samples, 108 were RT-PCR positive. Out of 108 samples, 74 samples had monotypic infection with different serotypes of DENV, 33 samples had dual infections with DENV-2 and DENV-3. Only one sample had the infection with DENV-1, DENV-2 and DENV-3. The monotypic infection was restricted mainly in the age group up to 10 years. Multiple infections were mostly observed in the higher age group.

38: Involvement of oxidative stress in a set of Indian patients with ischemic heart disease

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Key words: Ischemic Heart Disease, oxidative stress, antioxidants, ECG

Ischemic Heart Disease (IHD) is a major problem of global concern. The incidence of IHD is on the rise. The serum analysis of patients with IHD showed remarkable changes in the activities of cardiac marker enzymes, biomarkers of oxidative stress and alterations in the activities of the serum antioxidant enzymes compared to normal healthy individuals. These alterations were supported by the changes observed in the electrocardiogram (ECG). The results perhaps indicate for the first time an association between ECG and the biochemical parameters in IHD patients and point toward involvement of oxidative stress in IHD. Further studies are in progress.

39: Studies on the Seasonal Prevalence of *Culex vishnui* group Mosquitoes, the Vector of Japanese Encephalitis Disease in Sonipat District (Haryana) in NCR Delhi, India

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Key Words : Japanese encephalitis, Immature stages, Vector, Per dip larval density *Culex vishnui* group, *Culex tritaeniorhynchus* and *Culex pseudovishnui*

Abstract:

Mosquitoes borne diseases like Malaria, Filariasis, Dengue/DHF, Chikungunya and Japanese Encephalitis are the most common public health hazard in the world and these mosquito borne diseases are transmitted by some mosquito species both in urban as well in rural areas. Japanese encephalitis has emerged as a major public health problem during the present years. Till date more than 25 states/UTs have reported the outbreaks of J.E. Keeping in the view of above, the study on the seasonal prevalence of immature stages of *Culex vishnui* group mosquitoes, the Vectors of J. E were carried out in Jhundpur village of Sonipat district (Haryana) in NCR Delhi rural area. Immature stages of mosquito were collected at weekly interval during the year using standard entomological methods. Material was processed and identified in the laboratory. Data was analyzed monthly and results revealed the presence of *Culex vishnui* group larvae comprising of *Culex tritaeniorhynchus* and *Culex pseudovishnui*. *Culex tritaeniorhynchus* was predominantly occurring species in the study area and was found to occur round the year except in the month of January and February. *Culex pseudovishnui* larvae were found during the months of March, April, September, October and November. *Culex vishnui* was not recorded during the study period. During the year, over all per dip

larval density of *Culex vishnui* group mosquito ranged from 6.8/ dip to 44.6 / dip. Presence of *Culex vishnui* group in a non paddy field of Sonipat district in rural area is a matter of concern as the study area is in NCR Delhi.

40. Preliminary Evaluation of Larvicidal Efficacy of *Allium sativum* (garlic) Against Three Vectors of Mosquito Borne Diseases

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Key Words : *Allium sativum*, Insecticide Resistance, larvicidal & Chikungunya

Abstract:

Control of mosquito-borne diseases is more difficult due to the increased resistance of mosquito populations to synthetic insecticides which are used in public health programs and also in agriculture over the last 5 decades and these insecticides have created multifarious problems viz. insecticide resistance, environmental pollution, toxic hazards to humans and other non-target organisms. Biocides offer not only effective mosquito controlling agent but also biorational alternative to synthetic insecticides & also safety to environment to low cost & some cases recycling properties. These characteristics make the biocides an important and useful tool in integrated vector control programmes. Keeping in the view of above the present study was aim to screen biocide properties of crude extract of fresh stem of *Allium sativum*(garlic) against three vector mosquito species viz. *Anopheles stephensi* (malaria), *Culex quinquefasciatus* (filariasis) and *Aedes aegypti*

(Dengue/DHF&Chikungunya).As the *Allium sativum* shows different medicinal,digestive etc. properties since ancient time, however there have been no reports regarding the insecticidal properties against mosquito species. A solution of 0.5%, 1.0% and 2.0% was prepared and tested against the larvae of above mentioned mosquito species along with control following standard methods. The results shows that the crude extract of fresh stem of *Allium sativum* (garlic) against the larvae of *An. stephensi* shows 100% mortality at 1.0% followed by *Ae. aegypti* and *Cx. quinquefasciatus* at 2.0% in 24 hrs.However 100% mortality of *An. stephensi* larvae at 0.5% followed by *Cx.quinquefasciatus* at 1.0% & *Ae.aegypti* at 2.0% in 48 hrs of exposure whiles no mortality was detected in control.This study indicates that the crude extract of fresh stem of *Allium sativum* has remarkable larvicidal properties against the larvae of above mentioned vector mosquito species. *Allium sativum*(garlic) therefore can be considered as probable source of some biologically active compounds used as mosquito control, particularly as vector mosquitoes larvicide.

Ergonomics & Sports

41: Functional clothing for field use for Indian agriculture workers

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Keywords: *Agricultural workers, functionality, knitted clothing, fashion*

Although there are so many hazardous factors and variable climatic conditions, no specific protective clothing is in practice for Indian agricultural workers. They mainly prefer bare upper body during working or use low cost garments of synthetic fibers. This type of machine woven synthetic cloths can not absorb sweating. Hence, agricultural worker refuse to wear during work. In the present paper an attempt has been made to

study how cloths can be designed for agricultural workers as per Indian scenario and climatic conditions, which will be of low cost, allowing better sweat absorption, protect their body from sunlight, provide normal body joint mobility and comfort. It is expected that knitted cotton or mixed fibers cloths with proper anthropometric compatibility might be a solution. Consideration of aesthetic may add a new dimension towards enhanced acceptability.

42: A study of Physical growth parameters among adolescent girls (10-19years)

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Key words: Physical growth, adolescent girls

Objective: To study and record the anthropometric data and calculate BMI of adolescent girls and to study the correlation of weight with age, height and BMI and with other influencing variables.

Material and Methods: The study was carried out in 12 girls schools (from 6 to 10+2 standard), of Ludhiana city, Punjab. For the 1080 adolescent girls, demographic variables, weight and height were recorded. BMI was calculated to assess the nutritional status. Statistical tests viz. Chi square test, Z-test, ANOVA and correlation coefficient were performed to analyse the data.

Results: Out of 1080 adolescent girls, 177(16.4%) and 477(44.2%) were in the age group of 12-14 and 16-19years. The mean weight (kgs) and height (cms) was 29.82 ±5.65, 38.56±7.00 and 46.00±7.29 and 137.21±10.76, 148.94±8.56 and 154.88±6.46, in the age group of 10-12, 13-15 and 16-19 years, respectively. Significant relationship was observed for both weight ($r=0.668$) and height ($r=0.596$) with age of adolescent girls. 7.3% subjects were underweight, 7.8% overweight, 3.8% obese and 81.1% healthy.

Majority of the underweight girls (53.2%) were in 10-12 years of age. Of the obese girls, 56.1% had family history of obesity.

43: Effect of Core Stabilization Training on The Lower Back Endurance in Recreationally Active Individuals

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Key Words;- Core stability training; Swiss ball; Prone bridge test; Plank test

Abstract:-

Purpose: The objective of the present study is to evaluate the effect of the lumbar core stabilization training on the lower trunk endurance performance among recreationally active players.

Methods: This study is a randomized controlled trial in which 40 recreationally active subjects aged 18_27 years were equally allotted into two groups. One group was the control group, which received no intervention, and other group was the experimental group, which received lumbar core stabilization training of six-week duration. Lower trunk endurance performance was assessed using “time” (in seconds) as the dependent variable according to the various clinical tests such as Sorensen test, Plank tests (prone, right side, left side) and abdominal fatigue test. All test performance was done at day zero (pre-test) and after six weeks (post-test). Data were analyzed by independent t-test for between group comparison and paired t-test for within group comparison.

Result: The finding of this study is that core stabilization training significantly improved ($p < 0.05$) for the lower trunk endurance performance. Control group did not show any significant improvement in lower trunk endurance performance.

Conclusion: This study concludes that core stability training leads to improvement in the lower trunk endurance performance.

44: Ergonomic Design intervention reducing physiological problems among women weavers of NE India

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Keyword:-Women weavers of NE India, ergonomics, menstrual cycle, handloom seat.

Abstract:-Women weavers exist as one of the major workforce in the handlooms of North East. Though women are the main workforce, it appears that the loom and the workplace are not properly designed considering their physical and physiological requirements. This draws attention to study the women specific occupational issues in terms of work comfort and productivity. A study was conducted among the weavers of Meghalaya and Assam (n=50) regarding postural load out of seating arrangement and loam operation with specific view to menstruation periods. Reports confirm of having heavy flow while performing weaving task and operating discomfort for pedalling the loom. This triggers a need for ergonomic design intervention looking into seating arrangements on the existing loom frame to improve working and overall wellness. This paper cites few steps considered in this regard.

45: Dancing Exercise and Its Impact On Body Composition In Females

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Keywords: *exercise, dancing, body composition, fitness*

Abstracts

The technological advance has not only made our life fast and easy, but also has made us relatively inactive physically, resulting in people becoming more overweight. It is well known that along with proper balance diet, right exercise plays important role in maintaining optimum body weight leading to fitness, health and well being. A study was conducted in this backdrop, after obtaining permission from concerned authorities, individuals belonging to different age range. The objective was to determine the impact of dancing exercise on body composition and cardio vascular risk factors in females. Data obtained from different individuals, belonging to both the experimental (receiving dancing training for a minimum period of 5 years) and control groups(not engaged in regular, formal physical exercise) groups, in respect of different basic body composition parameters measured using anthropometric and bio-electric impedance techniques and basic cardiovascular parameters measured using both conventional and telemetric techniques were analyzed. It was observed that experimental group subjects have significantly lower body weight, body fat percentage and subcutaneous fat percentage in different parts of the body compared to control group subjects ($P < 0.05$). An identical trend has been found for basic cv fitness parameters. It may be concluded that regular dancing exercise improved body composition leading to better cardiovascular fitness.

46: Visual behaviour of Indian consumers in product selection

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Sougata Karmakar**

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Keywords: *visual behavior, physical attributes of product, product selection, eye tracking, Indian consumer market*

Abstract: Present recession and share market disruption have led more foreigners to invest on product industries in India, one of the biggest consumer markets. Understanding visual behaviour of Indian customers in product selection has gained tremendous importance in recent-time. Physical attributes (colour, form, texture, etc.) of the product and its visual advertisement (aesthetics/ attractiveness) influence the costumer to buy a product. There is rare information regarding Indian consumer's choice making. Present paper highlights the need of research in this field and also attempt has been made to give some ideas in that direction based on eye tracking study among Indian students.

47: Study of lower back and hamstring flexibility among college students

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Guwahati-781039, Assam, India.

Keyword: back flexibility, back strength, physical activity, low back pain, Indian student, correlation

Abstract:

Sedentary life styles of the students due to overloading curriculum predispose risk of lower back pain related issues. Insufficient information about assessment of back strength flexibility among Indian students prompted to measure the Back Flexibility Score (BFS) and Back Strength Score (BSS) of the normal healthy under graduate

students (35 male, 35 female, age= 19.3±2.1 yrs) using ‘Adjustable Sit and Reach flexibility Tester’ and ‘Back Strength Dynamometer’, respectively. Statistical analysis of the data involving correlation approach demonstrated that gender and physical activity influences the scores most. Detailed interpretation of the results strongly suggests regular physical activity involving back stretching is essential for maintaining a healthy and flexible back

48: Peak Expiratory Flow Rate and Anthropometric Determinants Among Students of Kalinga Institute of Medical Sciences And Dental Sciences, Bhubaneswar, Orissa.

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Dr. Magna Manjareeka, Dr. P.K. Nayak, Dr. K. De, Dr. P. Mohanty**

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KEY WORDS - PEFR, Anthropometry, Healthy young adults

ABSTRACT

Peak Expiratory flow rate (PEFR) was measured in 181 healthy adult male and female students of Kalinga institute of medical and dental sciences. The instrument used for the purpose was “The Peak”, Individualised Peak flow meter from Multispiro Inc. Best of three readings was considered. The variations of Peak Expiratory Flow Rate (PEFR) with respect to height (ht) and weight (wt) were determined in these subjects. There was a positive correlation of PEFr with height and weight in the young adult males and females. In the males PEFr correlated better with height and in the females it correlated better with weight.

49: Evaluation of Hand Grip Strength in Relation to Body Posture and Joint Angle in Adult Bengalee Population

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Key words: Hand grip strength, posture, arm position

ABSTRACT:

The present work was aimed to establish an optimal body posture and body joint angle for the maximum hand grip strength and to assess the variation of grip strength with the changes of posture and body joint angle for adult subjects in Bengalee (Indian) population. Adult male (n=156) and female (n=224) subjects were selected by random sampling method. The hand grip strength was measured by using Lafayette (USA) hand grip dynamometer in different postures and different positions of the arm. Our findings indicated that the male subjects had significantly greater ($p < 0.001$) grip strength compared to female. The highest grip strength was found in standing posture with an elbow angle of 90 degree in male and female subjects. The optimized body posture and joint angle may be useful for improving the accuracy of measurement of grip strength for the target population.

Pain medication, such as morphine and oxycodone, and antiemetics, drugs to suppress nausea and vomiting, are very commonly used in patients with cancer-related symptoms. Improved antiemetics such as ondansetron and analogues, as well as aprepitant have made aggressive treatments much more feasible in cancer patients. Given the unique skills of anaesthesiologists in pain management and regional anaesthesia, the role of anaesthesiologists is increasing in the care of cancer patients.

50: An investigation on prevalence of Anemia in relation to BMI, nutrient intake and socioeconomic condition among the female cultivators of West Bengal

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Key words: Anemia, BMI, Nutritional parameter, Socio-economic condition, Female cultivator

Abstract:

The objective of the present study was to investigate the interrelationship among the prevalence of anemia, BMI, nutritional intake, and socioeconomic condition in female cultivators. The study was conducted on adult 163 female cultivators from the different villages of West Bengal state. The BMI, nutritional parameters, heart rate and hemoglobin content were measured by standard technique. The prevalence of anemia was high among female cultivators. Among of them 34.97% of had mild, 14.11% had moderate and 9.2% had severe anemia. Nutritional survey indicated higher consumption of nutrients in non- anemic females than anemic females. The BMI study revealed that 70.83% of underweight, 54.67% of normal, and 18.75% of overweight female cultivators were anemic. The females with poor socioeconomic condition had a significantly higher percentage of anemia and low hemoglobin level than that of higher socioeconomic group. The prevalence of anemia in female cultivators might be related to the above factors.

51: Comparative evaluation of musculoskeletal disorders between two Postures adopted by the female workers engaged in mat weaving

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Key words: Posture, MSD, discomfort rate, joint angle, mat weaver.

Abstract:

The present study was aimed to evaluate the musculoskeletal disorders (MSD) of female mat weaver in two working postures, e.g., sitting on the floor with folded knees and squatting posture. The study was carried on 42 adult women, who were engaged in traditional mat weaving in Purba Medinipur, West Bengal. The MSD and body part discomfort rating of the workers was evaluated by standard methods. The body joint angles in normal standing and different working postures were recorded by a goniometer. The results revealed that the prevalence of MSD in case of adopting squatting posture was higher in most of the body segments than that of sitting on the floor with folded knees. The mean value of discomfort rating was higher in case of adopting squatting posture than that of sitting posture. There were significant differences ($p < 0.05$) in some of the body joint angles between two postures. It may be concluded that mat weaving in squatting posture is more hazardous in comparison to traditional sitting posture.

52: Anthropometric and body composition characteristics: a study on normal vs. diabetic adult population

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Key words: Nutritional status, diabetics, anthropometry, body composition and bioelectrical Impedance.

Abstract:

The present investigation was undertaken with a view to obtain information regarding anthropometric and body composition characteristics among normal vs. diabetic adult population. Information regarding anthropometric measurements like stature, weight, MUAC, skin fold thickness (Triceps, Biceps, Sub-scapular, Supra-iliac), waist circumference, hip circumference of study participants was collected. Among normal and diabetic group the statistically significant difference ($p < 0.05$) was present for biceps values. Nutritional status of participants were found with mean BMI i.e. 24.5 ± 2.8 , 24.0 ± 3.6 , 23.8 ± 3.8 and 25.9 ± 4.8 for normal male and female and diabetic male and female respectively. Body composition by Bioelectrical Impedance Analysis (BIA) showed that among normal and diabetics % fat free mass content, total body water and body cell mass had a significant difference ($p < 0.05$).

