

Invited Lectures

- **Integrated age care: LNMU innovations**

Bhaweshwar Singh, Saket Kushwaha

Institute of Gerontology and Geriatrics, Department of Agricultural Economics Lalit Narayan Mithila University, Darbhanga

Elderly comprise vulnerable age segment needing humane familial care in recognition of their valuable contributions. Age quake, rising apathetic attitude and growing intergenerational conflict are generally thought to make elderly living more deplorable. Age induced dysfunctions- essentially the fall out of inescapable senescence; diminish the quality of life in late age. It is disheartening that ‘Masters of the Past’ face disgraceful treatment many a time in the hands of insensitive and irrational young generation. Integrated Age Care is perceived today as the most viable solution to geriatric handicaps. LNMU prioritized concerted efforts for the cause of elderly decade ago and introduced teaching of Gerontology, identified as a major thrust area by the UGC, as an elective paper in M.Sc. Zoology curriculum from the session 2002-04. PG Diploma in Geriatric Care was implemented with UGC approval under Innovative programme- ‘Teaching and Research in Interdisciplinary and Emerging Areas’ from the session 2010-11. Quite notably, past experience, inputs from the 3rd International Conference on Healthy Ageing in the Changing World 2014 held under the aegis of Biogenesis Health Cluster at IIS, Bangalore and initiative of Department of Education, Ministry of Human Resource Development, Government of India, New Delhi towards achieving the objective of implementing the provisions of National Policy on Older Persons (1999) through UGC/Universities led to setting up of Institute of Gerontology and Geriatrics in LNMU in May 2015 with primary objective of sensitizing youngsters and generating trained caregivers by offering additional elderly-centric courses viz. One Year Certificate Course in Gerontechnology and PG Diploma in Geriatric Medicine besides geriatric services such as Day Care Centre, Geriatric Consultancy and Survey of Dementia patients with active cooperation from HelpAge India and ARDSI under Society Outreach Programme in tune with our commitment for

Integrated Age Care. The paper highlights Course features and recommends introduction of full-fledged UG and PG courses in Gerontology with Disease Management, Yoga, Naturopathy, Homeopathy and Community Hygiene as integral components in HEIs at UGC initiative. Creation of ‘Society for all Ages’ is decidedly the need of hour. We must thrive for ‘Ageing at Place’ and ‘Healthy Ageing’

- **Case study of hemorrhagic CVA treated with Ayurvedic Panchakarma therapy & Marma massage**

Sanjib Kumar Samanta, Roudri Samanta, Mani, Imtiaz, Rahul

Introduction: Ayurvedic Panchakarma therapy & Marma massage used in various treatment can give unique result.

Material & Methods: A patient was diagnosed hemorrhagic CVA, SIRIS and hypertension by Nabajiban Hospital, Kolkata. CT scan of brain showed that right cerebral hemisphere showing a moderate sized acute intracerebral hematoma at upper frontal and frontoparietal-parasagittal white matter and critical region along right anterior basal ganglia and paraventricular region with rupture into right lateral ventricle producing associated acute intraventricular hemorrhage. Thin chink of acute subdural hematoma noted along right lateral border of the interhemispheric falx extending more anteriorly. No improvement found within 24 days. Then the patient was treated by us with Marama Massage on head followed by Shirodhara with medicated milk & nasal infusion (Sangasthapana Nasya) for 7 days.

Results: On 2nd day after therapy the eyes were blinking and opened. After 4 days sound responded and after 7 days slightly improvement of facial movement along with right sided hand and leg movement. Repeated CT scan showed-right sided cerebral hemisphere-a small residual sub acute hematoma at upper frontal and frontoparietal parasagittal white matter region producing mild compression on the roof of the right ventricle, lateral ventricle were mildly dilated, but the intraventricular hemorrhage was almost completely

disappeared. Thin chink of acute subdural hematoma was noted completely disappeared.

Conclusion: The said marked improvement signifies great hope on CVA & comatose patient. Further study is required.

