Colonic explosion prophylaxis discovery wins the 2012 IgNobel prize in medicine

Drs Emmanuel Ben-Soussan and Michel Antonietti of France were announced as the 2012 recipients of the 22nd Annual IgNobel prize winners in medicine for their discovery of prophylaxis of a rare, but frightening complication of colonic procedures.

Colonic gas explosion occurs in the presence of high levels of hydrogen and methane gases, produced by gut bacteria, with the use of electrocautery—often used for surgical resection of polyps.

In 2004, Drs Ben-Soussan and Antonietti (Eur J Gastroenterol Hepatol 2004;16:1315–18) published their evaluation of the safety and efficacy of argon plasma coagulation in the setting of haemorrhagic radiation proctitis—a common side-effect of radiation therapy. In their study of eight patients, three were affected by bowel explosion, which had a strong association for local rather than oral bowel preparation techniques.

In response to their exceptional clinical experience, a subsequent review (World J Gastroenterol 2007;13:5295–8) was done to demonstrate that specific bowel preparation protocols were indeed associated with a marked reduction in colonic gas levels, well below combustion thresholds. They concluded that colonoscopies that require electrocautery should be attempted only in patients who have had a complete bowel preparation with polyethylene glycol or sodium phosphate.

The IgNobel prizes are awarded for research that ‘first makes people laugh, and then makes them think’. The ceremonies are hosted at Harvard University’s Sanders Theater, and modelled after the actual Nobel prize traditions. While Nobel laureates also attend these, awardees are acknowledged by tossing of paper planes from the audience, in addition to the typical applause.

A recording of the ceremonies can be viewed at http://www.improbable.com/ig/2012/.

PAMELA LIAO, Toronto, Canada

Stem cell researchers awarded the 2012 Nobel prize in medicine

Sir John B. Gurdon (UK) and Dr Shinya Yamanaka (Japan) shared the Nobel prize in physiology or medicine in 2012 for their work that demonstrated the ability of terminally differentiated cells to be converted into pluripotent stem cells.

Gurdon’s initial work had debunked the belief that highly specialized, or differentiated, cells were terminally suspended in that state. By attempting to replicate the original experiments, albeit in a different animal model, Gurdon was able to show that transplantation of differentiated epithelial cell nuclei into enucleate embryonic cells could result in a fully developed organism (J Embryol Exp Morph 1962;10:622–40). Subsequent experiments to validate this shift in paradigm among developmental biologists resulted in the establishment of a new domain of experimentation called ‘Somatic cell nuclear transfer’. The most popularized outcome of this technique was the successful cloning of the sheep ‘Dolly’ in 1997, but has been extended to several different animal models.

Up to this point, shifts in developmental potential depended on the transfer of an exogenous nucleus into a pluripotent cell. What factors within the differentiated nucleus conferred on them the ability to drive these dramatic changes? Japanese biologist Dr Yamanaka, also trained as an orthopaedic surgeon, produced some remarkable experiments to provide the answer to this.

Yamanaka’s group helped to identify a gene called ‘Nanog’, which is responsible for pluripotency. In further experiments with embryonic stem cells, Yamanaka sought to identify and test the transcription factors that enabled the developmental potential of these cells. In his experiment (Cell 2006;126:663–76), 24 transcription factors were able to convert mouse fibroblast cells into stem cells, which they called ‘induced pluripotent stem cells’. The ability to produce stem cells from differentiated ones has revolutionized access to developmental research throughout the realm of cell biology.

The potential applicability of this work in medicine is tremendous. Many diseases are now understood at the cellular level. The degeneration or malformation of specific cell types is a feature of a broad spectrum of diseases such as diabetes, Alzheimer and ischaemic heart disease. With the theoretical ability to target growth of endogenous cell types, the impact of Gurdon and Yamanaka’s work has the potential to transcend into an entirely new era of therapeutics.

(See also http://www.nobelprize.org/nobel_prizes/medicine/laureates/2012/press.html for further details.)

PAMELA LIAO, Toronto, Canada

Health ministers of Southeast Asian countries adopt the Yogyakarta Declaration on Ageing and Health 2012

The Yogyakarta Declaration on Ageing and Health 2012 was adopted at the 30th meeting of ministers of member states of Southeast Asia Region of the WHO at Yogyakarta, Indonesia on 4 September 2012.

