
ORATIONS & AWARDS ABSTRACTS

CANCER IN WOMEN

ABSTRACT

Cancer is emerging as a public health problem among an array of non-communicable diseases. The common cancers in women are breast, cervix uteri, colo-rectum, ovary, corpus uteri, lung and oral cavity. Breast cancer (BC) is the common cancer (20-30% of all cancers in women) and the leading cause of cancer death in women worldwide. About half of the BCs and 60% of the deaths are estimated to occur in economically developing countries. In most of the registries in India, BC is the commonest cancer with the highest incidence of nearly 50 per 100,000 women in Trivandrum. Half of this cancer is reported in <50 years of age and it exercise adverse influence on the productive role of women in the society. The factors that contribute to the international variation in BC incidence rates are largely due to the differences in reproductive and hormonal factors and the availability of early detection services.

Gynecological cancers account 15-30% of all cancers in women. Cervix uteri cancer (CC) is the 3rd most common cancer affecting women worldwide, the most common cancer among women in several less developed countries and 2nd common cancer in India. During last few decades, this cancer incidence has been decreased in India. Significant declines in CC are likely due to changes in marriage and family planning, supported by underlying improvements in education and socioeconomic status. In spite of decreasing incidence of this cancer, gynecologic cancers have increased in India. Among these, ovary and corpus uteri cancers are the major contributors. Ovarian cancer (OC) has emerged as one of the common malignancies affecting women in India and is the 5th common cancer in India (4th common in Trivandrum). A steady increase has been observed in OC incidence in several registries including Trivandrum. More than 50% of women with OC are under the age of 50 years. The risk of it increases in women who have ovulated more over their lifetime. This includes those who begin ovulation at a younger age or reach menopause at an older age. Other risk factors include hormone therapy after menopause, fertility medication and obesity. Factors that decrease risk include hormonal birth control, tubal ligation, and breast feeding. Efforts are to be made to detect ovarian cancer at an early stage by educating population about the risk factors. Corpus uteri cancers (CUC) are most common in western countries but are becoming more common in Asia. In India, the highest CUC incidence rates are observed in Trivandrum and its incidence has been increasing. Presently, it is the 5th common cancer among women in Trivandrum, 75% of women are over the age of 50 years. The risk factors of CUC include obesity, diabetes mellitus, breast cancer, use of [tamoxifen](#), [never having had a child](#), late menopause and high levels of estrogen.

Colo-rectal cancer (CRC) is the 2nd most common cancer in women world-wide. The burden of CRC has risen rapidly in some economically developed Asian countries like Japan, South Korea and Singapore. In India, the highest CRC incidence rates are observed in Trivandrum and its incidence has been increasing. Presently, it is the 5th common cancer among women in Trivandrum. The major factors include certain dietary practices and family history of cancer. Individuals with a family history of colon cancer, especially if more than one relative has had the disease, are at increased risk of CRC. Other common cancers in women are tobacco-related cancers such as oral cavity (lip, tongue and mouth) and lung. Declining trends in mouth cancer has been reported in India.

Results on the burden, trends in incidence & mortality, risk factors of breast, cervix uteri, ovary and corpus uteri colo-rectal, lung and oral cavity cancers will be presented.

Dr. V.R. Khanolkar Oration

Orator : Dr. Debabrata Dash, FAMS

BIOMEDICAL APPLICATIONS OF NANOMATERIALS : DIAGNOSIS AND THERAPY OF THROMBOTIC DISORDERS

ABSTRACT

We have employed unique properties of carbon-based as well as metallic nanomaterials to develop diagnostic / therapeutic devices targeted against thrombotic disorders. This Oration will dwell at length on the design of a novel graphene-based biosensor that can detect individuals with high coronary risk and describe an innovative strategy to ablate pathological thrombus *in situ* employing near-infrared laser-irradiated gold nanorods (photothermal therapy).

We have designed a graphene oxide-based electrochemical biosensor for detection of platelet-derived microparticles (PMPs), a major risk factor for arterial pro-thrombotic pathologies like acute myocardial infarction and ischemic stroke. Electrodes were fabricated with immobilized layers of graphene oxide and a specific antibody targeted against active conformation of integrin $\alpha_{IIb} \beta_3$ on PMP surface. Results showed progressive rise in impedance in Nyquist plots with increasing number of PMPs in analyte. The sensor was highly specific for PMPs and did not identify microparticles originating from other cells. Blood obtained from patients diagnosed with acute myocardial infarction exhibited significantly higher values of impedance, consistent with larger number of circulating PMPs in these patients, as compared to samples from healthy individuals, thus validating biosensor as a specific, sensitive, label-free and cost-effective tool for rapid point-of-care detection of PMPs at bedside. Our biosensor is most ideal for mass population screening programs at periphery-level healthcare units with limited resources. It is aimed at early detection of individuals having higher imminent cardiovascular risk, as well as for routine analysis, which in turn would contribute to better management and survival of screened 'high-risk' subjects (*Biosens. Bioelectron.*, 2015, 65: 274-280) (Patent # 1959/DEL/2013, dated 02.07.2013).

