Obituary: Professor Tudor Griffith, MA, MB BCh, PhD, MRCP, FRCR

Tudor Griffith

Tudor Griffith was born in Gowerton, Wales, on 2 June 1951. He became a Scholar at Trinity College Cambridge, graduating with a double first in Theoretical Physics in 1972. A change of direction saw him returning to Wales to read medicine, qualifying as a doctor from the Welsh National School of Medicine in 1978, gaining his MRCP in 1981, before specializing in Radiology and becoming FRCR in 1986.

Though a long-term member of the Department of Diagnostic Radiology at Cardiff, and Head of Department since 2001, it is for his enthusiasm of vascular biology that Tudor will be remembered. Encouraged by the highly enthusiastic research environment provided by Professor Andrew Henderson at the Department of Cardiology in Cardiff, Tudor's entry into the field coincided with the discovery by Professor Robert Furchgott that established the endothelium as a key modulating influence on vasodilatation via the mysterious endothelium-derived relaxing factor (EDRF).

Tudor's research on EDRF provided key and insightful advances into the notion that EDRF was released basally and regulated vascular tone. A seminal paper in *Nature* in 1984, using a novel bioassay system, provided the partial characterization of EDRF and established its half-life of around 6 s; this work formed the basis of his PhD thesis and led to the Young Investigators Award at the British Cardiac Society in 1983.

The field of EDRF mushroomed and the work of Ignarro, Murad, Furchgott, and Moncada independently established that EDRF was nitric oxide (NO). Tudor was never far from the cutting edge and a *Nature* paper in 1987, considered by many to be a ‘classic’, firmly established the physiological significance of EDRF/NO in the regulation of vascular control and coordination of blood flow. This work and the observations that phosphodiesterase inhibitors amplified basal EDRF activity led to Tudor being given the Pfizer National Academic Award for Biological Research in 1988.

Drawing on his mathematical background, Tudor and his team explored the role of the endothelium in autoregulation, and how biophysical influences were key to integrated vascular control. Tudor made the observation that fluctuations in arterial diameter, vasomotion, could be classed as deterministic in origin and application of non-linear dynamics (‘Chaos Theory’) was used to gain insight into the cardiovascular system and used as the basis for mathematical modelling of calcium oscillations in a virtual artery.

For the last decade, Tudor pioneered the hypothesis that electrotonic spread of endothelial hyperpolarization via gap junctions plays a critical role in NO-independent arterial relaxation (the endothelium-derived hyperpolarizing factor phenomenon). An appropriate step, given that his research career started at the Cavendish Laboratory in Cambridge, researching the properties of semiconductors. Recent work focused on the effects of oxidative stress on endothelium-dependent hyperpolarization and whether potentiation by hydrogen peroxide compensates for the loss of NO bioavailability.

Tudor played a full part in University life, sat on various Research Management Boards, was a member of Editorial Boards for Scientific Journals, and belonged to Professional Societies that reflected his research interests. All this he achieved alongside his clinical speciality as a Consultant Radiologist at the University Hospital of Wales.

Approximately 10 years ago, Tudor developed a rare haematological condition that required regular transfusions. Thus, he was unable to travel as often as he had previously and sorely missed the opportunity to attend conferences and interact with his peers. Being immunocompromised, he succumbed to pneumonia, passing away on 17 November 2011. The day before he died, although weak, he only felt comfortable when informed that the latest data from the lab were on his bedside table, ready for him to inspect.

His wife Jayne, their sons, and his daughter have gained a great deal of strength by the messages of support and sympathy received from his many friends throughout the scientific community. Messages that describe Tudor’s gentle personality, his friendly nature, his brilliant mind but most of all his honesty and integrity as a scientist.

I will finish by borrowing a couple of sentences, used in Tudor’s eulogy, by his mentor Professor Andrew Henderson.

