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EACTS introduces member's newsletter

Welcome to the first issue of *EACTS News*, a new publication aiming to keep EACTS members informed with all the latest news and views from the Association. The newsletter will be published three times a year (April, July and December) and I encourage you to send in your feedback, which we hope will be a forum for stimulating debate. We will feature your views in the 'Members Letters' section.

In this first issue we have an exclusive interview with new EACTS President, Ottavio Alfieri, who discusses his career and aims during his term in office. We also have two articles from Professor David Taggart who outlines the clinical implications of two trials, ART and SYNTAX. We also hear from Dr Rafael Sabada who outlines the important work of the Surgical Training and Manpower Committee, and Dr Leslie Hamilton expresses his views on 'Training, Education and Accreditation'.

For those members who did not attend the 24th Annual meeting in Geneva, we have a special report, featuring the Presidential Address,

award winners and other highlights. In addition, we have a short report from the recent EACTS Leadership Course.

This edition also includes a report from the PARTNER Trial and features an interview with the trial's Principal Investigator, Dr Martin Leon, as well as additional comments from Professor John Pepper and Mr Neil Moat.

It is hoped the newsletter will also encourage further discussions concerning topical issues in cardio-thoracic surgery. With this in mind, 'The Big Question' section will feature two specialists debating a contemporary issue. This edition also includes a look ahead to the Second Robotic Course in Cardio-Thoracic Surgery with Dr Franca Melfi.

I would like to take this opportunity to thank all the contributors of the newsletter for their efforts, as well as our partners from industry for their support in this exciting new venture. Please send your comments to: communications@e-dendrite.com

A Pieter Kappetein MD PhD
Secretary General



Pieter Kappetein

Three-year SYNTAX results Support for new ESC/EACTS guidelines on myocardial revascularisation

David Taggart

Professor of Cardiovascular Surgery
University of Oxford, UK

The new joint European Society of Cardiology (ESC) and European Association for Cardiothoracic

Surgery (EACTS) guidelines on myocardial revascularization were presented at the European Society of Cardiology annual meeting in Stockholm at the end of August 2010 and

subsequently published¹. These guidelines are unique for several reasons:

(i) in contrast to previous guidelines, produced independently by cardiologists and cardiac surgeons, the new ESC/EACTS guidelines emphasize the

need for a multi-disciplinary/heart team collaboration in the management of the whole spectrum of coronary artery disease. This collaborative approach was highlighted in the membership of the writing committee, which was co-chaired by a cardiologist and a surgeon and included 25 members comprising nine non-interventional cardiologists, eight interventional cardiologists and eight cardiac surgeons.

(ii) the guidelines acknowledge that while meta-analyses of randomized trials constitute the hierarchically strongest form of evidence based medicine,

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"For the first time there is an individual section on the process of decision making"



David Taggart



EACTS
European Association For Cardio-Thoracic Surgery

Raising standards through
education and training

25TH

ANNUAL MEETING

1-5 October 2011
Lisbon, Portugal

EACTS News meets

Ottavio Alfieri EACTS President



In the first issue of *EACTS News*, we are delighted to feature an interview with Association's new President, Professor Ottavio Alfieri. Professor Alfieri has had a long and distinguished career as a cardio-thoracic surgeon. In this unique interview, he discusses his early career and influences, the edge-to-edge technique for percutaneous correction of mitral regurgitation, the need for EACTS to strengthen its links with professional organizations of other disciplines and his fascination with the Italian Renaissance.

Why did you decide to pursue a career in medicine?

I was attracted to the medical profession from an early age, mainly inspired by the devotion of my father, an obstetrician-gynaecologist, to his work and patients. Later on I became more and more aware that it was the only profession offering the combination of human interaction, the opportunity to help people and the chance to express personal talent, acquiring and creating useful knowledge.

Why did you enter cardiac surgery?

As with many things in life, it was by chance. As an undergraduate in the late 1960s, I won a scholarship and spent three months at Buffalo University in Buffalo, NY, US. During that period, at Buffalo Children's Hospital, I had the opportunity to witness the extraordinary achievements of paediatric cardiac surgery at that time. Dr S Subramanian, the Chief of Cardiac Surgery at Buffalo, was successfully correcting complex congenital heart defects in neonates and small children using deep hypothermia and circulatory arrest. This experience as medical student had a great impact on me and I decided then and there that I would become a cardiac surgeon.

Who have been your greatest influences and why?