Fibrinolytic therapy for arterial or venous thrombotic disorders warrants systemic administration of thrombolytics like streptokinase, which is associated with serious bleeding complications. In this study we have provided proof-of-concept of photothermal ablation of thrombus. Thrombi were generated *in vitro* either from purified fibrinogen or from plasma, or *in vivo* in murine blood vessels. Gold nanorods were added on fibrin-rich clots *in vitro* or targeted towards thrombi *in situ* in mice, followed by irradiation with a 808 nm near-infrared laser source at power density of 1.05 W/cm². Local rise in temperature (up to 55–65°C) was detected with an infrared thermal camera that leads to nearly 15% lysis of clot. This is the first report on application of photothermal therapy as an anti-thrombotic measure. Remarkably, addition of streptokinase has a multimodal additive effect in accelerating the photothermal lysis of thrombi (up to 40%) even at a dose significantly lower (by 30 to 50 times) than therapeutic concentration, thus minimizing life-threatening side effects and adverse complications. This combinatorial approach has great potential in bringing about lysis of pathological clots that can effectively overcome the drawbacks of existing therapies (*Nano Res.*, 2016, 9: 2327-2337) (Patent # 3168/DEL/2014, dated 03.11.2014).

EXPERIMENTAL AND CLINICAL EVIDENCE BASED RATIONALITY OF INCORPORATION OF DEEP FASCIA IN TISSUE TRANSFER FOR RECONSTRUCTIVE SURGERY

ABSTRACT

Intense Clinical Research since 1984 through 93 parameters has unveiled the rationality of reconstructive procedures with several new concepts and innovative techniques of various compositions. **Such extensive work has been done totally in our country** popularizing the techniques amongst the Plastic Surgeons of the world. This presentation deals with the **tissue constituents and vascular network of the deep fascia**. This prolonged research was conducted at inter departmental, interfaculty and interinstitutional levels.

Fresh cadaveric dissections, animal experimentations and clinical research revealed crucial findings applicable for resurfacing defects of different etiology and magnitude. The deep fascia covering the muscle is thought to be an inert a vascular structure with protective function only. We have demonstrated for the **first time in the World the live vascular and lymphatic microcirculation in deep fascia proving it to be having dense vascular network**. Therefore its incorporation enhances the vascularity allowing transfer of large dimension of tissue for reconstruction in cases of trauma, infection, cancer surgery, etc. It has proved the rationality of these procedures convincingly to the scientific world.

Histology of deep fascia showed rich subfascial and suprafascial arteriols and capillaries. Intrafascial course of the perforating vessels from the subfascial plane to the suprafascial plane was visualized. **Confocal microscopic** analysis of fluoresceinised deep fascia under 40X magnification showed longitudinally aligned collagen fibres and nuclei of multiple fibroblasts. **Electron Microscopic Y of deep fascia revealed** (a) Elastic tissue and collagen fibres, (b) Lymphatic vessel, (c) Thin walled venule with single layer of muscle fiber, endothelial cell nucleus, Venule with multiple RBCs, Mast cell with granules and capillary showing endothelium and endothelial cells.

Angiography in experimental model and patients, demonstrated longitudinally oriented vascular network in deep fascia and fasciocutaneous flap. **Live Microcirculation and Lymphatic Circulation in the Human Deep Fascia was demonstrated first time in the world** under 150 & 600 magnifications.

Dr. S.S. Misra Memorial Award
Dr. Madhusudhan K.S.