- **Menopause – Geriatricians – Perspective**

G. Usha

*Chengalpattu Medical College & Hospital,
Tamilnadu*

Aging of the female reproductive system is unique. Menopause is defined as time of cessation of ovarian function resulting in permanent amenorrhea. It takes 12 months of amenorrhea to confirm the diagnosis of menopause - retrospective diagnosis. climacteric is the phase of waning ovarian activity. The changes in lipids, bone metabolism, immunological function are related to the marked fall in the ovarian based hormone levels of estrogen and progesterone, progressive increase in follicle stimulating hormone with the menopausal transition. Symptoms of menopause include menstrual irregularities, vasomotor symptoms, urogenital atrophy, Obesity, change in body composition, bone loss, increased risk of risk, cognition impairment cardiovascular disease, mood disorders, depression, sleep disturbance, risk of diabetes, functional loss, osteoarthritis etc. Duration of menopausal transition period is highly variable. Perimenopausal period must be an optimal period to focus on disease prevention and health promotion by Geriatric health care team.

- **Information Communication and Technologies (ICTs) for India's Elderly: Issues and Challenges**

Balamurugan J

*Department of Social Sciences, School of Social
Sciences and Languages, VIT University, Vellore-*

The elderly in India were traditionally regarded to be revered members of their families and this tradition was followed since ancient times. But with rapid social change particularly the predominance of the nuclear family the elderly are fast losing their pre-eminent social status. The transformation of society based on a fast industrial and global cultural system has led to an erosion of traditional values and the elderly have to accept the transformation of the family life and meet the challenges of ensuring a graceful and healthy ageing. The use of ICTs for the elderly must focus on preparing for change, care services, health care, and a range of smart home technologies.

- **World View on Combating Elder Abuse: Some Perspectives**

Mala Kapur Shankardass

University of Delhi, New Delhi

Now elder abuse is recognized as a social problem of significant potential in many countries of the world. It is also being addressed through various mechanisms and many innovative practices, besides the usual interventional strategies, which are being developed across the world to combat it. In some countries, for instance, in Canada police has developed a model to intervene in cases of elder abuse. There are also networks for elder abuse prevention, advocacy groups, and other approaches being designed to keep older people safe and free from abuse. In many nations research is being used to bring awareness on elder abuse issues and in some European countries by outlining risks and vulnerabilities faced by older people and highlighting the role played by support groups and services, such as in Portugal, or by setting help lines in Belgium and community intervention programs in Israel, it is assumed that instances of elder abuse will decrease. In other European countries, for example in Germany, care related legislations have been an effective strategy to combat elder abuse. In Japan on the other hand, enactment of legislation on elder abuse prevention has achieved positive outcomes. In India too, legislation enacted in 2007, is seen to bring down cases of elder abuse and neglect. Public policy responses, where ever implemented have shown favourable results. In US progress made in the domains of medicine, public health, law, social services, and private organizations and entities are signs of steps being taken to deal with the problem of elder abuse and mistreatment. Similarly in Australia policy and practice on elder abuse prevention is effective tool to tackle the issue. In UK too, responses to elder abuse concentrate on techniques of intervention. Thus review of various international actions reveals different perspectives on combating elder abuse.

- **Collaborative multi-centric clinical trial to study the effect of Ayush Rasayana (A&B) on ageing in apparently healthy elderly subjects**

Sakshi Sharma, Pallavi Mundada, Sunita, Bharti, A B Dey

Central Ayurveda Research Institute for Cardiovascular Disorders, Department of Geriatric Medicine, All India Institute of Medical Sciences, New Delhi

Introduction: Rasayana is broadly the category of drugs that act as rejuvenating agents and ultimately promote health, physical fitness and endurance. Numerous Ayurvedic formulations called Rasayana are being used in India for thousands of years. This on-going clinical trial assesses the efficacy and safety of one such formulation Ayush Rasayana, which is prepared by Central Council for Research in Ayurvedic Sciences. The clinical trial of AYUSH Rasayana A and B is being carried out at three centres in India.