**53: Applications of nanomaterial in the field of Design Ergonomics:
Present status and future directions**

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Keyword: *Nanotechnology, Nanomaterial, Ergonomics, Workplace design, Nanoergonomics.*

Abstract:

Application of nanotechnology and nanomaterials are not new in the field of design, but a recent trend of extensive use of nanomaterials in product design has been drawing attention all over the world. Present paper describes diverse use of nanoparticles in the field of product and workplace design with special emphasis on ergonomics (occupational health and safety; thermo-regulation and work efficiency, cognitive interface design; maintenance of workplace etc.) to make them more users friendly and acceptable to people. Nanoergonomics for sustainable product and workplace design has been felt to be an emerging research area from literature review.

**54. Anthropometric, Body composition and Physiological variables by Age
and Sex : the Kolkata Childhood Obesity Study**

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University, Sriniketan-731 236, West Bengal.

Keywords : body composition, puberty, obesity, Asian Indians.

The purpose of the present cross-sectional study was to identify the variation in anthropometric, body composition and physiological characteristic among children and adolescents of Asian Indian origin. A total of 1198 (689 males and 509 females) school

children aged between 8 and 18 years inhabiting in and around Kolkata took part in the study. Participants were selected randomly from eleven Government, Government sponsored and Private Schools in Kolkata, West Bengal. The subjects (boys : girls) were divided into three groups : pre-adolescents (Group I = 8-11 years) = 210 : 185; adolescents (Group II = 12-16 years) = 425 : 281; post-adolescents (Group III = 17-20 years) = 54 : 43. The anthropometric measures namely height, weight, skinfolds thickness at biceps, triceps, subscapular and suprailiac were collected using standard techniques. Sum of four skinfolds (SF₄) were computed subsequently. The body compositional measures such as percentage of body fat (%BF), basal metabolic rate (BMR) and body mass index (BMI) were measured using an Omron body fat analyzer. Left arm blood pressure was taken from each participant with the help of an Omron MI digital electronic blood pressure / pulse monitor. The SF₄ was found to be decreased through pre-adolescence to post-adolescence stages. However, no such significant group difference was observed for BMI. The greater onset of male sex hormone during the puberty along with the development of secondary sexual characteristics could have attributed for these differences and warranted longitudinal investigation for childhood prevention of chronic diseases, e.g., obesity.

Homoeopathic, Ayurvedic and Alternative Medicine

55: Amla (*Emblica officinalis*) ;Rejuvenating boon for Mankind

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Key word: Amla, Rejuvenation, pharmacological actions

Abstract:

Ayurveda, one of the most ancient medical practices in the globe is enriched intellectual properties of we Indians. Principles of pharmaceutics and therapeutics of Ayurveda are incredible and being practiced with its ensured safety and efficacy provided

these principles are followed in manufacturing and clinics and in its true letter and spirit. Amla and its many secondary products have been invented since the period of Charaka Samhita (1000 BC). In descriptions of Chikitsa and Kalpa Sthan (Section of medicine and formulations) Amla and its product have been treated as a very prominent therapeutic agent to treat different disorders of the human system.

Recently in the last two decades there is a surge of scientific researches leading to validation of all pharmacological actions quoted in Ayurvedic Classics specifically its anti-oxidant properties which may be one contributory reason in functioning of substance as Rasayan (Rejuvenation). Immunological parameters are very vital for normal physiology of the human body. Some contemporary researches have substantiated immunomodulating property of Amla.

These all pharmacological properties of Amla are mentioned in Charaka Samhita, Kusthaghna, Virechnopag, Kashahar, Jwarhar, Vay-stthapana and Susruta Samhita Mustadi gana, Triphala, Amlkyadigana, Adhobhaghar dravya. In this paper we will review the scientific correlation of pharmacological and therapeutic property of Amla given in Ayurveda with contemporary researches taking place in vivo and in vitro in laboratories and clinics.

56: The effects of Marma Chikitsa “in Management of Neck Pain of Mechanical Origin”

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Abstract:

‘Marma chikitsa’ is one of the ancient non Pharmacological Healing Methods in Ayurvedic system serving the people for thousands of years, providing relief from pain and other disorders. Sushruta the famous Ayurvedic Surgeon described in his writings “Shushruta Samhitha” about 107 Marma Points (vital areas).

Aim of study was to evaluate the effects of Marma Chikitsa, in management of mechanical neck pain and to avoid UN necessary medication, or hasty surgeries.

The study shows that the stimulation of marma points has remarkable effect in management of mechanical neck pain and it improves the 'Quality of Life'. Though the study needs more investigations and observations to establish better rehabilitation methods in future.

57: Comparative Study of Calcium-based Ayurvedic Drug Mautika Bhasma and Pure Calcium Carbonate

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Key Words :- Ayurvedic System of Medicine, Mautika bhasma Calcium based Drug, Comparison with Calcium Carbonate

Abstract:

In ayurvedic system of medicine, there is a specific class of drugs of inorganic origin. This includes ayurvedic bhasmas derived from Gem stones. All the principal nine gem stones and a large number of secondary or subsidiary gem stones are used in ayurved pharmacy for medical purpose.

Mautika bhasma is one of the important drugs which is synthesized from pure and naturally occurring pearls by following traditional ayurvedic process of the smikana.

Excellent medicinal properties are ascribed to a genuine mautika bhasma which are quite different from pure calcium carbonate which is the principal constituent of mautika bhasma. Therefore, a comparative study of mautika bhasma and pure calcium carbonate has been carried out to find the differential characteristic properties of mautika bhasma.

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 - 6 Sharad H. Bhosale : Poona College of Pharmacy, Pune – 38
- 58 **“Pharmacognostic, and preliminary Phyto-chemical evaluations in leaves of *Dioscorea hispida*, Dennst”**

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and Chandrasekhar, K.B.**

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Key words: *Dioscorea hispida*, Dennst (DHD), methanolic extracts, pharmacognostic, physico-chemical, phyto-chemicals, , antioxidant activity

ABSTRACT

In the present study, the leaf of an ethno-medicinal plant, *Dioscorea hispida*, Dennst (DHD) was taken to evaluate the status pharmacognostic through physico-chemical and preliminary phyto-chemical analysis. The antioxidant activity was also carried-out in the leaf extract of *Dioscorea hispida*. The physico-chemical values and Fluorescence

characteristics of the plant powder under ordinary light that gives an appearance of the substance as 'earthy matter and could be inorganic composition along with other impurities present in the leaf powder. The percentage of total ash, acid insoluble ash and water insoluble ash, foreign organic matter and total moisture content were analyzed in the leaf powder. This indicates the active status of pharmacognostic and efficiency of the plant material towards preparation of drug. The preliminary phyto-chemical parameters viz, alkaloids, flavonoids, saponins, carbohydrates, proteins, tannins, glycosides, fixed Oils & fats, phyto-streols and phenolic compounds were analyzed for their active presence in the organic solvents like, methanol and ethanolic extracts. Whereas, in the other organic extracts like, chloroform, acetone, benzene and water extracts the active constituents are not at the considerable level. The presence of active secondary metabolites in the leaf extracts of DHD may have profound activity and can justifies the status for preparation of potential drug. The antioxidant activity has been evaluated by DPPH radical scavenging method. The selected ethano medicinal plant, *D. hispida* has antioxidant activity at significant level. The ethno-medicinal plants contain generally different phenolic compounds with different amount of antioxidant activity. The results obtained in this investigation reveal that, the fractions of DHD leaf extract are free radical scavenger and able to react with the DPPH radical, which might be attributed to their electron donating ability. In conclusion, the pharmcognostic evaluation of DHD leaf could be used as the diagnostic tool for the standardization of selected medicinal plant to substantiate and authenticate the drug.

59. **Success of Homeopathy to cure Ideopathy**

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Keywords : Ideopathic, incurable, disease, homeopathy, symptoms, cause, habit, nature, characters, modalities, treatment, medical scientist, research, integration etc.

Medical science usually express its inability to cure those diseases which are due to absence of positive existence of the cause, term it as Incurable or Idiopathic.

Homeopathy, the alternative medical a system, with aid of the patient's individual symptoms and use of powered micro doses remedy has shown its practical records and common people supports, claims its success to resolve the problems with its easy mode of treatment. The back history, cause, habit, nature, characters, and modality of the patient, play an important role during the treatment of the case. The article represents the success regain by homeopathy to cure few common diseases along with case records be concentrate the mind of any curious medical scientist to do some research on the systems on the platform of modern science. Hope such type of paper presentation not only helps the physician on way of integration but also other medical experts who is not belong to the system may take advantage of the technology or the medicine at the place where it need.

60. Homoeopathy in common cancer – A critical Analysis

Pradhan Ashoke Kumar, Ghosal Kajal, Lahiri Debasree

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Keywords : Common cancer, nature's law of cure, holistic approach, miasmatic, constitutional, homoeopathic medicine.

Cancer is now the second leading cause of death and is a challenge to all oncologists, surgeons, as well as governments. To meet this burning problem, homoeopathy has a great role to combat against cancer in a gentle, harmless and economically viable way. In Homoeopathy, we treat the patient and not the disease itself, based on Nature's law of cure and in an individualized, miasmatic, constitutional, holistic approach considering the totality of symptoms comprising the disease symptoms, family history, past history and personal history, mental symptoms of the individual cancer patient.

The purpose of the investigator is to search and review the related homoeopathic medicines for common cancers along with dietary regimen and exercises.

The purpose of the research is to enlighten the patient, educator groups as well as doctors about common cancers with their etiology, signs and symptoms, metastasis, investigations and diagnosis and to enlighten the efficacy of homoeopathic treatment in cancer patients before and after chemotherapy, radiotherapy and surgery. It will also provide a guideline on homoeopathic remedies with their guiding symptoms.

A statistical analysis has been made out of approximately thousand registered cancer patients during the period of 2004 to 2010 and an analysis and discussion made.

61. Homoeopathic Treatment in Breast Cancer

Ghosal Kajal, Pradhan Ashoke Kumar, Pradhan Amalendu, Lahiri Debasree

Institute of HYDT Research & Education, 487, Rabindra Sarani, Kolkata-70 005

Keywords : Breast cancer, homoeopathy, chemotherapy, radiotherapy, mammography, FNAC, self examination of breast, Institute of HYDT Research & Education, metastasis, homoeopathic therapeutics.

Breast cancer is one of the most leading causes of cancer death among women. The incidence of breast cancer is increasing in India day by day due to lack of early detection, fear of cancer, illiteracy and rituals among the races. Many women do not like to do routine checkup by self-examination of breast, mammography, USG, FNAC and Excision Biopsy. To compound problems, there is fear of finding cancer, social taboo and poor socio-economic condition.

This paper will present the cases of breast cancer patients treated by Homoeopathic medicine at Institute of HYDT Research & Education. The patients hail from both rural and urban areas with Breast Cancer of different types and stages. The paper provides with a Statistical Analysis of race, sex, age group, stage of cancer and metastasis including pre and post surgery, chemotherapy and radiotherapy.

This presentation will enlighten the importance of creating awareness, seeking medical advice, importance of homoeopathic medication which will reduce the morbidity and mortality of breast cancer. The paper will also enlighten the women regarding predisposing factors (risk factors), signs and symptoms, early diagnosis, self examination of breast, clinical and pathological investigations, invasion-grade and metastasis and prognosis of the breast cancer patient along with homoeopathic therapeutics.

62. Sphere of Homoeopathic Medicines in the Treatment of Renal Failure

Dr. Udayan Kumar De,

Ex-Medical Officer, D.N. De Homoeopathic Medical College & Hospital.

Keywords : ARF, DIALYSIS; UREA; CREATININE; HOMOEOPATHIC MEDICINES.

Mr. Ranjan Roy, 73/M/H; Diagnosed as ARF on 3.10.10 with H/o Fever, loose motion and oliguria. Dialysis was running twice a week from 3.10.10. On 12.11.10 patient came to me with having serum urea 73 mg/dl, creatinine 5.65 mg/dl, K⁺ 3.3 m mol/L, Hb 8.3 gm/dl as on 8.11.10.

Tuberculinum 2C/2 doses BD on 12.11.10 followed by Eel Serum 7X, 10 drops TDS from 14.11.10. Then Ars. Iod. 2C/2 doses BD on 27.11.10 followed by Eel Serum 7x, 10 drops TDS. Dialysis was stopped from 24.12.10. Then Ars. Iod. 2C/2 doses BD on 9.3.11 followed by Eel Serum 7x, 10 drops BD. Patient was improved, having urea 48 mg/dl, creatinine 2.92 mg/dl, Hb 8.5 gm/dl on 8.6.11. Then Eel Serum 7x, 10 drops BD was running. On 17.8.11 urea 44 mg/dl, creatinine 2.5 mg/dl, Hb 9.6 gm/dl. Till date no Dialysis was needed further from 24.12.10 and the patient was cured then.

63. Brief Study of Use of Jaluka in Modern Science

Renuka Kishor Raje,

First year B.A.M.S., Chaitanya Ayurveda Mahavidyalay, Sakegaon, Bhusawal, Jalgaon.

Keywords : Annelida

Health in Ayurveda is a goal to attain spiritual and physical way of life. Panchakarma includes vaman, virechan, basti, nasya, and raktamokshan.

Raktamokshan contains two types – one with instrument and other without instrument, but the people leech therapy is best for those who are afraid surgery. The unique concept has been developed by Sushruta, which is widely used today. This therapy had also cured abdominal tumors, hemorrhoids, abscessa, leprosy, and many other skin diseases.

My attempt is to find people getting benefit from this treatment and popularize the method among common people.

64. Treatment of renal cell carcinoma by homoeopathic medicines – a review and a case report.

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Head, Department of Pathology, Burdwan Homoeopathic Medical College, Burdwan,
West Bengal.

Abstract

Overall, about 85% of renal masses, presumed to be kidney cancers on imaging studies, are carcinomas at nephrectomy. Changes to the American Joint Committee on Cancer (AJCC) staging of renal cell carcinoma (RCC) were recently released in the 7th edition of the AJCC Cancer Staging Manual. These have resulted in proposals for revision of the locally advanced RCC staging system. The urology and radiology groups

from the MD Anderson Cancer Center have recently detailed their protocol for an optimally performed CT of the abdomen in the staging of a renal mass. A recent Japanese study with histopathologic correlation and blinded evaluators found a specificity of 96.4% and a sensitivity of 77.3% for diagnosing RCC in a series of renal masses <5 cm that included a significant proportion of benign lesions. The overall survival after nephrectomy for RCC is different from the excellent overall survival in the donor nephrectomy population. In Homoeopathy selection of remedy is based upon the theory of individualization and symptoms similarity by using holistic approach. The aim of homoeopathy is not only to treat kidney cancer symptoms but to address its underlying cause and individual susceptibility. Many medicines are available for kidney cancer symptoms treatment and for individualized remedy selection and treatment, the patient should consult a qualified homoeopathic doctor in person and there are many homoeopathic medicines which could be helpful in the treatment of kidney cancer symptoms on the basis of symptom similarity like Thuja, Apis Mel, Hellebores, Arsenic, Picric Acid, Phosphorous, Cantharis, Terebinth, Benzoic Acid, Apocynum, Colchicum and many other remedies.

Case Report :

One patient, DH, 54 yrs, Female, was suffering from pain in left abdomen with vomiting and sense of hardness in abdomen, appetite was poor, the vomiting was followed by pain in different joints, mild fever for 1 year, bleeding per rectum, there was pain in the nape of neck and during cough pain occurred in abdomen. Her father was suffering from cerebrovascular accident, homoeopathic generalities showed hot patient, intolerant, decreased thirst, decreased sleep, dreaming frequently of dead persons, there was craving for sour, meat and egg. Her mind was sympathetic, introverted. USG examination revealed left renal mass with haemangioma in liver. CT Scan revealed renal cell carcinoma with haemangioma in liver. Histopathological examination revealed renal cell carcinoma (clear cell type) – nuclear grade II, Stage pT1b, pNX, pMX. Haemoglobin level was 9.8 g/dL, ESR 90 mm in 1st hour. Other laboratory findings were within normal

limits. After homoeopathic treatment there was no metastasis and the patient is normal even after 2 years.