‘None of us will ever forget Tudor, the richness of our memory, of his influence, cannot but live on. He will continue to be an inspiring example to all who have known him and have worked with him’.

Dr David H. Edwards
Department of Diagnostic Radiology
Wales Heart Research Institute
Cardiff University School of Medicine
Interactive Cardiovascular Flashlights

The ESC introduced a new educational initiative in January 2012 and is discussed by Dr Frank Flachskampf

Although the current best knowledge in cardiology, from evidence-based to expert opinion, is well summarized in the scientific guidelines, recommendations, and authoritative textbooks, reading the guidelines does not necessarily make a good doctor (although not reading them is certainly even less of a guarantee). Apart from skills, experience, attitude and other features, even pure medical knowledge must be structured in a way to ‘gain traction’ in the routine of clinical practice. While the guidelines and textbooks present knowledge in an orderly and systematic manner, real-life clinical medicine comes at us notoriously disorderly. One way to bridge the gap between systematic knowledge and good clinical practice is to learn from cases, and this is in fact what makes a good clinician. Real cases present with multiple problems, findings that fall between the categories, questions unanswered in the literature and, therefore, are a necessary counterpart to the systematic approach (which is also necessary) to medical knowledge.

Realizing this, the European Society of Cardiology (ESC) and the European Heart Journal (EHJ) have launched a new joint educational initiative of electronic case-based learning. The goal is to present real and typical clinical scenarios of cardiovascular disease in order to illustrate clinical workup and management decisions in the framework of current guidelines and key literature. The addressee of case-based learning is the cardiology fellow in-training or anybody wishing to refresh clinical competence in cardiology. Thus, these cases will not feature particularly rare disease manifestations or uncommon findings, but will focus on good clinical practice in everyday situations in cardiology—how to work-up a patient with new heart failure, how to treat coronary disease, how to manage a patient with cardiomyopathy and the like. They will all be real-life cases, with real-life key findings such as ECG, echo, angiogram, magnetic resonance images and others, available for the reader. Coming from real life, such cases usually involve more than one clinical problem: e.g., the patient after myocardial infarction whose acute heart failure, coronary artery disease, and risk of life-threatening arrhythmias need to be evaluated and properly taken care of.

This collection of educational cases will be part of the ESC’s program of web-based ‘distance learning’. The first cases are available on-line on the ESC website (www.escardio.org/education/eLearning/case-based) and are being published as Interactive Cardiovascular Flashlights in the EHJ.

We encourage you to submit instructive clinical cases as a short narrative text, interspersed with multiple-choice type questions to the reader, together with supporting tracings, images or cine-loops. Instructions of what is expected and which format to use can be found on the ESC website’s education section (www.escardio.org/education/eLearning/case-based/Pages/contribute.aspx). Submissions will be reviewed by the Case-Based Learning Task Force and the EHJ Editorial Board and, if found suitable, posted on the website, as well as published in print in EHJ as a short ‘teaser’ (announcement) in the new ‘Interactive Cardiovascular Flashlights’ section. For more information, contact education@escardio.org.

This initiative needs two features to be successful: authors who provide interesting cases with their findings and readers, willing to take the challenge to test their knowledge. Both must come from the ESC membership and, therefore, we very much encourage you to participate in both, using the material for education and, on occasion providing us with details of a case displaying the fascinating everyday dilemmas that cardiology has in store for us.

