

News from here and there

Nobel prizes in Physiology or Medicine and the Ig Nobel prizes for 2019

William G. Kaelin Jr., Sir Peter J. Ratcliffe and Gregg L. Semenza were jointly awarded the Nobel Prize in Physiology or Medicine 2019 for their research on intracellular mechanisms that regulate the activity of genes in response to alterations in oxygen levels.

William G. Kaelin Jr., an oncologist from Johns Hopkins University, Baltimore, Maryland, USA and an investigator at the Howard Hughes Medical Institute, USA since 1998, established his own research laboratory at the Dana-Farber Cancer Institute and became a full professor at Harvard Medical School, Boston, USA in 2002. He demonstrated that cancer cells lacking a functional Von Hippel Lindau (VHL) gene express abnormally high levels of hypoxia-regulated genes. The reintroduction of the VHL gene into the deprived cancer cells restored hypoxia-regulated genes to normal levels.

Sir Peter J. Ratcliffe is former Professor of Nephrology at University of Oxford and current Director of Clinical Research at Francis Crick Institute, London, UK as well as Director for Target Discovery Institute in Oxford and Member of the Ludwig Institute for Cancer Research, Oxford, UK. He also studied the effect of oxygen deprivation on erythropoietin gene regulation and discovered that oxygen-sensing mechanisms were widely available in all tissues, including renal parenchyma where erythropoietin was first identified. He further identified physical complexes formed by interactions between hypoxia-inducible factor (HIF-1 α) and VHL genes that were required for the degradation of the former in the absence of hypoxia.

Gregg L. Semenza, a specialist in paediatrics from Duke University, Durham, North Carolina, USA, with postdoctoral training at Johns Hopkins University, Baltimore, USA studied the gene coding the hormone erythropoietin and found a subset of DNA segments located next to the gene that were responsible for the response to low oxygen levels. He also identified two protein complexes that bound themselves to the identified DNA segments in an oxygen-dependent manner and named the complexes HIF-1 α and aryl hydrocarbon receptor nuclear translocator (ARNT).

Tumours utilize the oxygen-regulation pathway to stimulate angiogenesis and cancer cells proliferation. The results published by these three Nobel prize winners have led to research being focused on developing treatments that can alter medical conditions by either activating or blocking the intracellular oxygen-sensing mechanisms.

An entirely different kind of research has also been recognized! The 29th First Annual Ig Nobel Prize ceremony webcast from Harvard's Sanders Theatre on 12 September 2019 saw Silvano Gallus pick up the Ig Nobel Prize in Medicine for his papers proposing indigenously produced and consumed Italian pizza had potential protective action against illnesses and cancer-related morbidity and mortality. His original paper 'Does pizza protect against cancer?', published in the *International Journal of Cancer* in November 2003, was followed by two more articles: 'Pizza and risk of acute myocardial infarction' in the *European Journal of Clinical Nutrition* in November 2004 and

'Pizza consumption and the risk of breast, ovarian and prostate cancer' in the *European Journal of Cancer Prevention* in February 2006. Dr Gallus attended the ceremony in person.

The 2019 Ig Nobel Prize in Biology was shared by researchers from Singapore, Austria, China, Germany, Australia, Poland, USA and Bulgaria. The team, which consisted of Ling-Jun Kong, Herbert Crepaz, Agnieszka Górecka, Aleksandra Urbanek, Rainer Dumke and Tomasz Paterek, had proposed that dead and living American cockroaches showed different behavioural responses to being magnetized in a joint article 'In-vivo biomagnetic characterization of the American cockroach' published in *Scientific Reports*, 2018.

Other honourable mentions include Shigeru Watanabe, Mineko Ohnishi, Kaori Imai, Eiji Kawano and Seiji Igarashi from Japan who won the 2019 Ig Nobel Prize in Chemistry for their research on the estimated 24-hour salivary output of a typical five-year-old child, and the 2019 Ig Nobel Prize in Anatomy winners Roger Mieusset and Bourras Bengoudifa of France, for their work on differences in scrotal temperatures of French postmen, when measured clothed and bare.

MAHARRA HUSSAIN, *United Arab Emirates*

WHO releases its first world report on Vision

The World Health Organization (WHO) launched its first World Report on Vision ('The Report') in advance of World Sight Day, which falls on the second Thursday of October (10 October 2019). The Report is targeted at policy-makers, practitioners, public health specialists, researchers, the ministries of health, among others.

The Report has found that the main reasons for the increasing number of people who live with vision impairment are ageing populations, changing lifestyles and inadequate access to eye care, especially in low- and middle-income countries.

Common eye conditions that can lead to vision impairment, including blindness are age-related macular degeneration, cataract, corneal opacity, diabetic retinopathy, glaucoma, refractive error and trachoma.

The Report states that everyone who lives long enough will experience at least one eye condition requiring suitable care. There are at least 2.2 billion people with vision impairment or blindness. Of these, at least one billion have either a preventable vision impairment or, one that is yet to be addressed. This enormous burden of eye conditions and vision impairment is borne unequally. There are far greater numbers of such people in low- and middle-income countries, older people, women, and those in rural and disadvantaged communities.

However, there has been action taken over the past three decades. The 'Vision 2020: The Right to Sight' global initiative of 1999 strengthened global advocacy efforts and national programmes for preventing blindness, and supported development of national eye care plans. Further, four World Health Assembly (WHA) resolutions, in 2003, 2006, 2009 and 2013, have continued the work. The 2013 WHO action plan,

'Universal eye health: A global action plan 2014–2019', asked for worldwide access to comprehensive eye care services. It had also set the ambitious global target to reduce by 25% the prevalence of avoidable visual impairment by 2019.

Additionally, numerous population-based surveys are being undertaken globally to assess vision impairment and blindness. More importantly, eye care is now an area of healthcare with highly cost-effective interventions that address the complete range of needs involved with eye conditions and vision impairment across the course of a person's life.

There are challenges that need to be addressed. The principal ones are inequalities in universal health coverage; to address unmet needs; ensure that services are planned and offered

based on the needs of the population; patchy quality of eye care services; dearth of adequately trained staff and finally, lack of research on eye care. Further, an ageing population and poor lifestyle (increasingly sedentary coupled with unhealthy eating habits) are increasing the number of people with eye conditions and vision impairment.

The key proposal of The Report is 'Integrated people-centred eye care (IPEC)'. IPEC aims to manage and deliver services so that people receive a continuum of health promotive, preventive, treatment and rehabilitative interventions that would address the entire spectrum of eye conditions.

P.M. NISCHAL, *Thiruvananthapuram, Kerala*

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