65: Comparative Study of Calcium-based Ayurvedic Drug Mautika Bhasma and Pure Calcium Carbonate

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Key Words :- Ayurvedic System of Medicine, Mautika bhasma Calcium based Drug, Comparison with Calcium Carbonate

Moutik is the most important member; belonging to marine products, from Ayurvedic point of view. This material has its origin in marine animal and therefore it also belongs to the drugs of animal origin. Apart from this, moutik (or Moti or Pearl) is also one of the nine principal gem stones and therefore it is equally important and attractive from ornamental point of view. Since we are concerned with moutik bhasma the chemical and pharmaceutical aspects of moutik will be considered here.

Neurophysiology & Neurology

66: Trigeminal Neuralgia & Its Homoeopathic Remedies

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Trigeminal neuralgia is a disorder of the 5th Cranial nerve, i.e. Trigeminal nerve. The Etiology, signs & symptoms, prognosis, diagnosis etc. are described here. The Homeopathic remedies of Trigeminal neuralgia are given. The remedies are as per symptoms similarity etc. are given such as Aconite, Belladonna & Spigelia.

ACONITUM NAPELLUS:- It is also called as Monkshood. It is derived from botanical species of Ranunculaceae family. Aconitum Napellus has a prominent action on the Trigeminal nerve. It produces painful sensations. The special features are --- Continuous Tingling, great excitement & intolerance of pain. Restlessness, mental anxiety. Complaints caused by exposure to dry cold air, exposure to draughts of cold air while in perspiration. Aggravates—EVENING & NIGHT, WARM ROOM, LYING ON AFFECTED SIDE, RISING FROM BED.

Ameliorates---- IN THE OPEN AIR SPIGELIA: -It is also called as Pinkroot. It is derived from botanical species of Loganiaceae family. Anaemic, debilitated. Body painfully sensitive to touch, part touched feels chilly. Afraid of sharp, pointed things like pins, needles etc. Stammering, repeats first syllable three or four times..

BELLADONNA ATROPA---

It is also called as Deadly Nightshade. It is derived from botanical species It belongs to Solanaceae family.

67: T11TS induced anti-angiogenic signaling in glioma and its relation to apoptosis of brain endothelial cells.

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ABSTRACT:

Angiogenesis, the process of formation of new blood vessels from pre-existing vasculature is crucial for growth and progression of malignant glioma. Increasing

knowledge of angiogenic signaling and its contribution to glioma progression augments the potential for anti-angiogenic glioma therapy. The present investigation is focused on deciphering the mechanistic role of the glycopeptide T11 target structure (T11TS) isolated from sheep erythrocyte membrane as an anti-angiogenic modulator in glioma regression. VEGF, the key growth factor implicated in angiogenesis not only stimulate endothelial cell proliferation and migration, but also inhibit endothelial cell apoptosis. We investigated the T11TS induced modulation of VEGF and its involvement with the apoptotic machinery of brain endothelial cells. Expression of angiogenic signaling proteins in brain endothelial cells was assessed by flow cytometry and immunoblotting. T11TS administration in glioma induced rats inhibited VEGF expression and downregulated EGFR expression in brain endothelial cells and as assessed by flow cytometry. Flow cytometry and immunoblotting showed that T11TS therapy caused significant upregulation of PTEN and p53 expression along with simultaneous down regulation of Erk expression in brain endothelial cells. T11TS administration also caused marked inhibition of the PI3K/Akt pathway components in brain endothelial cells of glioma induced rats. FACS studies also showed that T11TS therapy causes increase in the expression of pro-apoptotic Bax protein and suppress the expression of anti-apoptotic Bcl-2 in brain endothelial cells. Taken together these events favour apoptosis of brain endothelial cells resulting in the anti-angiogenic effect of T11TS. We conclude that T11TS prevents neovascularisation in glioma by promoting apoptosis of brain endothelial cells.

68: Influencing clinical markers of early motor development using NFDR technique in children with cerebral palsy.

1. Dr Meenakshi Batra: Senior Occupational Therapist, Pandit Deen Dayal Upadhyay Institute for the Physically Handicapped (Ministry of Social Justice & Empowerment, Govt. of India) & PhD scholar (C.S.M.M.U.) (**Life Membership No: L16377**)

Co-author

2. Dr Vijay Batra: Occupational Therapist, G. B. Pant Hospital, GNCT Delhi & PhD scholar (C.S.M.M.U., Lucknow U.P.) (**Life Membership No: L16378**)
3. Dr. V.P. Sharma Director professor & Head, Dept of PMR, C.S.M. Medical University, Lucknow, U.P. India (Applied for Membership)

KEY WORDS: Cerebral Palsy (CP); Postural reactions; Postural control.

ABSTRACT

Objective: To see the Influence of Neuro Facilitation of Developmental Reactions (NFDR) technique on clinical markers of early motor development in cerebral palsy.

Method: Randomized Controlled trial. 30 CP children age 6 month to 2 years included. Baseline evaluation was done for developmental reflexes, postural reactions (in sitting) & motor development. The subjects were allocated to two treatment groups i.e. group A (NFDR) and group B (NDT) for 3 months.

Result: Between group analyses done. The p value was significant (P <.05) for NFDR group.

Conclusion: NFDR technique is effective for influencing clinical markers of early motor development in CP.

69: Novel benztriazole based 1,3,4-thiadiazole analogues: Synthesis and SAR studies to confirm the structural features vital for antiepileptic activity

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Guru Ghasidas University, Bilaspur-495 009 (CG), India.

Key words: Epilepsy, Anticonvulsant, 1,3,4-thiadiazoles

ABSTRACT

In search for a better antiepileptic molecule and the importance of semicarbazones and 2,5-disubstituted 1,3,4-thiadiazoles as anticonvulsant pharmacophore encouraged us to carry out the synthesis of three novel series of semicarbazones based 1,3,4-thiadiazole analogues for their potential anticonvulsant activity. The test compounds were subjected to maximal electroshock seizure (MES) and subcutaneous pentylentetrazole (scPTZ) methods for determination of their anticonvulsant properties. The rotarod assay was performed in mice to evaluate neurotoxicity of the test compounds. The compounds were also screened for *in-vitro* GABA assay. The results of these studies validated that the pharmacophore model with four binding sites is decisive for anticonvulsant activity.

70: To see the efficacy of Neuro-Facilitation of Developmental Reactions (NFDR) technique for improving equilibrium reactions as elementary unit of postural control in cerebral palsy

1. Dr Meenakshi Batra: Senior Occupational Therapist, Pandit Deen Dayal Upadhyay Institute for the Physically Handicapped (Ministry of Social Justice & Empowerment, Govt. of India) & PhD scholar (C.S.M.M.U.) (**Life Membership No: L16377**)

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3. Dr. V.P. Sharma Director professor & Head, Dept of PMR, C.S.M. Medical University, Lucknow, U.P. India (Applied for Membership)

KEY WORDS: Cerebral Palsy (CP); NFDR; Equilibrium reactions; Postural control.

ABSTRACT

Objective: To see the efficacy of Neuro-Facilitation of Developmental Reactions (NFDR) technique for improving equilibrium reactions as elementary unit of postural control in cerebral palsy.

Method: Randomized Controlled trial. 30 CP children of age range 4 to 7 years included and baseline evaluation was done for postural reactions. The subjects were allocated to two treatment groups i.e. group A (NFDR) and group B (NDT) for 3 months.

Result: Between group analysis done and p value was found to be significant ($P < .05$) for NFDR group.

Conclusion: NFDR technique can serve as an effective & guiding tool than NDT for modulating equilibrium reactions in children with CP.

71: Neuromusculoskeletal Multijoint coupling strategy for improving pain & functional status in knee osteoarthritis

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4. Tilak Raj Batra, (**Life Membership No: L17706**)
5. Saurabh Batra, B. Tech 2nd Year (Mechanical Engineering), Sharda University (Student Member 2012)

KEY WORDS: Knee osteoarthritis; Musculoskeletal Dynamics; Functional position

ABSTRACT

Objective: To see the effectiveness of Neuromusculoskeletal Multijoint Coupling Dynamic (NMJCD) strategy for improving, pain & functional status in knee osteoarthritis.

Methods: Randomized Controlled trial. 80 Subjects of age 40 to 60 years were included. Their baseline evaluation was done. The subjects were allocated to two groups i.e. group A (NMJCD) and Group B (conventional treatment) for 8 weeks and reevaluation was done.

Result: Statistical analysis done & p value was found significant ($p < .05$) for pain and functional status.

Conclusions: Intervention based on NMJCD Strategy is effective for improving pain & functional status in knee osteoarthritis

72. cOFM : A novel technique to explore extracellular milieu in brain

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Thomas Birngruber, Frank Sinner, Institute of Biomedicine and Health Sciences, Joanneum Research Graz, Austria.

Keywords : cerebral open flow microperfusion (cOFM), blood-brain barrier (BBB).

Microdialysis (MD) is widely accepted technique for in-vivo-collection of extracellular fluids but it has certain limitations. Large and lipophilic substances can't cross MD membrane and excluded from analyses. Herein, we propose cOFM to overcome these limitations. The aim is to determine re-establishment of BBB after cOFM probe implantation in the frontal lobe of rats, testing BBB intactness during measurement and recovery. Maestro imaging reveals BBB re-establishment after 11 days. Ratio of sodium fluorescein concentration in left and right hemisphere show evidence for BBB intactness during measurement. Recovery of sodium ion is 30% and 45% at 1 and 0.5 $\mu\text{l}/\text{min}$. respectively.

73. Effect of lesion of basolateral amygdala on some reproduct function in female rats

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Keywords-, Amygdala, Lordosis, Electrolytic Lesion

Abstract:

Amygdala is a complex of multiple nuclei. It has bidirectional connection with hypothalamus as well as with other areas of the limbic system. The present study was undertaken in the amygdaloid (basolateral part) lesioned female rats. The basolateral part

of amygdala was lesioned by stereotaxic technique using electrolytic lesion method. Vaginal smear, lordosis behavior, locomotor activity at different phase of estrous cycle and the weight of ovary, uterus, thyroid, pituitary, adrenal glands were studied in amygdala lesioned, sham operated and control animals. The regular rhythmic changes of vaginal smear found in pre-operated condition became irregular in amygdala lesioned animals for 70 days. The diestrous phases were predominant in irregular estrous cycle of lesioned rats. Lordosis quotient (LQ), and Mean Lordosis Intensity (MLI) were decreased in amygdala lesioned rats while the rejection quotient (RQ) was increased in these lesioned rats compared to that of control or sham operated rats. The locomotor activity in estrous phase was decreased than that of metestrous, diestrous and proestrous phases. The weight of uterus in amygdala lesioned animals were higher than that of control animals. The estrous cycle, locomotor behavior, lordosis and weight of the glands were not changed in sham operated animal. The study indicates a role of basolateral amygdala on the female reproductive behavior of rats.

Reproductive Physiology

74: Hard water: a potential thyroid disruptor

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Keywords: hard water, calcium, magnesium, epidemiology, thyroid peroxidase (TPO), Na⁺-K⁺-ATPase, thyroidal 5' -deiodinase Type I (DI), thyroxine (T₄), triiodothyronine (T₃), thyrotropin (TSH), thyroid disruption

With the advancement of human and environment interaction, hard water (with high calcium and magnesium) has been considered as a boon, especially to people living in environmentally mineral deficient regions. On the contrary, epidemiological studies

from our laboratory already reported its possible potential harmful effects on thyroid. To explore this mechanistic aspect, adult male Wistar strain rats were subjected to treatment of combination of calcium (CaCl₂) and magnesium (MgSO₄)-the two most predominant components of hard water and body weight; thyroid gland weight and its histoarchitecture; thyroid peroxidase, thyroidal Na⁺-K⁺-ATPase, thyroidal 5' -deiodinase Type I; serum total T₄, T₃, TSH were investigated. Overall results reveal that prolonged exposure to calcium-magnesium combination at relatively high doses altered thyroid morphology and functions. This study, thus, confirms the earlier epidemiological observations suspecting the role of water hardness on experimental animals, establishing the deleterious effects of these environmental agents.

75: Effect of Aqueous Extracts of Khaini on Male Gonads Albino Rats with Dietary Supplement of Vitamin-C and Vitamin-E

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West Bengal

Key words: Smokeless tobacco, 'khaini', sperm count, sperm morphology, catalase, antioxidant vitamin

ABSTRACT :

Smokeless tobacco use has been increased rapidly throughout the world including India as the used of cigarette has become less socially acceptable. In India 'khaini' is one of the popular form of smokeless tobacco. Aqueous extract of 'khaini' decreased sperm count, sperm motility and changed sperm morphology. Smokeless tobacco produces oxidative tissue damage and apoptosis. This study was under taken in order to assess the effect of antioxidant supplement diet on

'khaini'-induced adverse effects on male gonads. 'Khaini' treatment decreased sperm count, changes sperm morphology, decreased testicular weight and activity of catalase in testis and epididymis. Antioxidant supplement in diet significantly minimizes the effect of aqueous extract of 'khaini' on antioxidant enzyme level. The obtained result conclude that smokeless tobacco 'khaini'-induced adverse effects on male gonads may be due to oxidative stress.

76: Abnormal Persistence of Histones in the Spermatozoa of Infertile Men

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Keywords: histones, semen, spermiogenesis, oligozoospermic.

Abstract

During the spermatid elongation stage of spermiogenesis 85% of sperm nuclear histones are replaced by protamines. Protamines increase the packing ratio of sperm chromatin, presumably facilitating sperm motility and function. In this study we evaluated the incidence of abnormal persistence of histones in spermatozoa and examined its relationship with semen quality in oligozoospermic patients undergoing intracytoplasmic sperm injection (ICSI, n=17) and donors (n=5) of known fertility by aniline blue staining. Sperm chromatin decondensation following exposure to heparin sulfate was significantly increased in patients. It appears that abnormal protamine levels may reflect defects of late spermiogenesis. [97 words]

77: Prolactin hormone signaling enhances colon cancer stem cells

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Shrikant Anant^{1,2}**

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Prolactin (PRL) is a peptide hormone that is predominantly produced by the lactotrophic cells of the anterior pituitary. PRL plays an active role in regulating diverse physiological activities, from regulating lactation to stimulating oligodendrocyte cell proliferation. Acting through prolactin receptor (PRLR), prolactin modulates various downstream events via the Jak-STAT and MAPK pathway. Clinical and laboratory evidence have demonstrated increased serum prolactin levels in patients with breast, prostate and colorectal cancer. The present study is aimed at addressing the role of prolactin in colorectal tumorigenesis. Real Time PCR and western blot analyses demonstrated that colon cancer cell lines express PRLR. Alternative splicing has been shown to produce different human PRLR isoforms, wherein the short forms can act as dominant negative receptors. However, our studies demonstrated that the colon cancer cell lines expressed predominantly the long form. We next determined the effect of treating the HCT116 and HT29 colon cancer cells with recombinant human prolactin. Prolactin treatment increased expression of pro-cancerous genes including vascular endothelial growth factor- A (VEGF-A), cyclooxygenase 2 (COX 2) and interleukin 8 (IL 8). In addition, there was increased expression of the protooncogene RBM3 and cell cycle related protein Cyclin D1. Furthermore, there was increased phosphorylation of p42/44 (ERK). Spheroid formation, termed colospheres for cells from the colon is a characteristic of stem cells. This method will also allow evaluation of pathways in stem cells. PRL treatment increased the size and number of colonospheres suggesting that PRL affects stem cells. This was further confirmed by western blot analyses, which demonstrated

increased expression of colon cancer stem cell (CSC) markers CD133 and doublecortin calmodulin like kinase 1 (DCLK)1. Taken together, this data demonstrates that PRL increases the viability of colon cancer stem cells and expression of cancer promoting genes

78: Polyunsaturated fatty acids modulate PGF₂ production and expression of COX-2 and AKR1B5 proteins in bovine endometrial epithelial cells

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Keywords: Prostaglandin, EPA, DHA, LA, α -LA, DGLA, endometrial epithelial cell

Early embryonic loss is a major impediment hampering the reproductive efficiency in bovines. Early embryonic development, implantation and maintenance of pregnancy are critically influenced by embryo-maternal crosstalk. Prostaglandins are the crucial mediators of luteolysis, implantation, decidualization and parturition in bovines. Early embryonic mortality in bovines may occur because of inadequate inhibition of uterine secretion of prostaglandin (PG) F₂ mediated by bovine interferon- τ (bIFN- τ). The objective of the study was to investigate the effect of arachidonic acid (AA), eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), linoleic acid (LA), α -linolenic acid (α -LA) and dihomo- γ linolenic acid (DGLA) on PGF₂ production and expression of COX-2 and AKR1B5 proteins. Bovine endometrial epithelial cell culture were initiated from a frozen aliquot and grown to confluency for 4-5 days at

370C in presence of 5% CO₂. The confluent endometrial epithelial cells were incubated for 24 hr with the following fatty acids (100 μM) : AA, EPA, DHA, LA, α-LA and DGLA. Then the cells were stimulated with OT (5x10⁻⁷M), IFN-τ (20 ng/ml) and OT+IFN-τ (5x10⁻⁷M+20 ng/ml) for 6 hrs in absence of fatty acids. Incubation for 24 hr with 100 μM EPA, DHA and αLA decreased the levels of PGF₂α. Arachidonic acid had the opposite effect and tended to increase the secretion of PGF₂α. The expression of COX-2 protein was increased by treatment of EPA, DHA, DGLA in presence of oxytocin (OT) and OT+IFN-τ but decreased in presence of IFN-τ alone. The expression of AKR1B5 protein did not show variations following treatment with fatty acids. It is concluded that EPA, DHA and LA may improve early embryonic survivality by inhibiting the secretion of PGF₂α.