Methodology: Eighty apparently healthy volunteers between 60-75 years without any major health issue are being included in this study. After systemic cleansing with Ayush Rasayana 'A' for initial 6 days, Ayush Rasayana 'B' is administered twice daily for next 6 months. They are subjected to detailed clinical and biochemical assessment before entry into the study and at 37th, 97th and 180th days. Six-minute walk distance and quality of life using WHOQOL-BREF questionnaire are used as parameters of efficacy. The subjects are permitted to continue the previous medication if any and to access modern system of medicine for any acute health problem.

Conclusion: This study is aimed to prove if the improvement in six-minute walk distance and quality of life is significant due to administration of AYUSH Rasayana A and B and whether this drug seems to positively affect ageing process.

- **Stress induced sterile inflammation in development of cardiovascular disease: New insight**

**Gausal A. Khan, Indranil Biswas,
Bandana Singh, Saumya Bhagat**

*Department of Hematology, Defence Institute of
Physiology and Allied Sciences, Delhi*

Sterile inflammation (SI) is the pathophysiological basis of several cardiovascular diseases (CVDs) like atherosclerosis, thrombosis, myocardial infarction (MI), insulin resistance (IR) and it occurs in many acute conditions. SI is defined as non pathogen induced inflammation where stress or environmental factors as well as old age played a major role. But, the triggers of SI are still being identified, and the pathways that transduce SI signals are not completely clear. However, from last five years, we have been focused on identifying new cellular and molecular factors causing these diseases. Stress induced release of damage associated molecular patterns (DAMP) molecules including extracellular RNA and DNA (eRNA, eDNA), HMGB1 etc., from dying cells, causes toll like

receptors (TLRs) activation leading to inflammation and CVDs. Therefore, we hypothesized that stress induced endothelial activation and inflammation may induce CVDs. Here, we use hypoxia as stress model. The present study was designed to analyze the effect of hypoxia exposure on inflammation - endothelium activation and to evaluate the involvement of innate immune receptors i.e. TLRs in coagulation activation, leukocyte adhesion (LA) and IR in vivo as well as in vitro model. Hypoxia exposure induced expression of selectins, cell adhesion molecules (CAMs), von Willebrand factor, TNF- α , IFNs, ILs in lung and plasma. We further showed that hypoxia also induced tissue factor (TF) expression, microparticle pro-coagulant activity in plasma. However, hypoxia exposure decreased expression of anti-coagulant molecules i.e. thrombomodulin and TF pathway inhibitor in lung as well as in plasma. These results delineate that hypoxia exposure causes endothelial activation, inflammation and hypercoagulation. Hypoxemia in the circulation can lead to venous thrombosis (VT) through TF activation. But mechanism of TF activation in hypoxia remains obscure. Ligands released from damaged tissues or cells are recognized by pattern recognition receptors (PRR) including TLR3. The expression of TLR3 and TF was analyzed by immunoblotting and RT-PCR in PBMC. The TF activity was evaluated in PBMC by two-stage chromogenic assay and fibrin deposition in lung was detected by immunohistochemistry. The expression of TLR3, TF and TF activity was increased following AH exposure. The contribution of TLR3 was investigated by poly I:C and TLR3 neutralizing antibody. We also found increased ERK_{1/2} and c-jun phosphorylation following AH exposure in lung and PBMC. We further showed that the pre-treatment of TLR3 neutralizing antibody or ERK inhibitor (PD98059) 2h prior to AH completely abrogated ERK_{1/2}, c-jun phosphorylation and TF activation. The pre-treatment of TLR3 neutralizing antibody also inhibited ERK, c-jun, TF expression and fibrin deposition in lung vasculature. LA is a hallmark of inflammation and associated with thrombosis. However, the molecular mechanism of hypoxia induced LA is still unknown. The expression of TLR3, IFNs and CAMs were analyzed by immunoblotting, ELISA, IHC and FACS in lung, PBMC and plasma. In an in vitro model, LA assay was performed. Hypoxia exposure significantly increased the expression of TLR3, IFNs and CAMs in lung, PBMC and plasma. Pre-treatment of anti-TLR3 antibody or chloroquine decreased hypoxia induced IFNs, CAMs expression and LA. Recombinant IFN γ treatment significantly augmented CAMs expression and anti-IFN γ