Frank A. Flachskampf, MD
Book review

Challenging Concepts in

Cardiovascular Medicine

A Case-Based Approach with Expert Commentary

Editors: Aung Myat, Shouvik Halder, Simon Redwood
Oxford University Press

This brand new book ‘Cardiovascular Medicine: A Case-Based Approach with Expert Commentary’ edited by Aung Myat, MD, a Clinical Research Fellow at King’s College London, Shouvik Halder, MD, an Electrophysiology Research Fellow at Imperial College London, and Simon Redwood, MD, Professor of Interventional Cardiology at Kings College London, provides the latest knowledge in cardiovascular medicine and evidence-based practices by presenting 25 real-world clinical cases covering the issues that are important to cardiologists, ranging from the outpatient clinic to the coronary care unit and catheterization laboratory. This book takes a unique and user-friendly approach to guide the reader through all well-structured chapters by its innovative presentation. Each case is presented by a UK speciality trainee and highlighted by coloured boxes with ‘Learning points’, ‘Clinical tips’, ‘Landmark trial summaries’, and featured by a special box of ‘Expert comment’, in which highly international reputable experts have made special comments on the respective case. These comments give a true insight into the expert’s opinion and management recommendation on the presented issue in cardiology. Furthermore, crucial and latest trials for each respective topic are mentioned and references are given at the end of each chapter.

I have very much appreciated reading the cases and I would highly recommend this book not only to speciality trainees in cardiology but also to all cardiologists and general internal medicine practitioners due to its update with the latest evidence-based information and recommendations on coronary heart disease, endocarditis, valvular heart disease, cardiomyopathy, heart rhythm disturbances, adult congenital heart disease, and general cardiovascular medicine. Furthermore, the strength of this book is: every case is exciting and a challenge, it is excellently structured, it is richly illustrated with high-quality images including electrocardiogram, coronary angiography, echocardiography, magnetic resonance imaging, etc. which makes the patient cases very comprehensive. The concise and easy-to-read-format of this book will enable the reader to make accurate diagnoses and allow evidence-based treatment of patients.

Finally, this book is highly recommended by the British Cardiovascular Society for its high quality of education and knowledge-based learning.

Dr Christian Templin, Cardiovascular Center, University Hospital Zurich, Switzerland
Cardiology in Denmark

Christian Hassager discusses how Denmark has achieved high-quality cardiac care for all its population

Denmark is a relatively small country with ~5.6 million people living on more than 70 islands and one peninsula. Despite this geography, we have a good infrastructure securing good coverage of acute cardiology services to almost all inhabitants. We have the so-called ‘Nordic welfare model’ with a very mixed economy promoting, gender equality, egalitarian, and extensive benefit levels, including free university education and free health-care insurance for everyone. Private health-care amounts to less than 5% of the total health-care cost.

Acute cardiology services are offered at 38 hospitals; most without percutaneous coronary intervention (PCI) ability, but each of these hospitals is affiliated with one of four university hospitals with heart centres offering both cardiac surgery and full cardiology service including electrophysiology and PCI 24/7/365. Heart transplantation and cardiac assist programmes are offered at two of these hospitals. Elective PCI is also available at three other hospitals—one private and two public. In total, ~10 000 PCI and 2700 radio-frequency ablations (including 1300 ablations for atrial fibrillation) are performed and 1500 implantable cardioverter-defibrillators plus 4000 pacemakers are implanted every year in Denmark.

Telemedicine is widely used in Denmark to speed up the right treatment for the acute cardiac patient. An electrocardiogram taken by a paramedic from a patient with chest discomfort will be transmitted from the patient’s home to one of the heart centres, and in the case of an ST elevation myocardial infarction (STEMI), this patient will be referred directly to primary PCI. Non-STEMI will be sent to their local hospital for initial stabilization and then for PCI at a heart centre within a few days. With this infrastructure, almost everyone with a myocardial infarction is thoroughly evaluated for acute or subacute myocardial revascularization, and thrombolysis is hardly used anymore for this indication in Denmark. Due to many factors, including our universal coverage of expert cardiology service, ischaemic heart disease mortality is decreasing also in Denmark.

Mortality due to ischaemic heart disease in Denmark 1960–2008. Data from Dansk Hjertestatestik 2010, Hjerteforeningen (used with permission)

We are, however, still facing challenges to increase the focus on preventive cardiology. Even though smoking overall has decreased, we still have to reduce the number of teen smokers and to impact the smoking rates in the lower socioeconomic classes. Also, rural areas tend to have lower rates of invasive cardiological procedures, suggesting that we still have work to do to ensure that everyone has equal access to high-quality healthcare.