79: Citric Acid potentially mitigating Hard Water induced Testicular Impairment in Rats

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Key words: hard water, calcium, magnesium, oxidative stress, testosterone, sperm count, Δ⁵ 3β-HSD, 17β-HSD, ROS, citric acid.

Consumption of hard water and its adverse effect on different physiological systems is well established. However there are very few ameliorative measures have still introduced to counteract the damage caused by hard water salts to the reproductive system aftermath or during exposure. The present investigation has been designed to evaluate the protective effect of citric acid supplementation on hard water-induced damage to reproductive organs. Adult male Wister rats were treated with calcium and magnesium salts (as CaCl₂ and MgSO₄) in different doses. The parameters used for

evaluation of reproductive damage includes testicular and accessory sex organs morphology and histology, epididymal sperm count, serum testosterone, LH & FSH levels, testicular and adrenal steroidogenic enzymes activities ($\Delta 5$ 3 β -HSD & 17 β -HSD), testicular lipid peroxidation and antioxidant enzymes profile. Significant ameliorative effect was observed in all parameters in rats supplemented citric. The findings suggest that citric acid effectively mitigates the hard water induced functional disruption of male reproductive function.

80: Polyunsaturated fatty acids modulate PGF₂ production and expression of COX-2 and AKR1B5 proteins in bovine endometrial epithelial cells

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Keywords: Prostaglandin, EPA, DHA, LA, ω -LA, DGLA, endometrial epithelial cell

Early embryonic loss is a major impediment hampering the reproductive efficiency in bovines. Early embryonic development, implantation and maintenance of pregnancy are critically influenced by embryo-maternal crosstalk. Prostaglandins are the crucial mediators of luteolysis, implantation, decidualization and parturition in bovines. Early embryonic mortality in bovines may occur because of inadequate inhibition of uterine secretion of prostaglandin (PG) F₂ mediated by bovine interferon- τ (bIFN- τ). The objective of the study was to investigate the effect of arachidonic acid (AA), eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), linoleic acid (LA), ω -

linolenic acid (α -LA) and dihomo-gamma linolenic acid (DGLA) on PGF₂ production and expression of COX-2 and AKR1B5 proteins. Bovine endometrial epithelial cell culture were initiated from a frozen aliquot and grown to confluency for 4-5 days at 37°C in presence of 5% CO₂. The confluent endometrial epithelial cells were incubated for 24 hr with the following fatty acids (100 μ M) : AA, EPA, DHA, LA, α -LA and DGLA. Then the cells were stimulated with OT (5x10⁻⁷M), IFN- τ (20 ng/ml) and OT+IFN- τ (5x10⁻⁷M+20 ng/ml) for 6 hrs in absence of fatty acids. Incubation for 24 hr with 100 μ M EPA, DHA and α LA decreased the levels of PGF₂. Arachidonic acid had the opposite effect and tended to increase the secretion of PGF₂. The expression of COX-2 protein was increased by treatment of EPA, DHA, DGLA in presence of oxytocin (OT) and OT+IFN- τ but decreased in presence of IFN- τ alone. The expression of AKR1B5 protein did not show variations following treatment with fatty acids. It is concluded that EPA, DHA and LA may improve early embryonic survivality by inhibiting the secretion of PGF₂.

82. Factors associated with the natural course of life domains affecting sex and sexuality in ageing people.

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Keywords : sex-hormones, climacterium, menopause, andropause, sexual dissatisfaction, quality of relationship, erectile dysfunction, age-related health problems, anxiety, depression.

The aim of this study is to elucidate and evaluate factors affecting sexuality in ageing people. Data were extracted from literature for years 2005-10. Ageing men's sexual problems are not an inevitable consequence of ageing but are responses to the presence of stressors in multiple domains of life. Erectile dysfunction of men and sexual

dysfunction of women increase with age. Unlike menopause in women, andropause in men has no biological speed. Ageing women reported low sexual desire, difficulties with vaginal lubrication and inability to climax. Many domains of man's life become destabilized at around 50 years of age. Nevertheless, men are able to adapt to their changed physical and mental abilities. Significant decrease in sex-hormones was related to increasing age. Age-related morbidities : hypertension, obesity, and heart disease are common among elderly people and significantly associated with erectile dysfunction, impairing sexual life of the affected ageing men.

81. Comparative study of polygonum bistorta and its active principles on albino rats intoxicated with CCl₄ and paracetamol

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Keywords : CCl₄, paracetamol, polygonum bistorta, tannic acid, serum transaminases, and comet assay.

Among the various studies involved in hepatotoxic effect of CCl₄ (1.5 ml/kg, i.p.) and paracetamol (2 g/kg, p.o.) is oxidative damage through free radical generation. Polygonum Bistorta (PB) is powerful astringent, strongly styptic and rich in tannins. No systematic study has been done on protective efficacy of (PB) and its active principles Tannic acid (TA) and Resveratrol (R) to treat hepatic diseases. The goal of the present work is to evaluate and compare the efficacy of root extract of PB (100 mg/kg), TA (25 mg/kg, p.o.) and R (30 mg/kg, p.o.) against toxicants induced damage in liver and kidney. The activities were increased in serum and tissue after 48 h days of toxicants administration. Administration of PB and TA and R significantly brought the values of

studied parameters towards normal in liver and kidney. Thus it may be concluded that TA (25 mg/kg) were found more effective values towards control.

Nutrition

82: A Study to Assess the Nutritional Status of Female College Students in North Tripura

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Key words: female, college students, CED, nutritional status, Tripura.

Abstract

A study was conducted on 700 randomly selected female college students in government Degree College, Dharmanagar, Tripura (N) cutting across social barriers like caste creed etc. Nutritional status was evaluated by using well known markers like BMI, body weight and height. These were compared with standard reference values for Indians. The outcome of the study showed that most of the students were suffering from moderate degree of malnutrition. They were also suffering from chronic energy deficiency and stunting. Since adolescent is the period for secondary growth and development in humans, this trend should be neutralized by proper nutrition education and sensitization of the students towards their own body.

**83: Nutritional Status of Adult Men From Muslim Community In South
24-Parganas District of West Bengal, India**

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KEY WORDS: Population, Muslim Adult men, Nutrition status, underweight;

ABSTRACTS:

Nutritional status can be defined as intake of nutrition and expenditure of energy. Assessment of Nutritional status is widely done by anthropometric measurements. It is well established that nutritional status is a major determinant of health and well being and there is no doubt regarding the importance of the study of nutritional status according to spatial and temporal dimension. Nutritional status of different population in West Bengal has not been investigated adequately. The present study was undertaken to determine the prevalence of underweight, over weight and obese in Muslim population in West Bengal, India.

The study was done at maheshtala municipality area of south 24 parganas district of west Bengal. Sixty Four adult voluntarily participated in the study. Height and weight were measured by standard techniques. The methodology for categorizing underweight, over weight and obese were based on National Center for Health Statistics standards.

It was found that prevalence of under weight, over weight and obese were 43.8%, 5.4% and 2% respectively among the adult in the age group of 18-32 years while 25.7%, 14.5% and 15.2% respectively among the adult in the age group of 33-47 years. From the result it may conclude that prevalence of underweight was decreased with advance of age where prevalence of overweight and obese were increased. These rates were higher than those found in several others populations from other parts of India. However, no

significant inferences can be drawn from the study as it is required to conduct on larger sample size.

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84. Composition of the nutrients present in hen's eggs commonly available in the markets in West Bengal.

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Keywords : Egg, triglyceride, cholesterol, protein, vitamin A, retinal, creatine.

Hen's eggs are most common palatable food containing most of nutrients required by man. Almost whole egg is consumed and digested by our intestine except the shell. Here the hen's eggs were taken from Kolkata market. The protein creatine, total fat, cholesterol, triglyceride, Vitamin A retinal and carotene were estimated in egg yolk. Protein and creatine were also estimated in the white of the eggs. The contents of the egg prove its importance as food of high nutritive value. Amount of protein is as high as 13.21 ± 2.23 gm% in white and 15.79 ± 1.64 gm% in yolk. The total fat, triglyceride, cholesterol in yolk were 2.74 ± 0.52 gram / yolk, 14.60 ± 2.89 gm% and 1.35 ± 0.25 gm% respectively.

We also estimated carotene (5.46 ± 1.54 microgram / gram of yolk), vitamin A (2.52 ± 0.21 microgram/gram of yolk) and retinal (3.36 ± 0.43 microgram / gram of yolk) in yolk.

Creatine estimation in egg is first time in the world and it seems creatine may be essential for the life. So egg can be regarded as better alternative food to milk.

85. Nutrients present in easily available hen's and duck's eggs in the markets of West Bengal

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Keywords : Hen's egg, duck's egg, Triglyceride, cholesterol, protein, vitamin A, vitamin A aldehyde, creatine.

Hen's eggs are most common palatable food containing most of nutrients required by man. Almost whole egg is consumed and digested by our intestine except the shell. Here the hen's eggs were taken from Kolkata market. The protein creatine, total fat, cholesterol, triglyceride, Vitamin A, Vitamin A aldehyde and carotene were estimated in egg yolk. Protein and creatine were also estimated in the white of the eggs. The contents of the egg prove its importance as food of high nutritive value. Amount of protein is as high as 13.21 ± 2.23 gm% in white and 15.79 ± 1.64 gm% in yolk. The total fat, triglyceride, cholesterol in yolk were 2.74 ± 0.52 gram / yolk, 14.60 ± 2.89 gm% and 1.35 ± 0.25 gm% respectively.

Similarly fertilized duck's eggs are also easily available in West Bengal and similar investigations were done in these types of eggs. The egg size and weight were larger in duck's eggs. These eggs were investigated for protein (11.14±2.81 gram%), fat (5.29±1.21 gram/yolk), Triglyceride (19.38±3.13 gm%), vitamin A (3.52±.72 microgram/gram), vitamin A aldehyde (5.58±2.176 micro gram/gram), cholesterol (2.09±0.47 gm%), the protein was in the yolk (17.41±3.47 gm%) and the white (11.14±2.81 gm%) and creatine (2.83±0.74 mg%) in white and (3.17±0.81 mg%) in yolk.

From this observation we can recommend that egg is one of the most nutritive food for all age groups of people who are suffering from protein or calorie malnutrition and also for daily diet. Children above one year also can consume eggs everyday but we are afraid to advise egg yolk for those who are suffering from coronary heart disease as cholesterol is present in yolk in high quantity. Egg albumin is a good source of protein and creatine, so it can be taken whenever there is protein requirement irrespective of age and sex.

86:. Nutrients present in easily available hen's and duck's eggs in the markets of West Bengal

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cholesterol, triglyceride, Vitamin A, Vitamin A aldehyde and carotene were estimated in egg yolk. Protein and creatine were also estimated in the white of the eggs. The contents of the egg prove its importance as food of high nutritive value. Amount of protein is as high as 13.21 ± 2.23 gm% in white and 15.79 ± 1.64 gm% in yolk. The total fat, triglyceride, cholesterol in yolk were 2.74 ± 0.52 gram / yolk, 14.60 ± 2.89 gm% and 1.35 ± 0.25 gm% respectively.

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87. Skinfold Thickness Of Santal Children Of Purulia District, India

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Keywords : Skinfold thickness, nutritional status, undernutrition, socioeconomic status.

Objectives : The aim of the present study was to assess the nutritional status of Santal children from the skinfold thickness parameters and to study the relationship between socioeconomic status and the skinfold thickness.

Methods : The skinfold parameters like triceps (TRSF), biceps (BCSF), subscapular (SBSF), suprailiac (SPSF) and calf (CSF) were measured in 1072 (543 boys and 529 girls) Santal children aged 5-12 years. Nutritional status was assessed by plotting the age-related growth curve of TRSF and SBSF with NHANES reference values. Socioeconomic status was measured by revised Kuppaswami's scale. Pearson's correlation study has been performed between individual skinfold parameters and socioeconomic factors. Association between different skinfold parameters and nutritional and socioeconomic factors was done by regression analysis.

Results : Mean values of all skinfold parameters for girls were significantly higher ($p < 0.05$) than that of boys. Mean TRSF for both boys and girls and SBSF for only boys were placed around 5th percentile values of NHANES reference. Every skinfold parameter (except SPSF for girls) was found to be significantly correlated ($P < 0.01$) with monthly family income, education and occupation of parents. Regression analysis showed that height-for-age z-score (HAZ), weight-for-age z-score (WAZ) and SES were

significantly associated with TRSF, SBSF and SPSF for boys, while WAZ and SES were significantly associated with TRSF, BCSF and CSF.

Conclusion : Growth curve analyses indicated a vulnerable nutritional status of surveyed children. Present study also suggested that growth of skinfold thickness was associated with socioeconomic status. Skinfold thickness can be used for the assessment of nutritional status in Santal children.

88. Anthropometric and body composition characteristics: a study on normal vs. diabetic adult population

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Keywords : Nutritional status, diabetics, anthropometry, body composition and bioelectrical impedance.

The present investigation was undertaken with a view to obtain information regarding anthropometric and body composition characteristics among normal vs. diabetic adult population. Information regarding anthropometric measurements like stature, weight, MUAC, skin fold thickness (Triceps, Biceps, Sub-scapular, Supra-iliac), waist circumference, hip circumference of study participants was collected. Among normal and diabetic group the statistically significant difference ($p < 0.05$) was present for biceps values. Nutritional status of participants were found with mean BMI, i.e., 24.5 ± 2.8 , 24.0 ± 3.6 , 23.8 ± 3.8 and 25.9 ± 4.8 for normal male and female and diabetic male and female respectively. Body composition by Bioelectrical Impedance Analysis (BIA) showed that among normal and diabetics % fat free mass content, total body water and body cell mass had a significant difference ($p < 0.05$).

**89: Prevalence of Undernutrition In Hotel Boys and Book Binders of
Kolkata**

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Keywords: Undernutrition, Socioeconomic Status, Hotel boys, Book binders.

Introduction: Growth is the major characteristic of childhood and depends on adequate supply of nutrients. Height is a measure of linear growth of the body and weight is a measure of total body mass. Weight is affected within a short duration of inadequate nutrient intake. Weight is responsive to acute nutritional deficiency or acute undernutrition; while height deficiency during childhood is an indication of prolonged or chronic nutritional deprivation. Socio-economic status also influences growth.

Objectives: To determine the prevalence of chronic and acute undernutrition in hotel boys and book binders of Kolkata, and to assess their socio-economic status (SES).

Methods: 69 boys of two different occupations (34 road side hotel workers and 35 binding workers) aged 10-14 years were selected randomly. Height and weight were measured by standard technique. Both chronic and acute nutritional statuses were measured by height for age (HAZ) and weight for age (WAZ) Z-scores respectively. SES was measured by using the updated Kuppusswami scale depending on their parental education, occupation and monthly income.