antibody significantly decreased hypoxia induced CAMs expression in PBMC. We also found increased STAT1 phosphorylation in PBMCs both in hypoxia and poly I:C treatment, but pre-treatment of anti-TLR3 antibody or STAT1 inhibitor 4h prior to hypoxia or poly I:C treatment completely abrogated STAT1 phosphorylation and LA. Collectively, these data show that hypoxia induced adhesion is mediated through TLR3-IFN γ -STAT1 axis. This study delineated the underlying signaling mechanism of hypoxia induced sterile inflammation and CVDs which will lead to development of a therapeutic approach for the intervention of hypoxia induced Thrombosis/CVDs.

- **Cognitive functioning in elderly**

Amandeep Kaur

Assistant Professor, Khalsa College of Nursing, Amritsar, Punjab (India)

In India, anyone who lives over 80 is reckoned to have had a “fair innings”. India has more than 76 million people above the age of 60. Ageing is a slow process that refers to the impact of passage of time on structure and function of different systems of body. In a low demanding society, cognitive impairment may go unnoticed by the subject and proxies. It is almost intuitive that in modern societies of the developed world, where new devices that rely on memory (and also on executive functions) are constantly introduced into daily life, the elderly are confronted with more challenging conditions and may complain and become more aware of memory impairments. Cognitive functions are attention, memory, perception, speech & language, decision making and executive control. Factors which cause cognitive decline are oxidative stress, free radical damage, chronic low level inflammation, declining hormone level, endothelium dysfunction, insulin resistance, excess body weight, suboptimal nutrition and loneliness. Cognitive functioning can be improved by physical activity like exercise, openness to experience means learning new skills, curiosity & creativity (painting, reading books, playing music), making social connections, mindful meditation, brain training games and taking enough sleep.

- **A Clinical Study to Evaluate the Efficacy of Sida Cordifolia, Varatika Bhasma & Yoga in Osteoporosis**

Dilip Kumar Das¹ and Lakshmi Narayan Maity²

¹Lecturer, Department of Kayachikitsa, J.B. Roy State Ayurvedic Medical College and Hospital, Kolkata, ²Officer-in-Charge of Ayurvedic, The West Bengal University of Health Sciences, Salt Lake City, Kolkata

Osteoporosis is a global health problem at present. It occurs almost without showing any symptom. Sudden strain causes the working personality to lay down on bed and fracture. In Ayurveda, it can be compared with asthikshaya, a degenerative disorder. Management of these conditions by conventional method is not satisfactory. Account of this pathological condition given in Ayurveda is instructive, comprehensive as well as lucid. Several drugs of plant, mineral and animal origin have been mentioned in Ayurveda. Special emphasis has been given on yoga towards treatment of this malady. A target is therefore made in the present research programme to search out effective measures from yoga, plant and animal source utilizing modern biomedical techniques.

A clinical study was undertaken with total 363 no of patients of osteoporosis diagnosed and screened on the basis of bone mineral density (BMD) on the basis of ultrasonometry. Patients were divided into four groups administering separate treatments with Sida cordifolia (12gm/day/ two divided dose) and Varatika bhasma (1000mg/day/ two divided dose) and combination therapy. The fourth group received combined therapy along with yogic exercise (Surya Namaskar). Treatments are continued for 6 months for each group. Significant ($p < 0.001$) results were obtained in combined therapy group. Result will be discussed in details. The results were recorded and parametric values were statistically analyzed and non parametric values were analyzed.

This study reveals that opened a new lead for developing a modern way the much wanted ideal bone remodeling drugs from indigenous plant and mineral source utilizing the treasure of Ayurveda. Last but not the least these measures have not any adverse effect rather innocent.