After medical school and internship, Danish cardiologists are trained in a 6-year programme. Research is an important part of qualifying for a trainee rotation, and more than 20 PhD theses in cardiology are published every year.

Danish Society of Cardiology

The Danish Society of Cardiology was founded in 1960 and thus celebrates its 52-year anniversary this year. The Danish Society of Cardiology is a non-profit organization with 1400 members. The core of our organization is the Board that is composed of 10 cardiologists representing Denmark’s five geographic regions and 12 very active working groups, matching some of the working groups in the European Society of Cardiology.

Our prime mission is to advocate for high-quality cardiovascular care in Denmark. We accomplish this through

- education,
- research promotion,
- development and application of standards and guidelines, and
- close collaboration with national authorities about health-care policy.

Our Continuing Medical Education (CME) programmes are always accredited by The European Board for Accreditation in Cardiology (EBAC).
The Danish Society of Cardiology has its own web site [www.cardio.dk](http://www.cardio.dk) and its own membership journal, ‘Cardiologisk Forum’, which is in Danish and published quarterly.

**Danish Society of Cardiology publications: journal, web, and IPhone**

One of our major recent achievements is the development of a web-based national practical standard treatment guide, which covers all common cardiac conditions and diseases. The web-based treatment guide is completely revised annually and is widely accepted and used every day in all Danish hospitals. It is also available as an App for smart phones with a built-in automatic update function linked to our web version.

The Society organizes three annual meetings, one of which is dedicated to discussion and subsequent endorsement of ESC Guidelines. The Danish Society of Cardiology aims to endorse new ESC Guidelines and to implement these in the national treatment guidelines within 6 months of publication. Altogether, this has proven to be an efficient way of securing practical implementation of European and national expert guidelines. Through this, the Danish Society of Cardiology ensures that heart disease is diagnosed and treated in a uniform way all over Denmark.

Christian Hassager, MD, DMSc, FESC, President of the Danish Society of Cardiology

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**Corrigenda**

**Corrigendum to:** CardioPulse article ‘The ESC Working Group on Acute Cardiac Care’ [*Eur Heart J* 2011;32:2465–2467].

The published version of this article omitted to list Susana Price (Certification in Acute Cardiac Care) as an ex-officio member. The publisher apologizes for this error.

**Corrigendum to:** CardioPulse article ‘The polypill concept: the story so far’ [*Eur Heart J* 2011;32:2471–2472].

This article incorrectly attributed the origin of the polypill concept to a 2002 Lancet article by Salim Yusuf. CardioPulse has now been informed that the concept originated instead in an application for a patent for the name Polypill by N.J. Wald and M.R. Law in April 2000: Wald NJ, Law MR. Formulation for the prevention of cardiovascular disease. UK patent application No 0008791.6.2000.

**Corrigendum to:** CardioPulse article ‘The Brazilian Archives of Cardiology is the only cardiology journal in Latino America and the Southern hemisphere with an impact factor’ [*Eur Heart J* 2011;32:3059–3060].

CardioPulse editor Andros Tofield was unaware that when this story was written in June 2011, the *Heart Lung and Circulation Journal* based in Australia was simultaneously receiving its first impact factor. Professor Richmond Jeremy *Heart Lung and Circulation* editor confirms that the impact factor was awarded in mid-2011.

There are now two cardiology journals in the southern hemisphere, on different continents, with an impact factor.

Andros Tofield, Managing Editor

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Overuse of stents in cardiology

Stents are life-savers in critical patients but are they used excessively in other situations

The ongoing friction between cardiac surgeons and cardiologists about the use of drugs, percutaneous coronary intervention (PCI), or coronary artery bypass graft (CABG) surgery, has intensified in recent times.

