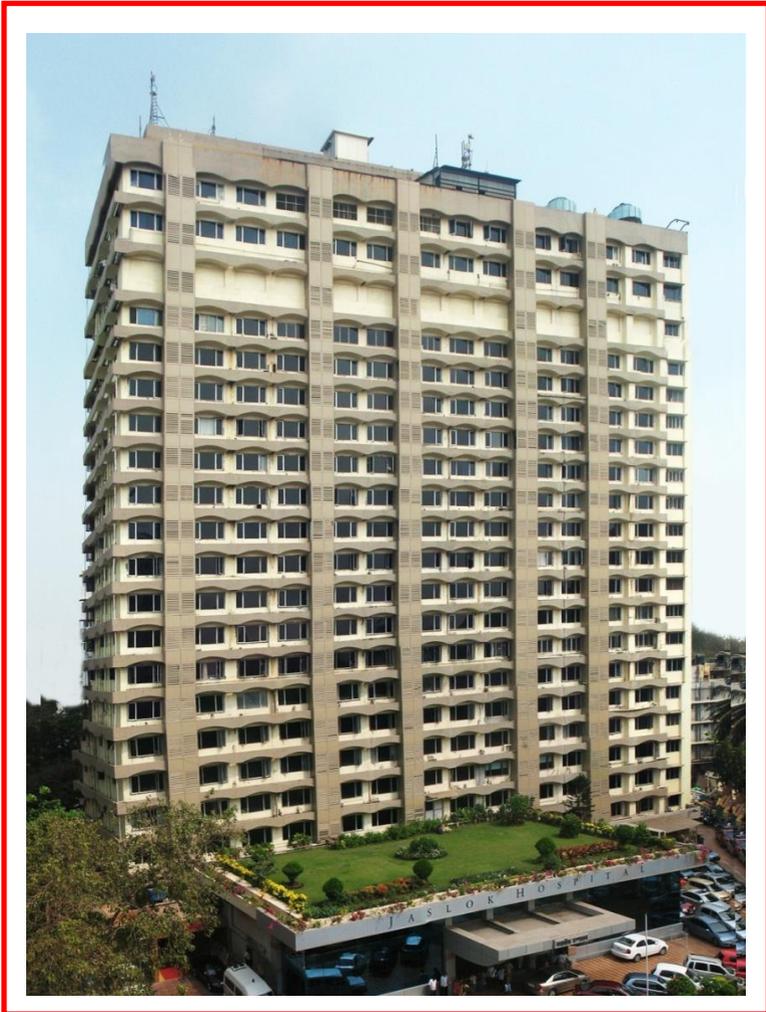




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Editorial

On Translational Medicine

A couple of decades ago, I was invited by the Indian Psychiatry Society to give a talk on the then emerging science of Evidence Based Medicine. At the end of the talk, a senior psychiatrist practicing in a small town in Maharashtra stood up and asked me: “What is so special about your talk? Whatever you have said is what I have been doing all my life.” I responded by thanking him for illustrating the point I wished to make that one need not be overwhelmed by medical jargon and that research can often be reduced to very simple principles.

Translational Medicine (TM) is yet another illustration of the simplicity of research concepts and how they can be applied to our daily professional lives. It has been defined by the European Society for Translational Medicine (EUSTM) as “an interdisciplinary branch of the biomedical field supported by three main pillars: bench side, bedside and community.”^[1] The goal of TM is to combine various disciplines to promote the prevention, diagnosis, and treatment of human illnesses. Traditionally, research is considered as either basic research or applied research. **Basic research** deals with furthering our understanding of the mechanisms of illnesses often at the cellular or molecular level. It often takes years before some of these findings result in new, effective treatments for illnesses and sometimes there are no discernible applications. Clinicians sometimes perceive those involved in basic research as disconnected from everyday practice, having little understanding of effective patient care. **Applied research**, on the other hand, consists of the development of newer diagnostic and therapeutic strategies to improve illness outcomes. Those in clinical practice are often excited about these advances and embrace them readily.

TM strives to integrate advancements in molecular biology with clinical trials, taking research from the laboratory bench to the patient’s bedside. One example is the development of a genetic test for Hypertrophic Cardiomyopathy (HCM). Sudden cardiac death kills as many as 300 young athletes each year. Recently Mumbai lost one of its finest endoscopic surgeons who was considered to be in excellent health but suffered from sudden cardiac arrest while training for the marathon. Christine Seidman’s work at the Brigham and Women’s Hospital resulted in the development of a genetic test that helps identify those at risk for developing HCM.^[2] These individuals can take appropriate preventive and therapeutic measures to minimize the risk of sudden cardiac death.