Results: The prevalence of chronic undernutrition determined by HAZ in hotel boys and book binders were respectively as follows: mild undernourished group (82.35%, 40.00%), moderate undernourished group (5.88%, 8.57%), severe undernourished group (2.94%,

2.86%). The prevalence of acute undernutrition determined by WAZ in hotel boys and book binders were respectively as follows: mild undernourished group (58.82%, 71.43%), moderate undernourished group (5.88%, 14.29%) and there were no subjects from severe undernourished group. All subjects belong to lower socio-economic status.

Conclusion: The present study indicates the chronic undernutrition is more prevalent in hotel boys than book binders. But the acute undernutrition is more prevalent in book binders than hotel boys.

90: Trypsin Inhibitor Content of Some Commonly Consumed Pulses and the Influence of Different Methods of Cooking and Processing on It

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KEY WORDS: Trypsin Inhibitor, Chymotrypsin, Spectrophotometric, Pulses, Proteolytic enzymes.

ABSTRACT

Pulses are high in protein but contains some constituents which retards protein digestibility. One among them is Trypsin Inhibitor which is responsible for decreasing the bioavailability and utilization of protein in the body. Trypsin Inhibitors are small protein molecules which inhibits the action of target proteolytic enzymes i.e., Trypsin and

chymotrypsin by binding it. In this project Trypsin Inhibitor content of some commonly consumed pulses (Bengal Gram, Lentil, Cowpea, Pea, Horsegram, Greengram, Soyabean and Chickpea) and the influence of different methods of cooking and processing on it was estimated. Spectrophotometric method has been used for the estimation of Trypsin Inhibitor. Among them Soyabean possesses maximum Trypsin Inhibitor Activity (TIA) followed by Cowpea. Pea has got minimum TIA. Autoclaving, pressure-cooking and germination has been found to be most effective in reducing TIA.

91: “Anthropometric, Dietary Intakes And Exercise Habits Of NIDDM In Guntur City”

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Keywords : Type 2 Diabetes, Body Mass Index, Hypoglycemic Foods, Dietary intakes, Physical activity / Exercise.

ABSTRACT:

A study was conducted to know the dietary pattern and exercise behavior of type-2 diabetics (n=50) using pretested schedule. Twenty five (50%) subjects were in I degree obesity classification. Obesity was prevalent among more than 50% of selected diabetics. More than half the diabetics had no family history of disorder. Most of the diabetics were on allopathic medicines (96%). The routine meal pattern was three meals and one snack, followed by three meals. The common foods restricted were those rich in sugar, and fruits rich in sugar. Millets, cereal rotis and porridge, bitter gourd and vegetables were the special foods included for diabetes. Indigenous hypoglycemic foods such as fenugreek seeds, *Jamun* seeds, "*ekonavakam*' roots and bitter gourd juice were consumed. Smoking

(14.29 %) and drinking alcohol (47.62 %) were the vices seen in male diabetics. Half the diabetics (53.57%) had initiated exercise less than a year back. Walking was the main form of exercise (92.86%) followed by swimming and *yogasana* (7.69% each).

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Microbiology & Immunology

92: Identification of Role of the Quorum Sensing Cell Signaling Molecule AutoinducerII (AI-II) in the Regulation of Expression of the Flagellar Structural and Functional Regulators in the Flagella-Mediated Signal Transduction Pathway in *Vibrio cholerae*

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Key Words: *Vibrio cholerae* MO10 lac⁻ ΔluxS O139 Bengal strain, fusion of promoter, galactosidase assay

Vibrio cholerae has a potential to produce cholera and it is also reported that motility is an absolute requirement for its colonization behavior. In *Vibrio cholerae* *flaA*, *flrA*, *flrB*, and *flrC* regulate the expression of both flagellar structure and function, beside this specially *flrA* and *flrC* mutants are highly defective in intestinal colonization. Deletion in *luxS* gene, (responsible for the synthesis of quorum sensing cell signaling molecule autoinducer-II) in MO10 lac-O139 Bengal *Vibrio cholerae* strain causes reduction in motility. It is not understood what is the underlying cause for the

development of reduction in motility. So, the present study is carried out to identify whether there is any role of autoinducer II on flagellar structural or important functional regulators *flaA*, *flrA*, *flrB* and *flrC*. In the present study *flrA-lacZ*, *flrB-lacZ*, *flrC-lacZ* and *flaA-lacZ* promoter transcriptional fusion reporter constructs are developed and electroporated into *Vibrio cholerae* MO10 Δlac^+ , $\Delta luxS$ and $\Delta flaAluxS$ mutant strains respectively to observe the level of promoter activities of *flaA* (responsible for the synthesis of flagellar structural core protein) *flrA*, *flrB* and *flrC* (important regulators for both motility & flagella- synthesis) through β galactosidase assay in these mutated states of *Vibrio cholerae* MO10 Δlac^+ . In the present study it is found that expression of *flrA* is significantly decreased after deletion in *luxS* gene than that of the *Vibrio cholerae* MO10 Δlac^+ O139 Bengal strain but expression of *flrB*, *flrC* and *flaA* are not reduced significantly after deletion in *luxS* gene. From this observation it can be concluded that expression of *flrB*, *flrC* and *flaA* are not significantly influenced by *luxS* gene in controlling motility, but autoinducer II molecule may regulate the expression of motility property through the upregulation of expression of *flrA*.

93: Detection And Molecular Characterization Of Human Astrovirus Infection Among Infants, Children And Adults Hospitalized For Acute Gastroenteritis In Kolkata, India

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Keywords: Astrovirus; RT-PCR; ORF1b and Capsid; AGE; Genetic diversity

Limited information is available on prevalence of astrovirus infections and on molecular characterization of these viruses, from India although human astroviruses (HAstVs) causing acute gastroenteritis (AGE) illness are reported from different

geographical locales. Therefore, 2535 fecal samples collected from infants, children and adults hospitalized with AGE in Kolkata, India were tested for HAstV detection by RT-PCR. Further, in-depth analysis of sequence data covering the overlapping region between ORF1b and capsid gene from eleven astrovirus positives showed that the astrovirus strains [n=10] were genotype_1 and one strain was genotype_3, causing AGE as either sole infection or as co-infection in Kolkata, India.

94: The incidence of picobirnavirus infections in infants, children and adults hospitalized for acute gastroenteritis in Kolkata, India.

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Key words: Picobirnavirus, Acute gastroenteritis, Humans, Sole infection, Zoonotic transmission,

Viral gastroenteritis is one of the most common and leading illness in humans worldwide. There are many viral etiological agents, amongst which rotavirus is the most important enteric pathogen. From a total of 1808 faecal samples screened among infants, children and adults hospitalized with acute gastroenteritis showed incidence of picobirnavirus as sole or coinfections with known etiologies. Molecular characterization, sequencing and phylogenetic analyses revealed that the strains showed genetic homology with porcine picobirnavirus strains reported from Hungary, Argentina and Venezuela,

suggestive of zoonotic origin and transmission. These findings indicate the necessity for continued surveillance to understand the biological and epidemiological significance.

95: Immunity & Emotional Wellness - Study of Lifestyle Medicines in this respect for searching out of new avenues to awareness.

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Key Word: Immunity, Emotional Wellness, Inherent Property, morbidity, automaticity, Lifestyle, stretching, fitness exercise,nutritional, microvita, Relaxation meditation, Healing Visualization,Healing meditation, Mantra meditation, worship & wisdom.

Mankind has survived for hundreds of thousands of years and evolved into a very intelligent life form. Mankind has survived from the scourges of nature as well as diseases in this period on his own, without the help of any doctor be it an allopath, homoeopath or ayurvedic physician. This is due to his/her inherent immunity. Human body has ways of resisting and recovering from diseases and these mechanisms are collectively called as immunity. It is also defined as ability of the human body to resist against different types of organisms or toxins that tend to damage the tissue. This disturbance in immunity when it is mild it leads to morbidity and when it is severe it leads to death in critical cases(extreme nature). All this is controlled automatically in the human body by our genes and is what we call automaticity as mentioned in physiology by Guyton and Hall and also in our Organon of Philosophy. Now infection is no matter in a healthy and sound body after maintaining some life principles of course on wellness regimen. Therefore immunity in such a person exhibited in optimum. Excess or deficient matters as hypo or hypersensitivity which is to be considered for refill on the standard parameters. Keeping aside all other advanced module or methods, we have to watch out

the simpler ways to combat the inimical forces by adopting either by external defence mechanism or internal resistance to overcome all the barriers as learned through our practices. The Lifestyle medicines are of two types namely I) Health Promoting(Optimum bio-psycho-socio functioning) while it redefines Healthy mind in fit body II) Health Damaging(Acute & Chronic Disease(critical): Heart disease, Cancer, stroke etc. Hence it falls under human behavior related subject which again composed of 'Adaptive' that is exercise, healthy diet, relaxation and 'Maladaptive' indicates the uses of smoking, alcohol, overeating etc. Holistic man knows well all the matters of life about how to tackle and to take benefit to gain improved health & well-being by incorporating stress free positive, peaceful, conflict resolution in a confident states of mind care to a optimum level for generation. Significantly caring of mental and emotional well-being helps to develop a resilient and hardy personality and the relaxation brings the body to a state of equilibrium and centers the mind into a calm, creative state & accordingly, one achieves body mind wellness. The 'relaxation effect' is slow in action as it is seen. But it attained through a series of deliberately disciplined progressive response (by breathing, biofeedback, JPMR, Autogenic relaxation technique, guided imagery or visualization).

96: Actin cytoskeleton reorganization and translocation of PKC- α in the mechanism of action of Escherichia coli heat-stable enterotoxin (STa) in COLO-205 cells

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Key words: Enterotoxigenic *Escherichia coli* (ETEC), ETEC heat-stable enterotoxin (STa), cytoskeleton, microfilaments, PKC- α , calcium, PLC- γ .

Enterotoxigenic *Escherichia coli* (ETEC) produces a 18-19 amino acid containing heat-stable enterotoxin (STa), which exerts intestinal secretion by binding to specific

receptors and alters intracellular cyclic guanosine monophosphate (cGMP), by activating particulate guanylyl cyclase. Moreover, it is still not clear whether cGMP alone accounts for full secretory response to STa. Previous reports from our laboratory and others suggest that apart from cyclic GMP, heat stable enterotoxin induces other signaling molecule where elevation of intracellular calcium levels, activation of protein kinase C (PKC) and microfilament (F-actin) rearrangement play a pivotal role in its mechanism of action. Here, we have shown that actin cytoskeleton organization is rapidly rearranged following induction of STa in COLO-205 cells and STa stimulation promotes the polymerization of actin either directly or indirectly without modification of the total actin content. Rapidly occurring changes in the actin cytoskeleton arrangement is involved in the translocation of PKC alpha from cytosol to specific plasma membrane location. In the present study we have shown that even in absence of microtubules, PKC- α translocates from cytosol to membrane. So, PKC- α translocation is due to the requirement of highly selective interaction of PKC- α with the actin cytoskeleton, which in turn is required for the translocation of the enzyme. Furthermore, it was observed that inhibition of PLC- γ 1 by si-RNA fails to induce increase in intracellular calcium levels which in turn is involved in the actin cytoskeleton reorganization. It was also observed that PLC- γ 1 is also involved in translocation of PKC- α as well. PLC- γ 1 and intracellular calcium seem to play important role in the actin cytoskeleton rearrangement in the STa induced colonic carcinoma cell line COLO-205. These studies will help us for better understanding of the mechanism of action of *Escherichia coli* heat-stable enterotoxin (STa) in the colonic carcinoma cell line, COLO-205 which will be very helpful to design a drug against secretory diarrhoea.

97: Leukemia and Environmental Agents

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Key words: Leukemogenesis, radiation and chemicals

Abstract

In studying etiology it is important to learn not only who is most susceptible but also who is least susceptible to certain forms of leukemia. Out of acute and chronic forms, chronic lymphocytic leukemia (CLL) has a peculiarly low frequency and exist only after the age of 40 years but Acute lymphocytic leukemia (ALL) in childhood has a peak frequency at about the age of 4 years.

Frequency of chronic myelogenous leukemia (CML) & acute myelogenous leukemia (AML) is on increasing trend. Ionizing radiation like X-ray was the first environmental agent implicated in leukemogenesis. In myelogenous leukemia, either acute or chronic, the predominant type is induced by radiation, but in lymphocytic leukemia, ALL was occasionally induced, usually when the age at exposure was under 20 years. Recently leukemia has been observed as a complication of radiotherapy for Wilms' tumor indicating the need to seek a lower dose that would cure the original cancer without causing leukemia. Among chemicals known or suspected to be leukemogenic are benzene in persons occupationally exposed and alkylating agents used for cancer chemotherapy.

Emphasis is now being placed on the leukemogenic potential of low dose radiation and chemicals in the general population.

98: In-vitro antimicrobial activity of nanoconjugated vancomycin against vancomycin resistant *Staphylococcus aureus*

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Community Health, Vidyasagar University, Midnapore-721 102, West Bengal, INDIA.

Key-words: Vancomycin resistant *Staphylococcus aureus*, nanoconjugated vancomycin,
Minimum Inhibitory Concentration, disc agar diffusion.

Abstract:

Staphylococcus aureus is a most common pathogen in hospital and community acquired disease. Vancomycin-resistant *S. aureus* was first appeared in the USA in 2002. Treatment of VRSA is a serious problem in medical practices. Folic acid tagged Chitosan nanoparticles are used as Trojan horse to deliver vancomycin into bacterial cells. These nano-sized vehicles enhances the transport of vancomycin across epithelial surfaces, and shows its efficient drug-action which has been understood from studies of MIC, MBC, DAD of chitosan derivative loaded with vancomycin. Tolerance values distinctly showed that nanoconjugate vancomycin is very effective and has strong bactericidal effect on VRSA.

99: Prevalence of double mutation in *pfmdrI* gene and its association with chloroquine resistance in India.

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Keyword: Malaria treatment failure, *P. falciparum*, chloroquine resistance, *pfmdrI*, *pfcr*.

Abstract:

Malaria is a major public health problem in India, accounting for sizeable morbidity, mortality and economic loss. To define the cause of severe treatment failure (*Plasmodium falciparum* infection) to chloroquine drug in some malaria endemic zone of West Bengal, India. Samples were collected from 94 patients in Purulia (Bundwan block) districts from January 2008 to May 2009. In vitro drug susceptibility test were performed in those 94 isolates. Parasitic DNA was isolated and then PCR and restriction fragment length polymorphism analysis of different codons of *pfcr* gene (76) and the *pfmdrI* gene (86, 1042, 1246) were assessed in *Plasmodium falciparum* isolates from patients in Purulia, India. The response of 47 patients to chloroquine was determined. The prevalence of double *pfmdrI* (82.98%) mutation (86 and 1246 codon) was found and some *pfcr* (K76T) mutation (19.15%) also found here. But most importantly early treatment failure cases have been found here, with double *pfmdrI* mutation associated with single nucleotide polymorphism in N86Y and D1246Y. In vivo chloroquine treatment failure and in vitro chloroquine resistance was observed due to double *pfmdrI* (P<0.001) mutation for first time in India.

100: The study of Pathophysiological changes of *Plasmodium berghei* (NK65) in Swiss mice

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Keyword: Malaria, *Plasmodium berghei*, TrxR, LDH, superoxide radical, NO, thioredoxin reductase.

Abstract:

Malaria is one of the leading causes of morbidity and mortality in developed and developing countries. To eradicate this burden, malaria detection by rapid, sensitive, and reliable methods is factors that determine the ultimate success to control, restrict. Moreover, accurate parasitemia quantitation is indispensable in malaria treatment as well as a tool in screening new drug efficacy. Our purpose of the study is to evaluate the potentiality of infectivity of *P. berghei* NK65 in Swiss mice, as the rodent parasite is mainly serving as surrogate models of human malaria (*P. falciparum*) in the fields of immunology, molecular biology and biochemistry. The infection was developed for different days to find out the course of maximum infection and the respective changes of biological parameters in the host. The findings suggest that inflammation, oxidative stress and damaging of essential organs of the host such as liver, kidney, spleen, RBC and causes hemolysis, due to multiplication of the parasite.