Evidence is growing that the regular accusations about the over-use of stents may be justified, with latest results from the SYNTAX (SYNergy between percutaneous coronary intervention with TAXus and cardiac surgery) trial, demonstrating that stent patients with anything more than relatively mild heart disease do seem to have a greater propensity to need further treatment, and indeed die, than those who receive heart by-pass operations in the first place.1

The long-term study involving 1800 patients in 85 centres across Europe and the USA showed that 70–80% of the patients with three-vessel coronary artery disease or left main stem disease did better with CABG.

In addition, the results from the FAME study (Fractional Flow Reserve-Guided Stent Therapy for Multivessel Disease) are also suggesting that blockages in blood vessels have been routinely over-diagnosed.2

Many patients therefore may be receiving stents they do not need or which may even worsen their underlying disease.

Meanwhile, a steadily growing body of research is showing that drugs work just as well as any sort of surgical intervention.3

In recognition of these problems, the European Society for Cardiology and the European Association for Cardiothoracic Surgery have both produced Guidelines within the last year, calling for multidisciplinary meetings before a treatment plan is put forward for any individual patient.

The snag with this approach is also obvious. If you have several thousand patients a week going through any national system, how are the people treating them also meant to find the time for lengthy discussion about the pros and cons of the different treatment options, and to what extent should the patient be given a say?

David Taggart, professor of cardiothoracic surgery at the University of Oxford, and a long-standing critic of the over use of stents, pointed out that the subjects in the SYNTAX trial were real-life unselected patients. ‘The results of this study suggest CABG improves life expectancy and is still the treatment of choice for patients with anything other than very mild disease’, he said.4

‘People can get on with their lives and don’t need to keep coming back for further treatment. There is quite a lot of evidence people are not getting the right treatment’. Alongside the debate about which is the best treatment, there is a more generalized anxiety that cardiologists working in cash-based health-care systems with an incentive to carry out as many PCIs as possible may be doing just that. The number of elective stent procedures in the USA is now running at more than 500 000 a year and an extraordinary number among a population of 300 million, at least 50 million of whom have no health insurance, so are presumably not having any sort of cardiac treatment. In contrast, in the UK with its cash-limited National Health Service where all procedures are funded by the tax payer, the number of elective stent procedures is 90 000, among a population of 60 million.

As with other interventions, there is sadly no measurable benefit in overall population life-expectancy, which can be attributed to the additional efforts of some cardiologists.

The number of CABG procedures in Britain has fallen in parallel with the rise in the use of stents, from a high of 25 000 in 2004 to just 18 000 last year.

Many cardiac surgeons including David Taggart would argue that more of the stent patients should be receiving by-pass surgery, but it is an argument that will run and run.

In deciding how to treat patients, most researchers acknowledge the shortcomings of randomized controlled trials or epidemiology vs. efforts to analyse the precise mechanisms causing heart disease in an individual.

Raimondo Ascione, professor of cardiac surgery at the University of Bristol and a former member of the editorial board of the Cochrane collaboration heart group, points out that while stents are life-saving in patients minutes away from death, time constraints mean that no more than 10 of the most complex patients a week are discussed in multidisciplinary meetings, and he says, ‘Even when the best treatment is considered to be surgery, people often end up having stents’.

Salim Yusuf, professor of medicine at McMaster University, and one of the world’s leading authorities on clinical trial methodology, points out that there is plenty of evidence that stenting often does not produce better results than drug therapy. ‘If reimbursement for these procedures was tied to precise criteria, you would see a dramatic fall in the number carried out’, he said.

Others are even more outspoken. Nortin Hadler, professor of medicine at the University of North Carolina and author of Worried Sick among other books on the risks of over-treatment, claims that most CABG and PCI operations should not be carried out at all. ‘There is a tiny subset that might benefit from CABG, but that hardly justifies pushing the vast majority through the risks of cardiac catheterization’, he says.