Thus, by integrating laboratory and clinical research, TM contributes to faster, effective treatments and preventive measures for illnesses. Besides, it leads to interesting conversations between those cloistered in laboratories and those busy with their daily professional practice.

1. Cohrs RJ, Martin T, Ghahramani P, Bidaut L, Higgins PJ, Shahzad A. Translational Medicine definition by the European Society for Translational Medicine. *New Horizons in Translational Medicine*. 2015;2(3):86-88.

2. Teekakirikul P, Padera RF, Seidman JG, Seidman CE. Hypertrophic cardiomyopathy: translating cellular cross talk into therapeutics. *The Journal of Cell Biology*. 2012;199(3):417-421.

Rajesh M. Parikh, M.D., D.P.M., D.N.B.
Director, Medical Research

Research News

Pediatric neurology fellow Dr. Purva Keni Karnavat won the 2nd Prize for her platform presentation, “Evaluation of Ketogenic Diet in Indian Children with Refractory Epilepsy”, at the 7th National Conference of the Association of Child Neurology (Child Neurocon 2016) in Lucknow in February 2016. The authors were Dr. Anaita Udwadia Hegde, Dr. Shilpa Kulkarni, Dr. Purva Keni Karnavat, Dr. Omkar Hajirnis, Mrs. Roshan Kore, Mrs. Suvarna Sawant, and Ms. Bhakti Tulaskar.

Abstracts

Case-based discussion: Lymphocytic interstitial pneumonia a rare presentation in an immunocompetent adult male

Ajay Chitnis, Pradeep Kumar Vyas, Priyanka Chaudhary, Gaurav Ghatavat

Lung India 2015;32:500-4.

Lymphocytic interstitial pneumonia (LIP) is a rare form of interstitial lung disease usually associated with other systemic diseases; however, idiopathic cases are being reported. As per recent ATS/ERS 2013 guidelines, diagnostic criteria of clinical, radiological and histopathological for LIP is same as 2002 except some cystic changes on HRCT chest. Many cases diagnosed in the past as LIP now turn out to be NSIP; therefore as per new ATS/ERS classification whenever anybody report a case of LIP, NSIP should always be kept in mind as differential diagnosis. Here we present a case of LIP in an immunocompetent adult male presented with history of persistent dry cough and breathlessness on exertion, confirmed on HRCT chest and histopathologically, treated successfully with steroids.

Pyoderma Gangrenosum - A New Manifestation of Wilson Disease?

Freg GN, Shah V, Nagral A, Jhaveri A.

Journal of Clinical and Experimental Hepatology 2016;6:62-4.

Seventeen year old girl, a known case of Wilson disease presented to us with a non-healing skin ulcer followed by appearance of jaundice, ascites and progressive fatigue of 1 month duration. She was diagnosed to have Wilson disease 5 years back and had been well controlled on d-penicillamine. On enquiry, she was found to be noncompliant with her medication in the preceding 6 months. On examination, she had severe pallor, icterus with moderate ascites and oedema feet. Investigations revealed severe haemolytic anemia and deranged liver function. The lesion was diagnosed to be pyoderma gangrenosum on skin biopsy. The appearance of a cutaneous lesion followed by deterioration in the liver disease and hemolysis suggested uncontrolled Wilson disease as the triggering factor. Chelation therapy improved her haemoglobin and liver function as well as led to healing of the ulcer. We describe pyoderma gangrenosum as a new manifestation of Wilson disease.

Initial Benchmarking of the Quality of Medical Care in Childhood - Onset Systemic Lupus Erythematosus.

Mina R, Harris JG, Klein-Gitelman MS, Appenzeller S, Centeville M, Eskra D, Huggins JL, Johnson AL, Khubchandani R, et al.

Arthritis Care and Research 2016;68:179-86.

OBJECTIVE: To assess the quality of medical care in childhood-onset systemic lupus erythematosus (SLE) at tertiary pediatric rheumatology centers as measured by observance of SLE quality indicators (SLE-QIs).

METHODS: International consensus has been achieved for childhood-onset SLE-QIs capturing medical care provision in 9 domains: diagnostic testing, education of cardiovascular (CV) risk and lifestyles, lupus nephritis (LN), medication management, bone health, ophthalmologic surveillance, transition, pregnancy, and vaccination. Using medical record information, the level of performance of these childhood-onset SLE-QIs was assessed in childhood-onset SLE populations treated at 4 tertiary pediatric rheumatology centers in the US, 2 in Brazil, and 1 center in India.