After graduation I went back to Buffalo for a clinical fellowship with Dr Subramanian and spent one year with him. Needless to say, Dr. Subramanian had a great influence on me. In a short period of time he was able to transfer not only knowledge and experience but also passion and enthusiasm. My training in cardiac surgery in Italy was under Professor Lucio Parenzan, a renowned pioneer of this discipline in my country. He was for me an important mentor who encouraged me in many projects and pushed me to complete my specialist training overseas. So I had the extraordinary opportunity to spend a year as a research fellow in Birmingham, Alabama, USA, with Dr John Kirklin, a true giant in the history of cardiac surgery. Dr Kirklin as a surgeon, teacher, investigator and human being, has been deeply inspiring my entire professional life.

Finally, I would like to mention my experience at the St Antonius Hospital, in Nieuwegein, the Netherlands, where I enjoyed working with highly skilled surgeons and expert cardiologists in a friendly and supportive atmosphere. In the Netherlands I became acquainted with an effective organisational system and the "heart team



Ottavio Alfieri (centre) with Pascal Vouhé (left) and Peter Kappetein

concept", which necessitated strict cooperation between surgeons and cardiologists in making decisions about patient management. The multidisciplinary approach to patient care was an extremely valuable lesson I learned in Nieuwegein.

What current areas of research are you involved in?

Early in my career, congenital heart diseases were the main topic of my clinical investigations. Later on my interest moved to coronary artery disease, valve disease, heart failure, and arrhythmias. Recently, the mitral valve has become the main focus for my research group.

Many years ago I introduced an original technique to correct mitral regurgitation. This was the edge to edge technique, consisting of approximating the free edge of the mitral leaflets at the site of the regurgitant jet. This technique allowed us to correct a large series of complex mitral regurgitation in a simple manner, and we have been able to document excellent long-term results in different subsets of organic mitral regurgitation. In tandem with clinical investigation, our research team has been studying the haemodynamic features and stress forces of a double orifice mitral valve using three-dimensional computational models in close cooperation with bioengineers. The edge to edge technique, due to its simplicity, is nowadays the only effective method to correct mitral regurgitation percutaneously. As a matter of fact, the so called Alfieri stitch can be reproduced with a clip inserted percutaneously

through the femoral vein and then through the atrial septum to reach the mitral valve. In our Institution the role of the percutaneous clip procedure in the treatment of patients with mitral regurgitation is currently being investigated.

Our research team is devising original solutions for reconstructive mitral and tricuspid valve surgery. New prosthetic rings have been designed and are under evaluation, along with other new devices, which are being evaluated in the lab and in clinical settings under rigorous regulatory conditions.

Original techniques have also been developed for the treatment of atrial fibrillation.

As President of the EACTS, what do you hope to achieve over the next 12 months?

The EACTS has been always acting as a dynamic, lively and energetic professional organization, with the ability to promptly respond to the requirements of the members, to the changes of our discipline and to the evolution of treatment modalities. Particularly in the last years major changes took place in the internal organization of the EACTS, with a very positive impact on the quality of the Annual Meeting and of the educational products in general. My intention is to act in full continuity with the past and to promote the development of our profession based on the concept of patient-centered care in the context of a multidisciplinary environment.

Bearing this in mind, it is important to

strengthen the links with the professional organizations of other disciplines and to provide an appropriate new education for cardiothoracic surgeons. Patient-centered care also means skilful adoption of new modalities of treatment. Innovations and new technologies have to be evaluated rigorously and with total neutrality, using scientific methods. The task of a professional association is to provide an independent judgement and regulate the introduction of new therapies.

A relevant goal of the EACTS should be to promote more services for the members and to offer educational products in line with the evolving profile of our profession. In the global world scenario, the EACTS is growing fast and therefore we have to look to wider horizons and not to stop at the borders of Europe. We have to be aware that many countries around the world look to Europe for education and training in cardiothoracic surgery.

What are the biggest challenges facing cardiothoracic surgery over the next decade?

Conventional surgical procedures are expected to decrease consistently over the next decade. On the contrary, minimally invasive and percutaneous methods will be more commonly used to treat structural heart diseases and other thoracic disorders.

Hybrid procedures will be more often adopted as a convenient option, particularly for patients with complex pathologies and comorbidities.

In ten years, the patient population submitted to cardiothoracic surgery will be much older, with more comorbidities and a higher prevalence of heart failure and atrial fibrillation. Considering the features of the patient population and the wide spectrum of therapeutic options offered by the rapidly evolving technology, the treatment will be tailored to the individual patient, for an appropriate solution of a specific problem.

A multidisciplinary interaction will be mandatory in such a scenario.

The decision-making process will be more complex in the future, particularly in relation to the cost-benefit ratio and the sustainability of the care.