ROLE OF MULTI-DETECTOR COMPUTED TOMOGRAPHY ESOPHAGOGRAPHY IN PATIENTS WITH ESOPHAGEAL CARCINOMA

ABSTRACT

Aims and Objectives :

1. To evaluate the feasibility, comfortability and diagnostic ability of MDCTE in patients with esophageal carcinoma
2. To compare the findings of MDCTE with barium swallow and upper gastrointestinal endoscopy

Materials and Methods : 70 patients (44 males; 26 females; mean age 55.1 years) of carcinoma of esophagus were initially evaluated with endoscopy and biopsy, followed by MDCTE and barium swallow. MDCTE was performed after inserting a nasogastric tube (NGT) with its tip just below the cricopharyngeal sphincter. Once the patient was on the CT table, room air injection through NGT was started at the rate of 700 ml/30 seconds just prior (10 – 12 sec) to the scan and continued till the end of the scan. The total amount of air injected, patient comfort, degree of distension (good, fair and poor) and overall diagnostic quality (four point scale) were evaluated. The Kappa weighted analysis was done to detect concordance between MDCTE (virtual endoscopy) and conventional images (barium and endoscopy).

Results : MDCTE was comfortable and tolerable in all patients without procedure-related complications. Esophageal distension was good in 50 (71.5%) patients, fair in 13 (18.5%) and poor in 7 (10%) patients. The average amount of air injected was 656 ml. The overall quality of MDCTE was diagnostic in 63 (90%) cases. The agreement between conventional studies (barium and endoscopy) and MDCTE was 91.3% and 63% respectively.

Conclusion : MDCTE provides diagnostic quality images with adequate distension of the esophagus and better lesion detection in most patients without significant discomfort.

Dr. Vimla Virmani Award
Dr. Jagadisha Thirthalli

PROSPECTIVE COMPARISON OF COURSE OF DISABILITY IN ANTIPSYCHOTIC-TREATED AND UNTREATED SCHIZOPHRENIA PATIENTS

ABSTRACT

Objective: To compare the course of disability in schizophrenia patients receiving antipsychotics and those remaining untreated in a rural community.

Method: Of 215 schizophrenia patients identified in a rural south Indian community, 58% were not receiving antipsychotics. Trained raters assessed the disability in 190 of these at baseline and after 1 year. The course of disability in those who remained untreated was compared with that in those who received antipsychotics.

Results: Mean disability scores remained virtually unchanged in those who remained untreated, but showed a significant decline (indicating decrement in disability) in those who continued to receive antipsychotics and in those in whom antipsychotic treatment was initiated ($P < 0.001$; group X occasion effect). The proportion of patients classified as 'disabled' declined significantly in the treated group ($P < 0.01$), but remained the same in the untreated group.

Conclusion: Disability in untreated schizophrenia patients remains unchanged over time. Treatment with antipsychotics in the community results in a considerable reduction in disability.

Dr. S.S. Sidhu Award
Dr. Ashok Kumar Jena

**LONG-TERM EFFECTS OF MAXILLARY DISTRACTION
OSTEOGENESIS (DO) ON NASAL INDEX IN ADULT PATIENTS WITH
CLEFT LIP AND PALATE DEFORMITIES**

ABSTRACT

Objective : To evaluate the immediate and long-term effects of maxillary distraction osteogenesis (DO) on the morphology of nose among adult subjects with cleft lip and palate deformities.

Design : Twelve adult subjects in the age range of 17-20 years with complete unilateral cleft lip and palate underwent DO for maxillary advancement. The effects of maxillary DO on the morphology of nose was evaluated from extra-oral full face frontal photographs recorded prior to DO (T_0), at the end of active DO (T_1) and at least 2-years after the DO (T_2). The ANOVA, Post Hoc test (Bonferroni) and Pearson correlation coefficients were used. The probability value (P-value) 0.05 was considered as statistically significant level.

Results : SNM angle and Ptm-M distance increased significantly by DO ($P < 0.001$). The nasal index increased significantly ($P < 0.01$) by 13.85% at the end of active distraction (T_1) and by 12.69% at the end of long-term follow-up (T_2). The correlation between sagittal maxillary advancement and nasal index was significant ($P < 0.001$). For each millimeter of maxillary advancement, the nasal index increased by 1.38% and 1.8% at the end of active distraction and long-term follow-up respectively.

Conclusion : The advancement of maxilla increased the nasal index significantly among subjects with cleft lip and palate deformities.

Keywords : Distraction Osteogenesis, Nasal Index, Cleft lip and Palate.