RESULTS: A total of 483 childhood-onset SLE patients were assessed. Care for the 310 US patients differed markedly for childhood-onset SLE-QIs addressing LN, bone health, vaccinations, education on CV risk, and transition planning. Performance of safety blood testing for medications was high at all centers. Despite often similar performance on the childhood-onset SLE-QI, access to kidney biopsies was lower in Brazil than in the US. Irrespective of the country of practice, larger centers tended to meet the childhood-onset SLE-QIs more often than smaller centers.

CONCLUSION: The childhood-onset SLE-QIs, evidence-based minimum standards of medical care, are not consistently met in the US or some other countries outside the US. This has the potential to contribute to suboptimal childhood-onset SLE outcomes.

Extramedullary plasmacytoma: A rare malignancy in renal transplant recipient- Case report

Keyur Dave, Madan M. Bahadur, Ganapathi M. Bhat, Samir Shah

Indian Journal of transplantation 2015;9:30-3.

Extramedullary plasmacytoma in a post renal transplant recipient is an extremely rare type of post transplant lymphoproliferative disorder (PTLD) which warrants significant reduction in immunosuppressive therapy leading to increased risk of rejections and even graft loss. We describe a 49 year old male patient who after 14 years of renal transplant presented with extramedullary plasmacytomas in pancreas, gums, subcutaneous tissue and transplant kidney. He was treated with high dose melphalan followed by rescue autologous hematopoietic stem cell transplant and concurrent reduction in immunosuppression following which he achieved complete remission maintained on 5 years of follow up with stable allograft function. This case, to best of our knowledge is first case to be successfully managed with a rescue autologous hematopoietic stem cell transplant in a renal transplant patient with multifocal extramedullary plasmacytomas.

Stereotactic Thalamotomy for Task-Specific Dystonia

Paresh Doshi, Shabana Shaikh, Bharati Karkera, Raghvendra Ramdasi

Movement Disorders Clinical Practice, 2016; DOI:10.1002/mdc3.12398

Background

Task-specific dystonia (TSD) is a focal dystonia producing abnormal posture of the fingers or the hand, occurring during selective motor activities that involve repeated use. Conventional medical management and botulinum toxin fail to provide relief in all patients. Thalamotomy or DBS have been used as surgical treatment in patients not responding to medical treatment.

Methods

Five patients (all male; age, 18–47 years) with refractory focal hand dystonia underwent ventrooralis (Vo) thalamotomy using stereotactic techniques. Preoperative video recordings, Writer's Cramp Rating Scale (WCRS), and Symptom Severity Scores (SSS) were evaluated at the baseline and at a follow-up date, which ranged between 8 and 44 months (average, 26 months).

Results

All the patients had difficulty in performing their most common tasks. Duration of symptoms ranged from 6 months to 12 years. All patients obtained immediate postoperative relief from dystonic symptoms, and the effect was sustained during the follow up period. The WCRS improved from a mean of 20.4 before surgery to a mean of 2.4 at the last follow-up, whereas the SSS improved from a mean of 29.8 before surgery to a mean of 12 at the last follow-up. All patients were able to carry out their specific task with little or no difficulty. There were no surgical complications, morbidity, or mortality.

Conclusions

Vo thalamotomy is a safe and effective procedure providing successful symptom relief in patients of TSD.

Skin Hyperpigmentation in Indian Population: Insights and Best Practice.

Nouveau S, Agrawal D, Kohli M, Bernerd F, Misra N, Nayak CS.

Indian J Dermatol. 2016; 61:487-95.

Skin pigmentation is one of the most strikingly variable phenotypes in humans, therefore making cutaneous pigmentation disorders frequent symptoms manifesting in a multitude of forms. The most common among them include lentiginos, postinflammatory hyperpigmentation, dark eye circles, and melasma. Variability of skin tones throughout the world is well-documented, some skin tones being reported as more susceptible to pigmentation disorders than others, especially in Asia and India. Furthermore, exposure to ultraviolet radiation is known to trigger or exacerbate pigmentation disorders. Preventive strategies for photoprotection and treatment modalities including topical and other medical approaches have been adopted by dermatologists to mitigate these disorders. This review article outlines the current knowledge on pigmentation disorders including pathophysiology, molecular profiling, and therapeutic options with a special focus on the Indian population.