The rapid advancements in basic science should be taken in consideration by cardiothoracic surgeons, since many patients are expected to benefit, for instance, from cell or gene therapy. The challenges facing cardiothoracic surgery over the next decade require a new system of education, since the model of classical training is definitely obsolete.

Importantly, individual attitudes and personal talents should be recognized and enhanced. Education must be tailored to create unique and special professional profiles.

Away from your professional life, how do you relax?

My main interest and preferred way of relaxing outside work is a 'cultural hobby': to learn more about the Italian Renaissance. This period lasting from the 13th century until 1600 was characterised by great changes and achievements in literature, poetry, sculpture, painting, architecture, philosophy, science and music. I am fascinated by this extraordinary historical period and by the numerous incredible personalities of that era.

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Edwards

Introducing the Editor-in-Chief Friedhelm Beyersdorf

At the last General Assembly of the European Association for Cardio-Thoracic Surgery in September 2010, Professor Friedhelm Beyersdorf (Department of Cardiovascular Surgery, Albert-Ludwigs University Freiburg, Germany) was appointed as Editor-in-Chief of two leading journals; the European Journal of Cardio-Thoracic Surgery (EJCTS) and the Interactive CardioVascular and Thoracic Surgery (ICVTS). *EACTS News* was delighted to speak with Professor Beyersdorf to discuss the differences between the two journals, what advice he would offer to potential authors and how peer-reviewed journals may change in the future.

Professor Beyersdorf brings with him considerable experience having served on the editorial boards of numerous prestigious journals including *The Journal of Thoracic and Cardiovascular Surgery*, *Circulation*, *The Thoracic and Cardiovascular Surgeon* and *Perfusion*, as well as being a member of the editorial boards of both the EJCTS and ICVTS (specialising on coronary disease). He began by outlining his roles and responsibilities and the significant differences between the two journals: "I am responsible for all the scientific aspects of the journals and ultimately, after consultation with reviewers, decide the final content of the journal. However, as the content of the journals differ considerably it is important to correctly judge the type of papers to include."

EJCTS and ICVTS

The *EJCTS* was first published in 1987 and is one of the top three peer-reviewed cardio-thoracic journals in the world. The journal provides a medium for high-quality original scientific reports documenting clinical and experimental advances in surgery of the heart, the great vessels and the chest. In contrast, the *ICVTS* was first published in 2000 and is conceived as 'virtual conference' relying on both modern media and open discussion.

"The European journal is the prestigious, scientific-driven journal, whereas the Interactive journal is more experimental and we publish data that is new, innovative and provocative. The papers included in the Interactive journal are not always evidence-based papers and therefore come into different categories such as institution reports," he explained. "In order to encourage discussion between readers, after editing, all accepted reports are posted immediately on-line. An electronic, moderated discussion is then opened for 28 days. After closure of the discussion period, the reports pre-published on-line, as well as the moderated discussions, are published in the *ICVTS* archival version and in the traditional paper format."

Each year there are approximately 3,000 papers submitted to the journals and these papers are subjected to rigorous checks by the editorial staff to see whether the paper meets submission process criteria (correct references, authors etc). "This is important, as we want to guarantee all

manuscripts in the journal have the same uniform style and format. This ensures all papers are easily understood and referenced," he stressed. "In the next process, the paper is transferred to the Associate Editor of that subject who will distribute the paper to two reviewers. So three specialists will have seen the paper and a decision is then made whether to publish the paper, reject the paper outright or send the paper back for further revisions."

Advice for authors

Given that the majority of papers are referred back to the authors for further revision, does he have any advice for authors, particularly first time authors who may be thinking about submitting an article to the journals? "The subject must be innovative and topical such as how to solve a clinically relevant problem. The paper should be written in the usual style (introduction, discussion etc), and importantly include a hypothesis which is then tested by the study conducted by the author," Beyersdorf noted. "I would strongly advise that the authors have a bio-statistician as a co-author so they can assess whether the data will stand up under rigorous examination."

He also advised that the paper should be written in such a way that even if the reader is not 100% famil-



Friedhelm Beyersdorf

iar with the subject they can understand why the study was undertaken, what the results are and why the author has arrived at such a conclusion. Finally, he recommended that all authors should visit the websites of both journals where they will find advice on how to submit a paper, the

issues we try to compose certain issues with certain subjects, so the journals are of interest to, and representative of, all subscribers."

Despite the large number of papers submitted to the journals, Beyersdorf maintains that the quality of the papers continues to improve.