Dr. Vinod Kumar Bhargava Award
Dr. Ganesh Venkatraman

**P21-ACTIVATED KINASE 1 (Pak1) SIGNALING INFLUENCES
THERAPEUTIC OUTCOME IN PANCREATIC CANCER**

ABSTRACT

Resistance to Gemcitabine in PDAC is attributed to activation of various signaling mechanisms in a cell. In this study, by utilizing *in vitro* Pak1 inducing and knockdown cell line models as well as *in vivo* nude mouse xenograft models, we clearly demonstrate that deregulated p21 activated kinase 1 (Pak1) signaling leads to Gemcitabine resistance. Our results from Gemcitabine resistant and sensitive cell line models showed that elevated Pak1 kinase activity is required to confer Gemcitabine resistance. This was supported by elevated levels of phosphorylated Pak1 levels in majority of human PDAC tumors as compared to normal. Mechanistic pathway revealed that Pak1 confers resistance to Gemcitabine by evading apoptosis and regulating survival signals. Further, we found that Pak1 is a physiological interacting substrate of Tak1 - a molecule previously implicated in Gemcitabine resistance. Bioinformatic studies showed that Gemcitabine docks with Pak1 and Gemcitabine exposure induces Pak1 kinase activity both *in vivo* and *in vitro*. Finally, results from nude mouse tumor models showed that Pak1 inhibition by IPA-3 partially increases the efficacy of Gemcitabine and brings about pancreatic tumor regression.

Dr. Baldev Singh Oration

Orator : Dr. Sanjeev V. Thomas, FAMS

REPRODUCTIVE ISSUES OF WOMEN WITH EPILEPSY

ABSTRACT

There are about 10 million people with epilepsy in India and a quarter of them are women in reproductive age group. The social stigma of epilepsy has pervasive impact on the life of people with epilepsy particularly women. The cyclical hormonal changes during menstrual cycle and during pregnancy can influence the seizure pattern in women with epilepsy. Exposure to antiepileptic drugs can increase the risk of fetal malformations in the infants. This risk is higher with polytherapy and valproate in higher doses. A small proportion of children with antenatal AED exposure can have problems with cognitive development. All women with epilepsy need to have preconception evaluation to simplify the treatment of epilepsy. It is preferable to avoid valproate as an antiepileptic drug in women who are planning pregnancy.

Dr. R.V. Rajam Oration

Orator : Dr. Rajesh Kumar, FAMS

SURVEILLANCE & TARGETED ACTION TO PREVENT HIV/AIDS

ABSTRACT

Epidemiological surveillance played a key role in the identification of AIDS and its modes of transmission. In India, laboratory-based surveillance of HIV was initiated among most at-risk populations in 1990s, which was later expanded to antenatal clinics. On the basis of surveillance, high risk geographic areas and high risk populations were identified; and preventive behaviour change interventions were targeted among high risk groups in mid 1990s. In 2003, analysis of surveillance data revealed a declining trend in HIV. Further analysis, indicated that targeted sexual behaviour change interventions among high risk groups had been responsible for the decline. The targeted behaviour change strategy among high risk groups was also found to be cost-effective. In the era of ART, HIV prevalence trends would no longer be useful for tracking the epidemic. Hence, new laboratory essays are needed for tracking HIV incidence. Verbal autopsy method can provide direct estimates of HIV mortality trends to evaluate the effectiveness of ART. Since the number of new HIV infections is showing plateauing trend, further intensification of HIV/AIDS prevention and control effort is required to achieve the end of HIV transmission and deaths due to AIDS by 2030.

Keywords: Public Health, Epidemiology, Surveillance, HIV, AIDS, Prevention, Control

GENETIC BASIS OF DIABETIC NEPHROPATHY

ABSTRACT

It is well known that all patients with Type 2 diabetes mellitus (T2DM) do not develop chronic kidney disease. Several metabolic, hemodynamic and intracellular mechanisms have been proposed to play a role in the pathogenesis of diabetic nephropathy (DN). Clustering of patients with DN in certain ethnic groups and families suggests the role of genetic factors. We have studied various facets about genetic determinants which may influence the development of kidney disease in patients with T2DM.

We have found that ACE DD genotype conferred the maximum risk, whereas ACE II genotype seemed to confer protective role against development of diabetic and nondiabetic CKD. Further, we found that oxidative stress plays a significant role in the development of diabetic nephropathy, and that GSTT1 and/or GSTM1 null genotypes are associated with higher oxidative stress in patients with DN. In addition, we also found that increased levels of inflammatory mediators i.e. TNF- α , hsCRP and uMCP-1 play a significant role in contributing to oxidative stress. We have shown that genetic polymorphism of NF- κ B gene and TNF- α gene plays a role in determining serum level of various inflammatory markers and oxidant stress parameters. We found significant association of -429T/C and Gly82Ser receptors for advanced glycation end-products (RAGE) polymorphisms with the development of macrovascular and microvascular complications respectively in T2DM subjects. Further, we have observed that AGE-mediated exacerbation of RAGE expression may play a role in pathogenesis of various vascular complications in T2DM.