This declaration reflects a strong commitment by these countries to urgently address pressing problems in geriatric health. It is estimated that approximately 8% of the total population of the Southeast Asia region (142 million people) are above 60 years of age. This figure is expected to increase considerably over the coming decades, highlighting the fact that most countries are not sufficiently prepared and equipped to tackle this huge geriatric population. Ageing and health was also the topic of the World Health Day 2012, which had the slogan ‘good health adds life to years’.

The ageing population has its own health priorities, including chronic diseases, disabilities and mental health problems, thereby making it imperative for countries to design and include plans appropriate for them in the national health policies. The Yogyakarta declaration acknowledges ageing as a ‘priority public health
challenge’ and speaks of 14 commitments to improve geriatric care in the participating countries. The focus areas include commitment to resource allocation, development of a multidisciplinary and comprehensive approach to ageing, strengthening of national databases and improving social support systems. The declaration also stresses on the need for research on ageing to make the national policies more evidence-based.

TAMOGHNA BISWAS, Kolkata, West Bengal

Cheating in medical entrance exams—again!
There have been reports on the use of advanced technology for cheating in medical entrance examinations (Natl Med J India 2010;23:317–18; Natl Med J India 2003;16:179)
Another such incident at the Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh, led to the cancellation of its MD/MS entrance examinations held in November 2012. The individual who had organized two earlier instances of hi-tech copying is alleged to be the kingpin of this racket too.

The modus operandi this time around was as follows. Seven students, all women, appeared in the entrance examination wearing special clothes with sophisticated mobile phones with camera fitted in their undergarments and bluetooth headsets fixed in their ears; their hair was left open to hide the devices. They first scanned and emailed a copy of the question paper to their accomplices who were stationed in a hotel room in the city. These accomplices then transmitted the question papers through email to ‘experts’ based in Patna and Hyderabad. The ‘experts’ solved the questions and the answers were flashed back within half an hour to the students.

The Central Bureau of Investigation (CBI) reportedly swung into action based on an anonymous email and busted the racket. The device that was pushed into the ear of one of the accused had migrated into the auditory canal and had to be extracted surgically. There were also reports of a doctor, who was allegedly part of the back-end team who provided the answers and used the ill-gotten money to produce films in southern India being probed by the CBI. The incident is being investigated.

ALLADI MOHAN, Tirupati, Andhra Pradesh

mHealth initiative to tackle non-communicable diseases
With a shift in disease epidemiology trends, non-communicable diseases (NCDs) are fast becoming leaders in the global burden of disease. NCDs are estimated to cause 36 million deaths annually and have become the focal point of concern for global public health. To meet the increasing challenge, WHO plans to rope in innovative technologies to aid its fight against NCDs. WHO, in collaboration with the International Telecommunication Union, launched the mHealth initiative to tackle NCDs in October 2012 in Dubai, United Arab Emirates.

The project will function initially for 4 years and will ‘focus on prevention, treatment and enforcement to control non-communicable diseases’. The initiative will work with multiple partners and governments worldwide and will provide guidance on mHealth interventions, based primarily on text messages and smartphone apps, to address issues ranging from tobacco addiction and physical inactivity to chronic disease problems such as cancer and diabetes. The experience gained by WHO through the extremely successful mobile-based surveillance for the Global Adult Tobacco Surveillance system, which captured data on tobacco use in 17 nations, will help in developing similar programmes for NCDs.

SOUMYADEEP BHAIUMIK, Kolkata, West Bengal

The National Medical Journal of India is looking for correspondents for the ‘News from here and there’ section. We are particularly interested in getting newswriters from the north and northeast regions of India as well as from other countries. By news, we refer to anything that might have happened in your region which will impact on the practice of medicine or will be of interest to physicians in India. The emphasis of the news items in this column, which are usually from 200 to 450 words, is on factual reporting. Comments and personal opinions should be kept to a minimum if at all. Interested correspondents should contact SANJAY A. PAI at sanjayapai@gmail.com or nmji@nmji.in