101: Biochemical characterization and antibiotic susceptibility pattern of isolated uropathogenic *Escherichia coli* strains from urine sample of UTI patients

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Key-words: Uropathogenic *Escherichia coli*, antibiotic susceptibility, disc agar diffusion,
multi drug resistant

Abstract:

Frequent intake of antibiotics causes remarkable increase of antibiotic resistance pattern among the *E. coli* isolates from Urinary Tract Infection (UTI). This study was conducted to isolate and characterized multi drug resistant uropathogenic *Escherichia coli* (UPEC) from urine sample of urinary tract infected patients by convention and traditional techniques. Twenty two UTI urine samples were collected from nearby Hospital and species identification was confirmed by Gram staining, standard biochemical tests. Antibiotic susceptibility pattern was carried out by MIC, MBC, and DAD test. From this study, it was observed that isolated *E. coli* strains are uropathogenic. Out of twenty UPEC isolates 100% resistance were found to penicillin G, erythromycin, streptomycin and oxacillin; 90% for ampicillin and kanamycin; 70% for gentamycin and ciprofloxacin; 60% for tetracyclin and norfloxacin; 40% or less resistance pattern was identified to cephalexin, amikacin and chloramphenicol. All 20 isolates were multi drug resistant.

102: Anticancer effect of surfaces modified cobalt oxide nanoparticles: An *in vitro* approach

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Keywords: Cobalt oxide nanoparticles, Cancer cell lines, SEM images, pro-inflammatory Cytokines, Flow cytometric analysis.

Abstract

Cobalt has the important biological role as a co-factor of vitamin B12. In the present study the effect of surface functionalized PMIDA coated Cobalt oxide nanoparticles prepared by thermal decomposition method, were tested on jurkat, and KB cell line. It is observed that cell viability was depending on particle concentrations. Our studies revealed that nanoparticles have ability to restrict cancer cell growth *in vitro*. Cytokine release assay suggested that the surface modified Cobalt oxide nanoparticles have the ability to activate the release of pro-inflammatory cytokines. Scanning electron microscopy revealed that nanoparticles were entered into the cell and able to alter the cellular structure of cancer cells in respect to control. The flow cytometric analysis of those two cancer cell lines showed the cellular apoptosis.

103: Isolation, characterization and antibiotic susceptibility pattern of *Proteus vulgaris* strains.

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Key-words: *Proteus vulgaris*, Multi Drug resistant, Disk Agar Diffusion.

Abstract:

Proteus vulgaris, a common gram negative bacilli of nosocomially acquired and catheter-associated bacteria, can cause acute pyelonephritis and renal calculi. Recently, *it is* evolved as multi drug resistance to both conventional and traditional antibiotics. In our study species identification was confirmed by Gram staining and standard Biochemical testing. . It has non-lactose fermenting and swarming characteristic property. It gives positive results to Urease, MR, Indole, Gelatin, Nitrate, PPA test and negative results to Oxidase, Citrate, Nitrate and VP test. It is observed that the isolated strains were resistant to Penicillin(100%), Tetracycline(100%), Erythromycin(100%), Oxacillin(100%), Gentamycin(70%), Ampicillin(70%), Kanamycin(70%), Streptomycin(60%), Chloramphenicol(50%), Ciprofloxacin(10%) and sensitive to Amikacin(80%), Cephalexin(80%), Imipenem(70%), Norfloxacin(60%). Antibiotic susceptibility test was done on Mueller Hinton Agar. The susceptibility tests on these isolated strains carried out by MIC, MBC and DAD test.

104: Encephalitis due to Arboviral infections in West Bengal, India.

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Key words: Encephalitis, Arboviruses, West Bengal, India.

Encephalitis is an acute infection and inflammation of the brain itself. It is generally a febrile illness caused by a virus and usually last for 2-3 weeks. Most people

with a mild illness can recover fully. Certain severe cases may develop some permanent damage to their nervous system and even cause death.

Certain RNA viruses like the arthropod borne viruses (arboviruses) are the leading cause of encephalitis worldwide. Age, season, geographic location, regional climatic condition, economic status, household condition and immune status play the important roles in the development of the disease.

In West Bengal, presently three arboviruses- Japanese Encephalitis Virus (JEV), Chikungunya Virus (CHIKV) and Dengue virus (DENV) are circulating of which JEV and recently CHIKV are known for causing encephalopathy.

The aim of our study is to detect encephalopathy due to JEV or CHIKV in West Bengal.

A total of 175 sera/CSF samples of AES cases were referred between September 2010 and August 2011 from different districts hospitals of West Bengal; out of which 64 cases and 5 cases were confirmed as JEV and CHIKV infection respectively by ELISA method. JE cases are increasing although vaccination of JEV infection has been achieved in several districts of West Bengal. Although encephalopathy due to CHIKV is low, but it is of high concern as the morbidity rate due to this infection is very high.

This report establishes the fact that encephalitis due to arboviral infections remains public health problem in West Bengal.

105: Evaluation Of Wound Healing Activity Of The Leaves of *Pedilanthus tithymaloides* (Euphorbiaceae) On Wister Rat

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Key words: *Pedilanthus tithymaloides*; Wound healing; Epithelialization, Hydroxyproline

Abstract

In folklore-medicine, *Pedilanthus tithymaloides* (family Euphorbiaceae) leaf is used to cure wound. However, this wound healing activity of this plant has not yet been scientifically evaluated. Healing property of methanolic leaves extract was investigated by excision, incision and deadspace model in Wister albino rats. The leaf extracts was made into 5% and 10%w/w ointment. Healing property was assessed by epithelialization period, tensile strength, granulation tissue weight, hydroxyproline, granulation tissue histology. It was found that the topical application of extract ointment treated wounds were epithelized faster in comparison to betadine ointment (standard drug). The histological study showed lesser inflammatory cells and more collagenation. All these findings validate traditional use of the plant in treatment of wound and may lead further investigation towards producing a low cost effective topical treatment for wounds.

106. Manifestations and outcome of mixed species (*P. vivax* and *P. falciparum*) malaria – a prospective study

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Keywords : Mixed malaria, severe malaria.

Studies on malaria due to co-existent *P. falciparum* and *vivax* infections are negligible in India. Therefore, this study was undertaken to find out the clinical profile, prognostic factors, and outcome of mixed species malaria.

Mixed species malaria was diagnosed when both *P. vivax* and *P. falciparum* were detected from Giemsa stained peripheral blood smear. During the period 118 patients of mixed malaria were admitted. Severe malaria was found in 21 (17.8%) patients. Of them 14 (66.6%) had single and 7 (33.3%) had multiple complications. Presenting without fever, high parasite count, and long fever to treatment interval are 3 Independent risk factors for developing severe mixed species malaria. The outcome of mixed malaria was good.

107. **In vivo Antineoplastic and antioxidant activity of Tea Root Extract (Camellia sinensis var assamica) and two of its triterpenoid saponin TS1 and TS2 in Ehrlich's ascites carcinoma in mice with less cytotoxicity in normal cells**

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Keywords : TRE (tea root extract), triterpenoid saponons, EAC in mice, cytotoxicity, apoptosis, antioxidant, glutathione, alkaline phosphatase.

The anticancer activity of tea is already reported. We reported the in vitro cytotoxic and apoptogenic effect of tea root extract and its steroidal saponins on human cell lines and leukemic patients' cell as well as the in vivo anti-inflammatory activity. The most crucial in vivo anticarcinogenic effect along with the potential antioxidant property of TRE and its saponins in Ehrlich's ascites carcinoma model is now being evaluated in the present study. It was found that TRE, TS1 and TS2 significantly decreased intraperitoneal cell count caused apoptosis. Notably the extract enhanced the level of antioxidant enzymes. It restored normal peritoneal cell activity of healthy mice.

108: Effects of Combined Administration of Naproxen and Vitamin C on Hypobaric Hypoxia Induced Immunological Changes in Male Rats

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Key Words: Hypobaric hypoxia, Naproxen, Vitamin C, Phagocytic activity

Abstract

Hypobaric hypoxia (HH) is an environmental stressor which affects the physiological systems including immune system. The oxidative stress stimulates the production of prostaglandins (PGs) in HH condition. The oxidative stress may induce immune changes through prostaglandin synthesis or by generation of reactive oxygen species (ROS). In high altitude, naproxen [non-steroidal anti-inflammatory drugs (NSAIDs)] are used to facilitate acclimatization in high altitude by inhibiting PGs. Different anti-oxidants like Vitamin C, E were used in high altitude to reduce the oxidative stress. Previously, the separate effects of naproxen and vit C on the HH induced immune changes were studied in our laboratory. The present study was carried out to find the combined effects naproxen, a PGs synthesis inhibiting NSAIDs and vit C, a ROS scavenging antioxidant on the HH induced immune changes in rats. The rats were randomly divided into four groups where Group I served as control, Group II served as control treating with combined doses of naproxen (18mg/kg body wt.) and vitamin C (400 mg/kg body wt.), which were kept at normal atmospheric pressure (sea level), and Group III were HH exposed and Group IV were HH exposed treating with combined doses of naproxen and vitamin C. The rats were subjected to HH condition at 18,000 ft in a simulated chamber for 8 hrs/day for 6 days. Leukocyte adhesive inhibition index (LAI) and NK cell activity of splenic mononuclear cells (MNC), phagocytic activity of blood

WBC and serum cortisol level were measured in these groups of rats. The reduction of HH induced enhancement of phagocytic activity of blood WBC and blocking of HH induced reduction of NK cell activity were more than the separate effects of naproxen and vit C on these parameters observed in previous studies. LAI of splenic MNC was not affected after combined dose of naproxen and vit C. In the present study the cortisol concentration was increased in HH condition. But after combined administration of naproxen and vit C the cortisol titer in HH condition returned back to normal level. From this study it can be concluded that hypobaric hypoxia induced immune changes observed in this study are mediated through the production of PGs and the formation ROS due to oxidative stress in HH condition. When production of PGs and ROS are blocked by naproxen and vit C respectively in HH condition, the combined inhibition of HH induced immune changes are more prominent than the individual effects of PGs or ROS.

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109: Acaciaside B: a dual action topical microbicide

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Keywords: Acaciaside-B, microbicide, anti-HIV, spermicide

The worldwide increase in human immunodeficiency virus (HIV) epidemic coupled with population explosion has spurred a great deal of interest in developing topical microbicide with discerning spermicidal potency. Development of dual action microbicide formulations that may be available over the counter therefore constitutes one of the cornerstones of the prevention science agenda for curbing the rising HIV epidemic

and unplanned pregnancy. In this direction we have identified a novel lead molecule, Acaciaside-B (Ac-B) that possesses potent anti-HIV as well as spermicidal properties*. Ac-B is spermicidal *in vitro* at minimum effective concentration of 60µg/ml. The spermicidal activity involves loss of sperm plasma membrane integrity and dissolution of the acrosomal vesicle. The anti-HIV (HIV-1 NL4.3) activity of Ac-B was investigated in CEM-GFP cells and TZM-bl cells, which is a CXCR4-positive HeLa cell clone genetically modified to express CD4 and CCR5. The CC₅₀ of Ac-B was found to be 6.2µg/ml for CEM-GFP and 4.5µg/ml for TZM-bl cells, while the IC₅₀ of Ac-B was 0.04µg/ml in CEM-GFP cells and 0.09µg/ml in TZM-bl cells. Based on these results the safety or therapeutic index of Ac-B seems to be more than 100 in case of CEM-GFP cells whereas it is around 50 in TZM-bl cells. Evaluation of cytotoxicity using cervicovaginal epithelial cell monolayers (Ect1/E6E7, End1/E6E7, and VK2/E6E7) showed CC₅₀ values of Ac-B between 3.5µg/ml and 4.5µg/ml. An anti-HIV assay performed at different time-points of HIV infection (before and after addition of Ac-B) showed maximum inhibition of HIV-1 infection when the virus was incubated with Ac-B prior to infecting the host cells. Ac-B significantly inhibited fusion of gp120-expressing 293T cells with TZM-bl cells. Taken together the observation indicates that Ac-B might be a fusion and entry inhibitor with virucidal effects and attests to the credential of Ac-B as a prospective candidate for future development of dual action topical microbicide. Discussion on the mechanism underlying HIV inhibition and spermicidal action of Ac-B will form the subject of present submission.

***US patent application # 20080300197**

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110: Evaluation of Antileishmanial Potential of Carboplatin in Experimental Murine Visceral Leishmaniasis

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Keywords: Visceral leishmaniasis, treatment, carboplatin

The drugs available for treatment of visceral leishmaniasis are limited in number and each has various shortcomings. In the present study, the leishmanicidal effect of two doses (5 mg/kg bodyweight and 10 mg/kg bodyweight) of an antineoplastic drug carboplatin was studied in *L. donovani* infected BALB/c mice. The antileishmanial potential of the drug was revealed by significant reduction in the parasite burden. The infected and treated animals were found to exhibit increased DTH responses, higher IgG2a, lower IgG1 and greater cytokine (IFN- γ , IL-10 and IL-2) concentrations pointing towards the generation of mixed Th1/Th2 responses. Liver and kidney function tests and histological studies of kidney, liver and spleen of treated mice revealed no-side effects. Thus, we have for the first time characterized the *in vivo* effect of carboplatin in murine experimental visceral leishmaniasis.

Oncology

111: Eupatorium ayapana exhibits antimitogenic potential in Allium cepa root and in vitro cytotoxic, antitumor activities against Ehrlich's Ascites Carcinoma (EAC)

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Keywords: *Eupatorium ayapana* leaf extracts; *in vitro* cytotoxic and apoptotic properties; Ehrlich's ascites carcinoma (EAC); Antimitotic; Membrane blebbing;

Medicinal plants have gained significant importance in the potential management of cancer. *Eupatorium ayapana*, belonging to the Asteraceae, is therapeutically used as an antiseptic, antidiarrheal, antibacterial and haematostatic agent. The present study was aimed to evaluate the antimitogenic activities of ethanolic (EEEAL) and water extracts (WEEAL) of *Eupatorium ayapana* leaf in *Allium cepa* root tip meristem model and *in vitro* cytotoxic and apoptotic properties of the extracts against Ehrlich's ascites carcinoma (EAC) cells. The extracts significantly inhibited the growth of roots and mitotic activity at the dose of 150 mg/ml. Cell morphology study was done in EEEAL, WEEAL treated cells. Cell cycle analysis against EAC cells was performed at the dose of 300µg/ml. EEEAL, WEEAL produced higher degree of membrane blebbing in EAC cells. *In vitro* cytotoxicity study showed that EAC-cell viability was decreased after the treatment of extracts. In cell cycle analysis, EAC cells treated with the extracts were associated with cell cycle arrest and apoptosis were induced significantly in a time-dependent manner. Our present study showed that the extracts of *Eupatorium ayapana* leaf possessed antimitogenic potency in *Allium cepa* root and *in vitro* cytotoxic, apoptotic activities against Ehrlich's ascites carcinoma tumor cells.

112: Evaluation of antiproliferative and antioxidant property of Leaf Extracts of *Eupatorium ayapana* against Ehrlich's Ascites Carcinoma (EAC) - bearing Swiss albino mice.

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Keywords: *Eupatorium ayapana* leaf extracts; *in vitro* cytotoxic and apoptotic properties; Ehrlich's ascites carcinoma (EAC); Antimitotic; Membrane blebbing;

Herbal therapy is taking an important place like a blossoming seed, in the field of cancer chemotherapy. *Eupatorium ayapana*, an herb of Asteraceae family is used as an antiseptic, antidysenteric, antibacterial and haematostatic agent. The present study was aimed to evaluate antitumor properties of ethanolic (EEEAL) and water extracts (WEEAL) of *Eupatorium ayapana* leaf against Ehrlich's ascites carcinoma (EAC) bearing Swiss albino mice as well as the antiproliferative and antioxidant potency of the extracts. EEEAL, WEEAL were administered intraperitoneally at the dose level of 150 mg/kg body weight per day for consecutive 21 days after 24 hour (day zero) of EAC cell inoculation (2×10^6 cell) to mice using 5-fluorouracil as standard drug. The tumor volume and viable cell count were decreased in extract-treated mice groups compared to EAC-control mice. The body weights were decreased in the extract-treated EAC-bearing mice and the extracts restored all the hematological parameters to approximately normal levels. The levels of hepatic and renal MDA, GSSG were decreased whereas the GSH contents and catalase activities of the same tissues were increased after the treatment of the extracts. The antiproliferative properties of the extracts were further established from the inhibition of peritoneal angiogenesis in the extract-treated mice compared to EAC-control mice. From the results of our study it may be concluded that *Eupatorium ayapana* leaf extracts exhibit antiproliferative, antiangiogenic and antioxidant activities against Ehrlich's ascites carcinoma.