Nobel Prize in Physiology or Medicine 2016

Autophagy - Recycling at a cellular level



The Nobel Prize in Physiology or Medicine for 2016 goes to **Yoshinori Ohsumi**, a Japanese cell biologist for his work on autophagy, or "self-eating", which is a process of degrading and recycling cellular components.

It was in the 1960's that this process was initially described where the cell destroys its own contents by enclosing them in a sac like vesicle called the autophagosome, which is in turn is degraded by a lysosome. Ohsumi used baker's yeast to conduct elegant experiments ultimately identifying the genes involved in autophagy. He went on to show the mechanism of autophagy in yeast and showed that similar processes were at play in our cells as well.

His ground-breaking discoveries have led to understanding the process of cell degradation and recycling. Autophagy contributes to various physiological and pathological processes such as response to starvation and stress, elimination of intracellular bacteria or viruses in infections, embryo development and differentiation, and aging. Autophagy has also been linked to cancer, diabetes mellitus type 2 and Parkinson's among other diseases

Although the process of autophagy has been known for over 50 years, Yoshinori Ohsumi's paradigm-shifting research has opened the doors for elucidating the mechanism of several diseases and possibly producing a new therapeutic target. A number of academic labs and biotechs are working on manipulating autophagy to block tumor growth, reduce heart damage from myocardial ischemia, and suppress viral infections. Ohsumi, of the Tokyo Institute of Technology, won 8 million Swedish Krona or about \$936,000.

THE NOBEL COMMITTEE CALLS ITS HONOREES '*LAUREATES*' BECAUSE CALLING THEM '*WINNERS*' IMPLIES THAT THERE ARE ALSO '*LOSERS*'. (ALEX HOGAN/STAT)

Developing a Novel, Sustainable and Beneficial System for the Systematic Management of Hospital Wastes.

Doiphode SM, Hinduja IN, Ahuja HS.

J Clin Diagn Res. 2016 Sep;10(9):LC06-LC11. Epub 2016 Sep 1.

INTRODUCTION: India is the 2nd most populated country in the world. Population of India is increasing at a tremendous rate. Proportionately, the numbers of people seeking health care are increasing. In that ratio the quantities of hospital wastes, in wider terms, healthcare wastes that are getting generated is also increasing. Current methods for the safe disposal of healthcare wastes are not able to cope up with the rate of generation of healthcare wastes and moreover are not eco-friendly at all. Due to this, the current rules and regulations regarding the safe disposal of healthcare wastes are getting violated, ultimately leading to improper management of healthcare wastes, posing a serious threat to the environment and to the community.

AIM: To develop a novel, sustainable and beneficial system for the systematic management of healthcare wastes utilizing the strategies of waste reduction, waste segregation and recycling of Non Hazardous Hospital Wastes (NHHWs).

MATERIALS AND METHODS: Firstly a detailed study of the Healthcare Waste Management System (HCWMS) operational at the Jaslok Hospital and Research Centre was done. A pilot study was then performed. After that, data regarding the generation and management of healthcare wastes in the other healthcare settings was collected and analyzed. Considering all this, a novel, sustainable and beneficial template system for the systematic management of healthcare wastes was proposed. Lastly the possible positive impacts from the implementation of HCWMSs designed using proposed template HCWMS in significant numbers of healthcare establishments was gauged.

RESULTS: The healthcare waste management system operational at the Jaslok Hospital and Research Centre was found to be very efficient and provided vital inputs about developing the novel HCWMS. The pilot study was successfully completed generating significant revenue from the hospital's own NHHWs while managing them in an eco-friendly way. The total healthcare waste generation in Maharashtra was approximately estimated at about 2,89,200kg/day of which about 43,380kg/day was Bio-Medical Wastes (BMW) while about 2,45,820kg/day were the NHHWs. This stresses the need of implementing HCWMSs in Healthcare Establishments (HCEs) based on the proposed novel template of HCWMS.

CONCLUSION: The novel template system is proposed in a detailed manner under various heads in the form of a handbook which is scalable upwards or downwards as per the requirement of a HCE. The enormous economic and environmental positive impacts from the implementation of the HCWMSs based on the proposed HCWMS in significant numbers of HCEs were presented numerically, putting light on the necessity and tremendous potential of this field of research.

Editorial Board

Drs. Tarang Gianchandani, Rajesh Parikh, Fazal Nabi, Nihar Mehta, Prochi Madon & Pravin Agrawal. *Editorial Assistant:* Ms. Maherra Khambaty.