As with much that is done in medicine, the final decision is down to the integrity of the cardiologist in charge. The patient simply has to hope that the physician’s motives are good ones . . .

Lois Rogers, former health and social affairs editor of The Sunday Times (London), is an international commentator on health science and social policy issues.

References
The discovery of thrombolysis

Diana Berry briefly reviews the history of thrombolysis, the major breakthrough in the treatment of AMI of the twentieth century.

The discovery and use of thrombolysis as a treatment for acute myocardial infarction (AMI) has made a huge difference to mortality rates: figures in the USA between 1970 and 2000 suggested a life-expectancy increase of about 6 years. Life style factors such as diet, a reduction or preferably total abstention from smoking, exercise, and the use of aspirin therapy have, of course, played a part, but the use of newer treatment modalities, i.e. fibrinolytic drugs, has played an even greater role in the maintenance and health of important human organs and avoidance of cardiovascular or cerebrovascular disease.

While blood clots were implicated in very early work on reperfusion as a treatment for AMI or ischaemic vascular problems, physicians in the early years of the last century believed that thrombosis was a secondary rather than a primary event in cardiac muscle or brain injury. However, in 1958, Dr Sol Sherry’s work at the Washington University in St Louis to show that removal of the occluding clots was a matter of urgency resulted in the realization that they could be dissolved in vivo with the administration of Streptokinase, a single-chain protein.

Work continued in this area and an article by Dr K. Peter Rentrop published in JAAC 1995 titled ‘Restoration of Anterograde Flow in Acute Myocardial Infarction: the First 15 Years’ gives an excellent account of the progress.

Studies on thrombolytic therapy for AMI were also being carried out at European universities and whilst the advantages of Streptokinase were recognized, so were its limitations, such as its limited efficacy for the recanalization of coronary arteries, and also its immunogenicity raised the problem of allergic reactions plus a resistance to repeated use. The next important thrombolytic therapy advance came with the protein staphylokinase produced by transgenic to repeated use. The next important thrombolytic therapy advance came with the protein staphylokinase produced by transgenic  


The cloned DNA of human t-PA was first expressed in Escherichia coli but later and more efficient expression came in mammalian cells which yielded a properly processed and glycosylated molecule. This recombinant t-PA (rt-PA) proved indistinguishable from the natural activator normally isolated from human melanoma cell cultures and observations previously made with melanoma t-PA in animal studies were extended to rt-PA.

On 11 February 1984, rt-PA was first administered to a patient. The treatment was carried out by Dr E. Topol of John Hopkins University, and between February and June of that year, 50 patients were treated at the Washington, MA, USA, and John Hopkins Universities. The results of this early study of rt-PA in AMI patients were the foundation for the design of both the NIH Thrombolysis in Acute Myocardial Infarction (TIMI) trials which were led by Dr E. Braunwald in the USA and the European Cooperative study Group trials which were initially led by Dr Mark Verstraete.

Many further clinical trials have evaluated the thrombolytic properties of rt-PA in comparison with other agents. Such research culminated in the GUSTO trial with its angiographic substudy which established the potential in addition to the limitations of rt-PA for thrombolytic therapy in AMIs.

Progress made in thrombolysis treatment has been very impressive. It does not alter the anatomy of coronary artery stenoses, but prevents myocardial necrosis and ‘buys time’ for more definitive treatment of the coronary artery disease.

Reference

The Indian Heart Journal

Indian Heart Journal’s editor is on a mission to extend the journal’s reach across the globe.

Indian Heart Journal was launched in 1949; the Cardiological Society of India was founded in April of the previous year and it became the Society’s official journal.