113: VEGF signaling through PI3K/p38MAPK pathways and ETS1 activation regulates MMP-9 and MMP-13 expression in ovarian cancer cell

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Key words: VEGF, MMP, ETS, p38MAPK, PI3K

Matrix metalloproteinase mediated degradation of extracellular matrix is a crucial event for invasion and metastasis of malignant cells. The expressions of MMPs are regulated by a variety of cytokines and growth factors including VEGF. VEGF induces invasion of ovarian cancer cells through activation of MMPs. In this report, we first observed that SKOV-3 and OAW-42 cells express VEGF receptors and invasion and scattering in SKOV-3 cells were induced by VEGF through the activation of p38MAPK as well as PI3K/AKT pathways. VEGF induces the expression of MMP-2, MMP-9 and MMP-13 and their activities were reduced after inhibition of PI3K/AKT and p38MAPK pathways. Interestingly, VEGF was shown to induce expression of ETS1 factor, which is an important trans-regulator of different MMP genes. It has been shown that ETS1 binds to both MMP-9 and MMP-13 promoters. In addition, VEGF-induced MMP-9 and MMP-13 expression and *in vitro* cell invasion were significantly reduced after knocking down of Ets1 gene. Again, VEGF-induced MMP-9 and MMP-13 promoter activities were lowered down in Ets1 siRNA-transfected cells. VEGF enriches the ETS1 in nuclear fraction in a dose-dependent manner and expression of ETS1 and its nuclear localization was blocked after blockade of PI3K and p38MAPK pathways. Therefore, based on these observations it is hypothesized that the activation of PI3K/AKT and p38MAPK by VEGF results in ETS1 gene expression, which in turn activates MMP-9 and MMP-13, leading to the invasion and scattering of SKOV-3 cells. The study provides a mechanistic insight into the prometastatic functions of VEGF-induced expression of relevant MMPs.

114: Characterizing the role of p27 in regulating Rho-GTPase-signaling involved in cellular motility of Chronic Myeloid Leukemia

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Key Words: CML; Chronic Myeloid Leukemia, p27kip1; cyclin dependent kinase inhibitor 1B

Abstract:

Ample evidence suggests that the phenotype of CML blast crisis cells like enhanced proliferation and survival, differentiation arrest depends on cooperation of BCR/ABL with genes dysregulated during disease progression. Impairment of p27kip1 function has been shown to contribute to expansion of the myeloid progenitor in CML. Here, we examined how the differential status of p27 within cell and its sub-cellular distribution affect Rho-GTPase signaling pathway involved in motility of progenitor cells derived from (a) bone marrow and peripheral blood samples of patients in chronic and blast crisis phase of CML and (b) CML cell lines. Our result also signifies the role of BCR-ABL in p27-induced signaling for egression.

115: Role Of Anaesthesia In The Treatment Of Cancer

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Cancer can be treated by surgery, chemotherapy, radiation therapy, immunotherapy, monoclonal antibody therapy or other methods. The choice of therapy depends upon the location and grade of the tumour and the stage of the disease, as well as the general state of the patient. Sometimes this can be accomplished by surgery, but the

propensity of cancers to invade adjacent tissue or to spread to distant sites by microscopic metastasis often limits its effectiveness. The effectiveness of chemotherapy is often limited by toxicity to other tissues in the body. Radiation can also cause damage to normal tissue.

Furthermore, many patients with severe pain associated with cancer are nearing the end of their lives and palliative therapies are required. The typical strategy for cancer pain management is to get the patient as comfortable as possible using opioids and other medications, surgery, and physical measures. Doctors have been reluctant to prescribe narcotics for pain in terminal cancer patients, for fear of contributing to addiction or suppressing respiratory function. The palliative care movement, a more recent offshoot of the hospice movement, has engendered more widespread support for pre-emptive pain treatment for cancer patients.

Identifying the etiology of pain is important to its management. A comprehensive review of cancer pain with a focus on neuropathic pain describes pathophysiologies as well as available and investigational pharmacotherapies.

116: Sulforaphane inhibits colon cancer stem cells by targeting sonic hedgehog signaling pathway

**Parthasarathy Rangarajan, David Standing, Dharmalingam Subramaniam,
Shrikant Anant and Animesh Dhar**

Abstract:

Colon cancer is a leading cause of cancer death in the United States, accounting for approximately 51,000 deaths each year. Moreover, amongst Indians colon cancer incidence has been shown to be increase with age in both sexes. We are currently

determining the mechanism by which sulforaphane, an isothiocyanate present in cruciferous vegetables such as broccoli, Brussels sprouts and cabbage inhibits growth of colon cancer cells. Our studies demonstrate that the compound had significant cytotoxicity against HCT116 colon cancer cells in both a dose- and time-dependent manner. Recent studies have demonstrated that many types of cancer, including colon cancer, are initiated from and maintained by a small population of cancer stem cells (CSCs). Furthermore, CSCs contribute to tumor resistance/relapse following chemotherapy and/or radiation therapy. Thus, targeting these CSCs may provide an effective strategy to overcome tumor resistance and reduce relapse. Colon CSCs can be allowed to divide and grow in ultra-low binding tissue culture dishes to form multicellular spheroids called colospheres. We have determined that treatment with Sulforaphane decreased the number and size of the primary and secondary colospheres in a dose dependent manner. We have also begun dissecting the pathways affected by sulforaphane. Aberrant activation of Sonic Hedgehog pathway has been associated with renewal of cancer stem cells, and in the development of several solid cancers. Sonic hedgehog is one of the three proteins in the mammalian signaling pathway family called hedgehog. It controls cell division of cancer stem cells and has been implicated in development of some cancers. We have determined that sulforaphane inhibits the expression of both Shh and smoothend in the colon CSCs. Furthermore, it inhibited the expression of smoothend, patch-1 and Gli-1, which are downstream targets of the hedgehog signalling pathway. Taken together, these data suggest that sulforaphane effectively inhibits colon cancer stem cells by down regulating the sonic hedgehog pathway, thereby inhibiting tumorigenesis.

117. Rhythm characteristics of energy expenditure in cancer in-patients

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Keywords : circadian rhythm, resting energy expenditure, metabolic equivalent, activity energy expenditure and cancer in-patients.

Twenty in-housed cancer patients (median age 35 years) and twenty control subjects (median age 34.5 years) of both genders were selected randomly for the assessment of 24-h energy expenditure (EE) rhythm. The EE was assessed non-invasively with the help of Actical (Mini Mitter Co. Inc., USA). Components of EE, such as resting energy expenditure (REE), metabolic equivalent (MET), and activity energy expenditure (AEE) were computed separately. Rhythm detection ratio of all these components was low in cancer in-patients. A significant decrement in Mesor ($p < 0.001$) and amplitude (< 0.001) of REE, MET and AEE was also reported in cancer in-patients. The achrophase of these variables showed a large inter-individual variability in cancer patients. Moreover, significant effects of factors, disease and gender were also validated for energy expenditure. We conclude that the assessment of energy expenditure in patients can be useful to provide nutritional support.

118. Cancer Patients and Right to Health

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WHO defines health as a state of complete physical, mental and social well being and not merely absence of diseases or infirmity. In recent years, this statement has been amplified to include the ability to lead a “socially and economically productive life”.

During my social activities at Institute of HYDT Research & Education I have come across many patients suffering from diseases like cancer, Diabetes, arthritis, autistic disorder, geriatric diseases and hypothyroidism. I have seen many patients those who have been suffering from dreaded diseases like cancer they not only needs medical assistances but also needs socially and economically productive life.

Though this paper an attempt has been made to create awareness, prevention, treatment, rehabilitation facilities, and human rights of cancer patients as cancer patients unlike any other needs special attention and care from the time they are detected with the life threatening disease till the time when their treatment is about to end.

From my observation, discussions and analysis of various cancer patients I felt that right to health is linked with right to life and while emphasizing on the right to health of cancer patients it is important to lay emphasis on the patient's Bill of Rights.

119: Present Scenario Of Oral, Stomach & Liver Cancer And It's Prevalence

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Key Words: Cancer, Oral, Oropharengeal, Liver, Stomach

Cancer is a class of disease characterized by uncontrolled cell division. The most prevalent G.I tract Cancers are- Oral Cancer, Stomach Cancer, Liver Cancer. Oral cancer is a group of cancers including Oral and Oropharengeal cancer. Stomach cancer is the result of cell changes in stomach's lining. Liver cancer is a cancer that arising from liver

known as Primary Liver Cancer. Secondary liver cancer did not originate in the liver but some other body parts. The survey work was conducted by Oral questionnaire method. Survey shows that –Oral cancer is prevalent among middle aged(30-60yr), smokers, drinkers, betel leave and arc nut chewer, non vegetarian; Stomach & liver cancer is commonly seen among male, middle aged group & also among alcohol drinkers.

120: Oncogenic HPV among HIV infected female population in West Bengal, India

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Background

Prevalence of both cervical cancer and Human Immunodeficiency Virus (HIV) infection are very high in India. Natural history of Human Papilloma Virus (HPV) infection is known to be altered in HIV positive women and there is an increased possibility of persistence of HPV infections in this population. Therefore, this study was conducted to understand the epidemiology and circulating genotypes of oncogenic HPV among HIV positive and negative female population in West Bengal, India.

Methods

In this hospital-based cross-sectional study, 93 known HIV positive females attending a pre-ART registration clinic and 1106 HIV negative females attending a Reproductive and Child Health Care Clinic were subjected to study. Cervical cell samples collected from the study population were tested for the presence of HPV 16, 18 using specific primers. Roche PCR assay was used to detect other specific HPV genotypes in the cervical cells specimens of HIV positive cases only.

Results

Prevalence of HPV 16, 18 among HIV positive females (32.2%; n = 30) was higher than HIV negative females (9.1%; n = 101). About 53% (23/43) of cases with oncogenic HPV were infected with genotypes other than 16, 18 either as single/multiple infections. HPV 18 and HPV 16 were the predominant genotypes among HIV positive and HIV negative subjects respectively. Oncogenic HPV was not found to be associated with age and duration of sexual exposure. But the presence of HIV was found to a statistically significant predictor oncogenic HPV.

Conclusion

The currently available HPV vaccines offer protection only against HPV 16 and 18 and some cross- protection to few associated genotypes. These vaccines are therefore less likely to offer protection against cervical cancer in HIV positive women a high percentage of who were infected with non-16 and non-18 oncogenic HPV genotypes. Additionally, there is a lack of sufficient evidence of immunogenicity in HIV infected individuals. Therefore, prevention of cervical cancer in HIV positive women must be focused towards early detection of oncogenic HPV & cervical cytological abnormality followed by an appropriate treatment.

121: Preparation and characterization of Nanostructured lipid carriers (NLC) based hydrogel formulation of aceclofenac for topical delivery

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Keywords; Aceclofenac, Nanostructured lipid carriers (NLC), Topical gel, Nanoparticle

The aim of the study is to prepare nanostructured lipid carriers (NLC) based topical gel of aceclofenac for the treatment of inflammation and allied condition. NLC prepared by melt emulsification and high speed homogenization methods were characterized by

Malvern instrument for size and zeta potential analysis. The particle size of dispersion was further confirmed by scanning electron microscopy (SEM) studies. DSC analysis was performed to characterize the state of drug and lipid modification. The nanoparticulate dispersion was suitably gelled and assessed for in-vitro release and in-vitro permeation using dialysis membrane. Efficacy of the NLC gel was established using a pharmacodynamics study, i.e., carrageenan induced rat paw edema model. The in-vitro release and rat paw edema pharmacodynamics studies were carried out in comparison with a hifenac gel (marketed product). Finally NLC based gels were found to possess superior anti-inflammatory activity compare to marketed product.

122: Development of Nanoparticles Containing Ovalbumin as a Model Protein Drug

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Key words: Nanoparticles, protein delivery, sustained release.

Nanoparticles are expected to offer new solutions e.g. for gene therapy and delivery of peptide drugs. In delivery of protein/peptide drugs to the systemic circulation, various difficulties are encountered in formulating protein/peptides for therapeutic uses. The purpose of the present research was to develop ovalbumin loaded nanoparticles using multiple emulsification (w/o/w) and solvent evaporation technique and standardization of various process parameters such as protein/polymer ratio, homogenizing speed during emulsifications, particle surface morphology by SEM study and surface charges, particle size analysis and in-vitro protein release to obtain nanoparticles with maximum protein-loading, minimum polydispersion with a maximally sustained protein release pattern, among the prepared formulations. The stability studies of protein (ovalbumin) were also

investigated at different temperatures for one month, three months and six months by using a FTIR spectroscopy following ICH guidelines. The results of this study provide information about the materials used and the methods applied for further studies that aim at development of biocompatible and biodegradable nanoparticles for human use.

123. Pharmacognostic and Antioxidant Activity in leaves of *Dioscorea hispida*, Dennst

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Karnataka.

Keywords : *Dioscorea hispida*, Dennst (DHD), methanolic extracts, pharmacognostic, physico-chemical properties, phyto-chemicals, antioxidant activity.

In the present study, the leaf of an ethno-medicinal plant, *Dioscorea hispida*, Dennst (DHD) was taken to evaluate the status pharmacognostic through physico-chemical and preliminary phyto-chemical analysis. The antioxidant activity was also carried out in the leaf extract of *Dioscorea hispida*. The physico-chemical values and Fluorescence characteristics of the plant powder under ordinary light that gives an appearance of the substance as “earthy matter and could be inorganic composition along with other impurities present in the leaf powder. The percentage of total ash, acid insoluble ash and water insoluble ash, foreign organic matter and total moisture content were analyzed in the leaf powder. This indicates the active status of pharmacognostic and efficiency of the plant material towards preparation of drug. The preliminary phyto-chemical parameters viz., alkaloids, flavonoids, saponins, carbohydrates, proteins, tannins, glycosides, fixed oils and fats, phyto-sterols and phenolic compounds were

analyzed for their active presence in the organic solvents like, methanol and ethanolic extracts. Whereas, in the other organic extracts like, chloroform, acetone, benzene and water extracts the active constituents are not at the considerable level. The presence of active secondary metabolites in the leaf extracts of DHD may have profound activity and can justify the status for preparation of potential drug. The antioxidant activity has been evaluated by DPPH radical scavenging method. The selected ethno medicinal plant, *D. hispida* has antioxidant activity at significant level. The ethno-medicinal plants contain generally different phenolic compounds with different amount of antioxidant activity. The results obtained in this investigation reveal that, the fractions of DHD leaf extract are free radical scavenger and able to react with the DPPH radical, which might be attributed to their electron donating ability. In conclusion, the pharmacognostic evaluation of DHD leaf could be used as the diagnostic tool for the standardization of selected medicinal plant to substantiate and authenticate the drug.

124. Combined ameliorative effect of *Curcuma longa* and vitamin C on oxidative stress, protein profile and DNA fragmentation against Aceclofenac-induced liver damage.

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Keywords : Antioxidant, free radicals, liver damage, aceclofenac, zingiber officinale, vitamin C.

Drug-induced liver injury is a potential complication of virtually every prescribed medication throughout the world. Free radicals cause extensive damage to DNA, proteins, lipids and carbohydrates, which leads to various acute and chronic liver injuries.

The present study was conducted to evaluate the protective action of *Curcuma longa* in combination with vitamin C in an animal model of hepatotoxicity induced by Aceclofenac (ACE).

ACE intoxication caused a reduction of serum total protein and increase levels of serum alkaline phosphatase (ALP), aspartate aminotransferase (AST) and serum alanine aminotransferase (ALT) at higher extent in the toxic group. This phenomenon was paralleled by an impaired liver redox status, i.e., decrease the level of reduced glutathione (GSH), superoxide dismutase (SOD), glutathione peroxidase (GPx) and catalase (CAT) and increased MDA in the ACE-administered groups. Animals pretreated with CL along with vit. C showed a marked mitigation of the severity of liver enzymes and of the impaired redox status of the liver. Moreover, CL and vit. C jointly prevented serum and tissue protein alteration and DNA fragmentation and elevated the liver tissue ATPase and protein thiol assay as compared with the groups treated with ACE alone.

In conclusion, the results of this study demonstrate that *Curcuma longa* in combination with vitamin C has a potent and better hepatoprotective action in comparison to *Curcuma longa* alone against Aceclofenac-induced hepatic damage in rats.