- **Processing of Visual and Auditory Alerting Signal in Older Adults**

Pooja Rai¹, I. L. Singh², Tara Singh³, & Trayambak Tiwari⁴

Cognitive Science Laboratory, Department of Psychology, Banaras Hindu University

Introduction : Cognitive ageing has been related with deterioration of attentional processing in tasks that require dividing or switching of attention. Attentional deficits can have a significant impact on an older person's ability to act adequately and independently in everyday life task. Attention has a distinct anatomy in brain that carries out basic psychological functions, called attentional networks and they are alerting, orienting and executive control. The alerting network prepares for action by means of a change in internal state. Further, the alertness can be divided into two i.e. vigilance or tonic alertness and phasic alertness. Phasic alertness is related with activation experienced when a warning cue is presented prior to the target. The warning cue can be visual or auditory and a visual alerting cue cause difficulty in sustaining attention in older adults as their visual acuity decreases and studies found that auditory alerting cue often produce more automatic alerting in older adults than visual cues. Therefore, in the present study an attempt has been made to see the interactions among auditory signal, spatial cue condition and target congruency in older adults by manipulating the alerting network in terms of auditory and visual warning cues.

Material & Methods : Attention network task Revised (ANT-R) has been used to study the interaction among attentional networks, where auditory alerting signal was incorporated with visual cue. Auditory alerting signal was generated using sine wave of 1000 Hz and 2000 Hz for 50ms. Reaction time and performance accuracy of the participants were recorded as performance measures.

Results : Results revealed a significant interaction between visual and auditory signal and other attention networks in older adults for both performance measures i.e. reaction time and response accuracy.

Conclusion: In sum, results suggest the performance of attentional network was enhanced with auditory alerting signal as compared to visual alerting cue.

- **Importance of engaging elderly residing in urban areas into productive leisure activities for combating their loneliness**

Shubham & Arvind K. Joshi

*Department of Sociology, Faculty of Social Sciences,
Banaras Hindu University, Varanasi*

Introduction: Leisure activities is a very important aspect of elderly life. Having a productive task for utilizing their leisure time not only adds to feeling of worthiness but also gives them a chance to enjoy their creativity. It has been reported in many studies that leisure activities not only help elderly in staying healthy but also make their mind active, positive and happy. In focus to urban areas where the bonds of joint families and community diminishes, makes elderly more isolated and lonely. In such cases productive leisure activities can be designed for elderly persons which can help them in combating their loneliness to a greater extent.

Material & Methods: This study was a exploratory cum descriptive study. The samples were drawn from the urban area of Patna, Bihar. Total 90 samples were studied through simple random sampling. The time period of the study was three months. Data was collected through a structured schedule and general observations. Statistical analysis was done by using SPSS.

Results: Results indicate that more than 50% of the subjects were lacking a productive leisure time activity which lead them to poor health, feeling of loneliness and unworthiness. Male respondents showed more feeling of loneliness than female respondents. Leisure time was not identified as important in daily life therefore, was not utilized appropriately.

Conclusion : Productive leisure time activities is very important in constructive utilization of time among the elderly as it has positive impact over their health and well being.

- **Does autophagy have a role to play in ageing?**

Tony George Jacob

*Assistant Professor, Department of Anatomy, AIIMS,
New Delhi*

The process of becoming older is associated with numerous physiological changes in all systems of the body- nervous, gastrointestinal, respiratory, cardiovascular, integumental and immune. Often these are related to changes at the tissue and cellular level. A key physiological mechanism that helps in recycling organelles and molecules in the cell is autophagy- by which the cell isolates and digests dysfunctional components with the help of lytic enzymes. These autophagosomes release their contents back into the cytoplasm or keep their

contents sequestered if they are unable to digest them. This process is under the control of various genes that regulate its onset, its progress and completion. Under conditions of severe stress, the autophagosomes may even signal a cell to programmed cell death and hence the cascade of

consequences like inflammation and fibrosis. These consequences are often seen as a hallmark of aging. It would be important to delineate the link between the two processes and determine important links that may help in understanding ageing and methods to promote healthful ageing.