When it started out, Indian Heart Journal had a simple format, says honorary editor Dr H.K. Chopra, chief cardiologist at Moolchand Medcity in New Delhi, India. Today’s version is more sophisticated and contains original research articles; review articles; sections for EKG, echocardiography, angiography, etc.; brief communications; case reports; landmark trials; a section on how to do procedures in interventional cardiology, non-invasive cardiology, preventive cardiology, etc.; proceedings of international seminars; and a one page cardiology book review. Each issue also has one to two articles in a section called ‘State of Art Papers’. These are the most outstanding original research articles. A few originate in India but most come from abroad.

The journal is published in English in print and online. It has yet to be awarded an impact factor. ‘I think that’s the only thing we are missing’, says Chopra. Authors come from India and beyond, with some papers having a mix of authors from India and abroad. Some of the original research comes from Indian medical students, who investigate cardiac problems in India such as rheumatic heart disease, cardiac metabolic syndromes, nutritional issues, and tropical diseases. Hypertension is common and presents slightly differently compared with the West, as does coronary artery disease and the cardiomyopathies including endomyocardial fibrosis, dilated cardiomyopathy, and hypertrophic cardiomyopathy. Data are compared with publicly available international data on the Internet and leads to Indian guidelines and strategies.

The journal is sent to the Society’s members and most readers are from India. It is also sent to various health-related organizations including the World Health Organization and World Heart Federation, to organizations that have links with the Cardiological Society of India (European Society of Cardiology, American College of Cardiology, American Heart Association, Canadian
Cardiovascular Society, Japanese Circulation Society), and the medical college libraries in India.

Electronic versions of the journal are available via links on the web sites of some international organizations.

The journal is also sent to the 72 members of its international editorial board, which comprises experts in different disciplines of cardiology who are based in the USA, Canada, the UK, Switzerland, Australia, Malaysia, Japan, France, the Netherlands, Taiwan, and Italy.

Chopra’s team also houses a 66-strong national editorial board, associate editor Dr Rakesh Gupta, 20–25 subsection editors each responsible for a subsection of the journal (peripheral vascular disease, peripheral vascular intervention, cardiometabolic syndromes, cardiac resynchronization therapy, etc.), consultant editors, reviewers in different disciplines of cardiology, an editorial secretary, managing editor, and editorial managers.

Six issues of 90–100 pages are published each year and normally contain 10–12 manuscripts (4–5 research articles, 4–5 review articles, and 1–2 pages of brief communications and case reports). Currently, there are around 300 manuscripts awaiting publication.

Around 60% of the submitted manuscripts are case reports or brief communications and 30–40% are research articles or review articles.

Chopra sends each article to four reviewers. If three or more reviewers give positive comments, the article is published. If three or more reviewers give negative comments, the article is rejected. If the comments are split, the author is asked for modifications to the article and is given 2–3 months to complete them. The rejection rate is 60–70%.

In addition to the six regular issues, each year, the journal publishes two to three focus supplements on specific topics that are in demand such as cardio-diabetes, heart failure, β-blockers, and new molecules like antiplatelets.

India has a large diabetic population and cardiovascular disease is more common in these patients, which is why the journal opted to have a focus issue on cardiac problems in diabetics for the first time. The idea is to cover different aspects—how to treat these patients with insulin or oral hypoglycaemic agents and statins, how glycaemic control is different in cardiac patients compared with non-cardiac patients, and how morbidity and mortality compare between patients with intervention and without intervention.

The editor of Indian Heart Journal is elected by members of the Cardiological Society of India for a period of 3 years, which is extendable to 5 years. In order to be considered, candidates must have the appropriate academic and research experience in cardiology.

Chopra became editor in 2009. ‘My strategy and vision is very different than all the previous editors’, he says. ‘I really want to work at the global level, that’s my vision. I really want to enhance the potential of Indian Heart Journal globally by links on the website so that electronically I can reach almost every library in the world; that’s my intention’.

He wants to form alliances with international organizations to extend the journal’s reach beyond India. One idea is to publish joint articles with other journals such as the Journal of the American College of Cardiology or British Heart Journal. He has put together some proposals and is looking at the legal, ethical, and financial implications of forming such alliances.