To conclude, polymorphisms of various genes involved in renin-angiotensin aldosterone system, inflammatory, oxidant stress, cytoprotective and nitrous oxide pathways and enhanced RAGE mRNA expression may adversely influence final common pathway through oxidant stress mechanisms, and influence the levels of various cytokines and intracellular signaling mechanisms, thereby influencing the susceptibility of patients with diabetes mellitus for development of kidney disease and vascular complications.

Dr. S. Janaki Memorial Oration
Orator : Dr. Sheffali Gulati, MAMS

NEURODEVELOPMENTAL DISORDERS : THE JOURNEY, THE DREAMS AND THEIR REALIZATION

ABSTRACT

Neurodevelopmental disorders (NDD) are associated with significant morbidity. This involves early identification of the disorder, the correct management of the disorder and associated disabilities. In India, the paucity of trained personnel and lack of knowledge about these disorders has been instrumental in inadequate management and recognition of these NDD. The Child Neurology Division, Department of Pediatrics at All India Institute of Medical Sciences has made few noteworthy and meaningful contributions in these aspects: devising a DM curriculum for pediatric neurology, developing indigenous tools for diagnosing these NDDs and performing relevant research. These endeavors would go a long way in serving the children with NDDs.

Keywords: Neurodevelopmental disorders, Autism, Cerebral Palsy, Attention deficit hyperactivity disorder, All India Institute of Medical Sciences

Dr. Pran Nath Chhuttani Oration

Orator : Dr. Kashi Nath Prasad, FAMS

NEUROCYSTICERCOSIS BURDEN IN PIG FARMING COMMUNITY OF NORTH INDIA

ABSTRACT

Neurocysticercosis (NCC) is the most common cause of acquired active epilepsy (AE). NCC is under reported in India due to lack of systematic studies. We investigated NCC burden in pig farming community of Lucknow district.

Total 294 families with 1640 subjects from 30 villages were surveyed for AE; 595 asymptomatic individuals underwent magnetic resonance imaging of brain. TLR4, MMP9, ICAM1 and GST genes polymorphisms were studied for their role in symptomatic disease. Slaughtered pigs were screened for cysticercosis.

Total 95 (5.8%) subjects with AE were identified; 48.3% of them had NCC. Ninety (15%) asymptomatic individuals had NCC. Thirteen (26%) of 50 pigs slaughtered had cysticercosis.

The results showed high NCC burden in pig farming community and NCC as major cause of AE. Individuals with polymorphic TLR4, MMP9, ICAM1 and GST genotypes were susceptible for symptomatic disease. High swine cysticercosis prevalence suggests the transmission dynamic between human and swine in the community.

Keywords: Active Epilepsy, Host Genetic Factors, Neurocysticercosis, Seizure, Swine Cysticercosis

ESSENTIAL SKILLS IN POST-GRADUATE MEDICAL CURRICULUM OF COMMUNITY MEDICINE

ABSTRACT

Introduction: Community based education has been considered a suitable approach for health promotion and for requisite skill development regarding primary health care. In the current perspective, public health training and research, being two important aspects require immediate attention.

Objective: To assess the skills of post graduate students in department of community medicine in four medical colleges of Delhi.

Materials and methods: It was a cross-sectional study conducted among 70 postgraduate medical students of 4 medical colleges in Delhi. The data was collected through a self administered, pre-tested questionnaire containing items assessing socio-demographic profile and skills essential for Post graduate students of community medicine.

Results: There were 58.6% male and 29% female students. A large proportion of participants aged between 25-29 years. Ability 'to resolve conflict among the nurse at Primary Health Centre (PHC)', 'generate community participation', 'making thick and thin smear in case of fever', 'making a chart showing month-wise distribution of CuT', and 'calculating chi-square of data', was found to significantly higher in 2nd and 3rd year PG students than first year PG students ($p < 0.01$). Only 27.1% of students felt that they could test water sample for microbiological aspects while only 47.1% said that they could examine an industrial worker for pre-placement examination.

Conclusions: PG students assessed themselves to possess necessary skills on communication, counselling and health education. However, many students lacked skills pertaining to occupational health and epidemiology.

Keywords: Competency in Community Medicine, public health, epidemiological skills, communication skills.