125: Beneficial role of conjugated linolenic acid isomers against induced oxidative stress, inflammation and aberration in erythrocyte fluidity and integrity

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Keywords: Conjugated linolenic acid, alpha-eleostearic acid, punicic acid, cytokines and hepatic nuclear transcription factor, erythrocyte membrane integrity

Abstract

The study was aimed to evaluate the effect of alpha-eleostearic acid and punicic acid, two isomers of conjugated linolenic acid (CLnA) present in bitter gourd

(*Momordica charantia*) and snake gourd oil (*Trichosanthes anguina*) respectively, against arsenite induced oxidative stress, inflammatory challenge and aberration in erythrocyte membrane fluidity. Male albino rats were divided into six groups and administered 0.5% α -eleostearic acid, 0.5% of punicic acid, 0.5% and 1.0% of mixture of two isomers (50:50 ratio) of total lipid given along with arsenite (10 mg/kg BW) respectively by oral gavage once per day. CLnA isomers significantly reduced oxidative stress, lipid peroxidation and restored level of proinflammatory cytokines in plasma, expression of hepatic nuclear transcription factor NF-kappaB (p65) and antioxidant enzymes level in liver, blood and erythrocyte lysate. Atomic force microscopic study of erythrocyte morphology and scanning electron microscopic study of erythrocyte membrane (EM) also showed that CLnA treatment cause improvement in erythrocyte structural integrity which were altered due to abnormality in EM PUFA content, cholesterol/phospholipid ratio. From obtained results it can be concluded that α -eleostearic acid and punicic acid has potent antioxidant and anti-inflammatory role against Sa induced toxicity with synergistic and varying effectivity.

126: Biological Properties of Leaf Extract of *Mussaenda roxberghii* (rubiaceae)

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Key words: *Mussaenda roxberghii*, butanol, antioxidant, antidiabetic, superoxide radical, alpha-amylase, alpha-glucosidase.

Abstract:

The various parts of the plant *Mussaenda roxberghii* (rubiaceae), are used as medicine for various ailments in eastern India and south east Asia. We have studied

antimicrobial activity, *in vitro* superoxide radical scavenging activity, Nitric oxide radical scavenging activity and *in vitro* biochemical anti-diabetic activity (*viz.* alpha-amylase inhibitory activity and alpha-glucosidase inhibitory activity). We have extracted the leaves with 10% Methanol in water and defatted with petroleum ether followed by fractionation into Chloroform and n-Butanol fraction. Our results indicate that it has significant anti-diabetic activity accompanied by antioxidant activity but has no significant antimicrobial activity with the butanol fraction.

127: Quantitative estimation of antioxidant phytoconstituents in crude and lyophilized aqueous curry leaves (*Murraya koenigii*) extract: A comparative study

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Keywords: curry leaves (*Murraya koenigii* L.), antioxidant; gastric ulceration, phyto - constituents.

Leaves of *Murraya koenigii* are known to possess anti-inflammatory, anti-dysenteric, anti-oxidant and anti-diabetic activities. The leaves exhibit detoxifying action in stomach poison and toxic liver diseases as well as exhibit other pharmacological properties. The crude and lyophilized aqueous extract of the leaves have been shown to be effective in oxidative stress mediated metal toxicity and drug induced gastric ulceration in our laboratory. In our present study we have quantitatively determined the antioxidant phyto-constituents in both crude and lyophilized aqueous extract of curry leaves. Thus we can predict antioxidant potential of both the extracts where polar compounds were concentrated in the lyophilized extract.

128: A purified FMN-phosphatase from goat heart: a forgotten enzyme of flavin metabolizing pathway

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Key words: riboflavin, FMN-phosphatase, goat heart

The physiological fate of riboflavin (vitaminB₂) resides in its being the precursor of the flavoenzymes – FMN & FAD in animal and human tissues. At least fifty five different enzymes in mammals including humans need these co-enzymes for their activity, and, the levels of FMN and FAD in the tissues at any given time may be an important determinant of tissue health. Present study describes the purification and characterization of FMN-phosphatase from the goat heart tissue which was found to be a very good source of the enzyme. Purification of FMN-phosphatase which hydrolyses FMN into riboflavin and inorganic phosphate was done by fractionation using ammonium sulfate and then overnight dialysis of the fraction at 4⁰C. The dialysate was clarified through centrifugation in cold and was subjected to diethylaminoethyl-cellulose column chromatography. The optimum pH and temperature for the enzyme activity was found to be 5.0 and 40⁰C respectively. The properties of this purified enzyme preparation including Km and substrate specificity were studied.

129: Inverted Nipple – A Emerging Threats To Mental Health of Women

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Key Words- INVERTED NIPPLE, THREATS, MENTAL HEALTH, ADOLSCENCE

Women is the most beautiful creature as socially constructed by our society like Miss World, Miss Universe, Miss Earth etc. Any abnormality or unnatural physical appearance of a lady which is not at all hazardous to her life or society but it has psychological effect on body and mind. As health is a state of complete physical, mental and social wellbeing and not merely an absence of disease or infirmity, the women required mental health care with physical therapy if she suffer from physical differmity like Inverted Nipple. The cause may be congenital, breast cancer etc.

Now a days 10-20 % of female are having inverted nipple condition leading to psychological and mental diseases of women especially adolsence girls. This disease can be cured through massage therapy, corrected by breast pump, bra nipple pressure devices. But due to shyness behaviour of women in the society she needs individual psyco therapy for better cure

130: Studies on antioxidant potential of aqueous bark extract of Terminalia arjuna: an in vitro study

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Keywords: Antioxidant, oxidative stress, *Terminalia arjuna*, Reactive oxygen species, *In vitro* study.

Terminalia arjuna (TA) is a medicinal plant of considerable therapeutic relevance. The present study aimed at investigating the effect of aqueous bark extract of *Terminalia arjuna* against Cu-ascorbate, Fe-ascorbate and Fe-ascorbate-H₂O₂-induced oxidative stress in goat RBC *in vitro*. The aqueous bark extract reduced LPO levels by 56.64%, 61.65%, 53.94% (P<0.001) respectively and increased GSH levels by 90.35% (P<0.001). Additionally, the extract scavenged OH⁻ and O₂[•] radicals in a dose-dependant manner indicating its antioxidant potential. The results raise the possibility of the TA aqueous extract being considered for future use as a therapeutic antioxidant intervention.

131: Melatonin Ameliorates Adrenaline Induced Hepatic Injury

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Key words : Adrenaline, Melatonin, liver, Oxidative stress

Oxidative stress, a condition of increased oxidant production in cells characterized by the release of free radicals and resulting in cellular degeneration. Adrenaline, a catecholamine and neurotransmitter plays role in the genesis of oxidative stress in human being. Although liver is a highly perfused organ but is very much vulnerable to oxidative stress. Stress-induced alterations in hepatic metabolism have been reported. Lipid peroxidation and a reduction in the level of cellular reduced glutathione content have also been reported following oxidative stress. There has been reports of higher hepatic levels of thiobarbituric acid-reactive substances (TBARS), conjugated dienes and protein carbonyls associated with hepatic oxidative stress. All these changes have been found to be mitigated when the rats were pre-treated with a low pharmacological dose of melatonin.

132: Aqueous curry leaves (*Murraya koenigii* L.) extract scavenges reactive oxygen species in vitro

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Keywords: Curry leaves (*Murraya koenigii* L.); Antioxidant activity; Free radical scavenging activity; aqueous extract, Phytochemicals, Phytoconstituents.

Abstract :

The curry leaves (*Murraya koenigii* L.) are used widely as spice herb in the Indian sub continent and have significant use in herbal medicine. Traditionally, the leaves are used as anti-diabetic, antioxidant, antimicrobial, anti-inflammatory etc. The phytochemicals of the aqueous extract of curry leaves were evaluated qualitatively. The antioxidant property and free radical scavenging activity of the aqueous curry leaves extract were estimated *in vitro*. The study revealed the presence of potent antioxidant phytoconstituents in the extract. The study further suggests the presence of several polar compounds in the aqueous curry leaves extract that contribute together to the potent antioxidant activity of the same and appears to have the potential to provide protection against stress induced oxidative damage.

133: Effect of garlic (*Allium sativum*) on chromium (VI) induces oxidative stress in liver mitochondria

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Keyword: chromium; liver mitochondria; lipid peroxidation; antioxidant; methanol extract of garlic

Abstract:

Chromium (VI), an environmental contaminant, is widely recognized to exert toxic effects. In cellular system, the reactive oxygen species (ROS) are generated through a Fenton-type redox cycling mechanism during the reduction process of Cr (VI). Garlic possesses antioxidant property to scavenge the toxic radicals and cytoprotective activity. Mitochondria provide most of the cellular energy (ATP) and yield many intermediate compounds involved in normal cellular metabolism. In the present study, Cr (VI) induces oxidative stress was studied on isolated liver mitochondria in male Wistar rats. Significant increase in lipid peroxidation as well as significant decreases in reduced glutathione (GSH) level and antioxidant enzymes (SOD, GP_x, GR, GST) in liver mitochondria after Cr (VI) exposed (0.8 mg per 100 g body weight, i.p., for 7 days). These results suggested that Cr (VI) produces oxidative stress in liver mitochondria. However, methanol extract of garlic (10 mg per 100 gm body weight, orally, daily at an interval of 2 h after injection of Cr (VI) for a period of 7 days) supplementation restored alterations induced by Cr (VI) in liver mitochondria. This protective action of garlic extract might be due to presence of one or more principle components in scavenging the

free radicals imposed by Cr (VI) and may help to develop therapeutic means against Cr (VI)-induced disorders.

134: Studies of different medicinal properties of leaf extract of *Pleomele terniflora* (Lilliaceae) chloroform fraction

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Keywords: *Pleomele terniflora*, antibacterial, antioxidant, antidiabetic, superoxide, nitric oxide, alpha-glucosidase, alpha-amylase.

Abstract:

Pleomele terniflora is a sub herb, dwarf, and belongs to lilliaceae family. This plants species generally found in most of the Himalayan region and North East India. This plant species is used as a traditional medicine by some tribal communities. In present study, we have evaluated antibacterial activity, *invitro* superoxide radical scavenging activity, nitric oxide radical scavenging activity and *invitro* biochemical antidiabetic activity (*viz.* alpha-glucosidase and alpha-amylase inhibitory activity) of *Pleomele terniflora* plant leaf extract. The methanolic extract of leaf was concentrated and fractionated into CHCl₃, BuOH. Chloroform fractions show potent antibacterial activity and anti-diabetic activity but less antioxidant activity.

135. Study of Microstrip Radiator For Medical Applications.

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Keywords : Microstrip radiator and medical.

Recently an increased interest in applications of electromagnetic techniques in medical diagnosis. In therapy there are indications that local and whole body hyperthermia provides successful modality in treatment of some malignant tumors. In this paper provides basic information on design of ring-type radiators for tissue heating and the experimental results for a unit designed to operate in the TM modes at 2.45 GHz. The radiator is well matched when spaced 1.3-3 mm from muscle tissue or muscle tissue covered by a thin layer of fat tissue. A limited volume of muscle tissue is heated at a greater rate than the fat layers as shown by a thermographic technique.

136. Acceptance and Applicability for Total Quality Management in Health Care Industry.

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Keywords : TQM, Pharmaceuticals and health care, audits, cost-effective.

Total quality management (TQM) in simple words, it is the application of principles of quality management in every aspect of the business in any organization or

institution not only to production servicing department but to finances, personnel and materials also. It is nothing but a cultural change in approach towards the betterment of the organization. Keeping in the minds the 'cultomer.' TQM should be accepted as a cultural change in thought process, specially in personnel and organization level by a systematic and with the aim of finding opportunities for corrective actions and quality improvement through working process. Not to casting blame anybody. Introducing a popular system INSPECTION a philosophy of comparison by a professionals. To provide a solution to any problem, it was realized that all operation of an organization are to be carried out in a satisfactory manner.

137. Ameliorative effect of Livina, a herbal formulation on oxidative stress, protein profile and DNA fragmentation against Aceclofenac-induced liver damage.

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Keywords : Liver damage, oxidative stress, aceclofenac, protein alteration, livina

Medicinal plants have become indispensable in the present age, even though one can not completely overcome the dependence on the synthetic drugs. As the medicinal plants and their derivatives have lesser side effect as comparison to that of synthetic medicine, the use of these herbal medicines have been gradually increase throughout the world. Traditional herbal medicines form an important part of the health care system in India.

The present study was conducted to evaluate the protective action of Livina, herbal formulation in an animal model of hepatotoxicity induced by Aceclofenac (ACE).

ACE intoxication caused a reduction of serum total protein and increase levels of serum alkaline phosphatase (ALP), aspartate aminotranferase (AST) and serum alanine aminotranferase (ALT) at higher extent in the toxic group. This phenomenon was paralleled by an impaired liver redox status, i.e., decrease the level of reduced glutathione (GSH), superoxide dismutase (SOD), glutathione peroxidase (GPx) and catalase (CAT) and increased MDA in the ACE-administered groups. Animals pretreated with Livina showed a marked mitigation of the severity of liver enzymes and of the impaired redox status of the liver. Moreover, Livina prevented serum and tissue protein alteration and DNA fragmentation and elevated the liver tissue ATPase and protein thiol assay as compared with the groups treated with ACE alone.

In conclusion, the results of this study demonstrate that Livina has a potent and better hepatoprotective action against Aceclofenac-induced hepatic damage in rats.

138: Anti-apoptotic efficacy of folic acid and vitamin B12 against arsenic-induced toxicity

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Key words: Arsenic toxicity, Oxidative stress, Hepatic mitochondrial toxicity, and apoptotic changes

To elucidate the mechanisms of folic acid and vitamin B12, the present study examined its anti-apoptotic efficacy against short-term arsenic exposure-induced hepatic

mitochondria oxidative stress and dysfunction. Data generated indicated that folic acid and vitamin B12 separately or in combination can give significant protection against alterations in oxidative stress and apoptotic marker parameters and downstream changes in mitochondria, namely pro-oxidative (NO, TBARS, OH-) and anti-oxidative defense (SOD, CAT, GSH) markers, iNOS protein expression, mitochondrial swelling, cytochrome c oxidase and Ca²⁺-ATPase activity, Ca²⁺ content, caspase-3 activity. Additionally, results of hepatic cell DNA fragmentation, arsenic load of blood, hepatic tissue and urine, and histological observations, all strongly support that both these supplements have efficacy in preventing apoptotic changes and cellular damage.

139. Hepatitis B Virus (HBV) genotypes in Tripura

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Hepatitis B virus (HBV) infection represents a global public health problem with over 2 billion people worldwide been exposed to the virus that continues to cause more than one million deaths annually. The clinical presentations associated with chronic HBV infection are highly heterogeneous and the spectrum range from asymptomatic carrier state to chronic hepatitis, fibrosis and in worst cases liver cirrhosis and hepatocellular carcinoma (HCC).

HBV genotypes and subgenotypes have an uneven geographical distribution, and appear to strongly influence the outcome in HBV infection. According to the WHO report on prevention of HBV in India, HBsAg prevalence among general population ranges from 0.1% to 11.7%, being between 2% to 8% in most studies. The most prevalent genotypes of HBV in India are genotypes A and D in Northern, Southern and Western

part of the country. In contrast, the eastern India presents an interesting epidemiology of three different HBV genotypes (genotypes D, A and C) in comparable proportions. Most of the information on the distribution of subgenotypes of HBV are available from eastern India where subgenotypes A1, C1, D1, D2, D3 and D5 are prevalent and there are very few reports on subgenotypes from the rest of the country.

The analysis revealed the presence of 3 distinct HBV genotypes D, C and A among the HBV infected patients of Tripura, the genotype D being most prevalent (86.5%) followed by genotypes C (8.1%) and A (5.4 %) respectively. The genotype D isolates were found to be most divergent and the presence of four subgenotypes namely D1, D2, D3 and D4 could be detected. Among the subgenotypes, D4 (50%) was most abundant followed by D3 (28.12%), D2 (15.63%) and D1 (6.25%). However, in case of HBV belonging to genotypes C and A, only a single subgenotype of the respective genotypes namely C2 and A1 were identified. Thus our preliminary data indicate a distinct epidemiology of HBV genotype in Tripura. The presence of D4 subgenotype in such a significant proportion was not reported from any other part of the country including Eastern India. These genotypic variation has got immense importance from clinical and anthropological point of view.

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