Jennifer Taylor, MPhil

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Clearing the murky waters of cardiac biomarkers

Biomarker recommendations aim to boost cardiologists’ confidence in using them to their best advantage.

Cardiologists use biomarkers everyday but have left the intricate details to biochemists. Until recently, the topic did not feature at congresses and was a behind-the-scenes issue. Laboratories developed assays they believed would be useful in the clinic but cardiologists have been uncertain how to use them.

Prof. Kristian Thygesen, professor and chair of the Department of Cardiology, Aarhus University Hospital, Denmark, set out to change that when he set up a European Society of Cardiology (ESC) study group on biomarkers in cardiology to come up with recommendations.

Thygesen’s experience with biomarkers and of the workings of the ESC made this possible. He had created his own research department on biomarkers in the 1980s and has been a board member of the ESC since 1994, serving as a councillor, vice president, and secretary.

While chair of the ESC educational programme (1994–98) he kick-started the formation of the Task Force for the Redefinition of Myocardial Infarction (MI) which started work in 1999 and has membership from the ESC, American College of Cardiology, American Heart Association, and World Health Federation. It published a universal definition of MI in 2000 which was updated in 2007.1 A further update will be published in 2012.

‘In the new definition of myocardial infarction a lot of emphasis was put on biomarkers’, says Thygesen. ‘But it was difficult sometimes for the cardiologists to understand how to employ new biomarkers in the clinic’.

He felt it was time to develop recommendations on how to use the biomarkers described in the definition of MI, and therefore, in 2005, he established a Study Group on biomarkers in cardiology that became part of the ESC Working Group on Acute Cardiac Care (of which Thygesen was a founding member).

The Study Group began with familiar biomarkers and created the first document in 2010, which was on recommendations for the use of cardiac troponin measurement in acute cardiac care.2

Jennifer Taylor, MPhil
The title was in recognition of the Working Group but the biomarkers do have a wider application beyond acute cardiac care. The next document, published in 2011, was on natriuretic peptides.3

Advancements in the field mean that the Study Group is already preparing updates to the troponin paper. The group will continue to produce a series of recommendation documents that will be published in *European Heart Journal*. Work is underway on inflammatory markers and work on thrombosis markers will begin in the autumn.

There had been discussions about running educational courses on how to use the various biomarkers but Thygesen pushed for publishing recommendation documents instead because they would reach a larger audience.

Each document begins with a theoretical section on how to measure the biomarker in the laboratory. Thygesen admits that this is of little interest to many cardiologists but believes that they should have some background knowledge. Clinical issues are discussed in the next section, with recommendations on how to apply the measurements.

Most new markers that are developed do not move beyond basic science and very few make it to clinical practice. But new assays for biomarkers already on the market do become available. Troponin, for example, has been the marker of choice for MI because it is highly specific and sensitive to muscle cell death. The new generation of assays are even more specific and sensitive and can measure very small amounts of necrosis. It creates problems for clinicians because even normal people can release troponin that is picked up by the new assays.

It has been a particular issue for clinicians doing invasive cardiac procedures because troponins may be released during percutaneous coronary intervention or bypass surgery. There has been a tendency not to use the new troponin assays during procedures because interventionists do not want it to appear that they have caused an MI. Some clinicians performing invasive actions have therefore opted to use the older measurement of CK-MB, which is less sensitive and specific.

‘It’s an interesting phenomenon where new assays are being developed that are more and more sensitive but many people don’t like them’, says Thygesen. ‘I think people are a little bit afraid of a new sensitive marker’.

The lack of clarity in deciding what level of troponin was normal and what revealed an infarct led to the establishment of the new universal definition of MI in 2000 and 2007. It was also an impetus behind establishing recommendations on how to interpret new very sensitive markers appropriately.

Jennifer Taylor, MPhil

References


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