"There is no doubt the quality of the papers submitted to the EJCTS has improved as witnessed by the editorial staff, the readers and the

impact factor. The impact factor is an important scientific measurement that is used to gauge the quality of the papers and reflects the average number of citations to articles published." And it is for this reason he believes that the *EJCTS* in particular still manages to attract the most outstanding papers, as authors will submit their paper to the journal with the highest impact factor: "For cardiothoracic surgery, the *EJCTS* is

"For cardiovascular surgery, the EJCTS is in the top three cardiovascular journals when considering the highest impact."

style, format and content etc.

With some 3,000 papers submitted each year, the journals continue to feature every aspect of cardiovascular and thoracic surgery from case reports, follow-up papers and institutional reports, to randomised clinical trials and meta-analysis. "In addition, we also have special issues dedicated to congenital, transplantation, thoracic surgery and so on, so that over the year in the four is-

in the top three cardiovascular journals when considering the highest impact factor."

The future

The Internet and the ability of anyone to publish anything has created a debate as to whether medical papers should be reviewed at all, with some claiming that the reader should be the one to decide whether they accept or reject the author's conclusions. Beyersdorf believes that this is an ongoing, very heterogeneous discussion. "On the one hand some believe that a peer-reviewed journals should no longer be published because everything can be published on the Internet and readers can then decide if it is worthwhile or not. This places the entire responsibility of what is being published on the author. So if it is wrong, it's wrong, if it is plagiarised the author will face the consequences. On the other hand, the peer-reviewed process has the advantage of having been reviewed by three expert reviewers for those who cannot distinguish between a correct and incorrect statement or conclusion, so the reader is comfortable to some extent that the paper's conclusions are not totally unfounded."

So what does he think the future holds? "Technology will play an important role. We are in the process of increasing the inter-activeness of the journal to a greater extent, for example we are thinking about having an 'app' for the journal so subscribers can read it on their iPhone. In fact, one advance is that we can accept and publish short video clips online demonstrating new and adapted techniques, and in the future we hope to have more web-based materials such as interviews with the authors. Ultimately, this is all about educating and making sure surgeons, internists and family physicians are aware of the different options available."



To learn more about the *European Journal of Cardio-Thoracic Surgery*, advice on how to write and submit a paper or to access articles please visit: <http://ejcts.ctsnetjournals.org/>

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*Mitral valve repair for degenerative disease: A 20-year experience. Duke University Medical Center / Duke Clinical Institute / Cleveland Medical Center - Am. J. Cardiol. Aug 2010;105:1029-37

Issues in cardio-thoracic education and training

The Surgical Training and Manpower Committee (STMC) was established to represent the views and interests of European cardio-thoracic residents, identify issues in training and facilitate education. *EACTS News*, spoke with Chair of the Committee, Dr J Rafael Sádaba, to discuss the committee's roles and responsibilities, European-wide training standards and the benefits to trainees/residents of becoming a member of the Association.

According to Rafael, the STMC is unique within EACTS as it does not belong to a particular domain (adult cardiac, thoracic, congenital or vascular), but relates to all of them. It exists mainly to represent the views and opinions of trainees and identifies issues on training and education, as well as finding common ground to develop standards in surgical training. The committee also promotes communication channels with other organisations, as well as supporting the academic activities within EACTS.

"The STMC is also unique in that it has both residents and surgeons as members. One of the resident members sits in Council as EACTS trainees representative, and importantly, since last year, the representative has voting rights in Council," he said. "Previously, they could just express the views and opinions of trainees/residents and I think this is a significant change that acknowledges their importance."

Database

Another important programme the Committee is undertaking is to establish a database on training units in Europe. At present there is a lack of knowledge on the number of training units in Europe, even at national level this information is sometimes not available. There is no data on the number of trainees, facilities, number of cases etc. To have this type of information is important at two levels.

First it gives an idea on the current status of cardiothoracic surgery in Europe and helps to compare how things are done in different countries.

Second, it provides trainees with information on different training programmes, so they can decide on where to go for fellowships or other type of educational activity.

"One of the important aspects of the database is that we intend it to be updated regularly. So one of our aims to assign a contact person in each centre so they can update the database on changes to their centre's training programme, the number of trainees and so on. This year the Committee has appointed two new members who will be responsible for

constructing the database," said Rafael. "We hope to collect some preliminary information by next year's meeting in Lisbon. In the past we have depended on the national associations with very little success, this time the success of the enterprise will depend on the collaboration from members."

European Working Time Directive

A recent survey undertaken by the Committee and published in the *Interactive CardioVascular and Thoracic Surgery* (Sabada et al: 2010;11:243-246) highlighted serious concerns among residents/trainees regarding the European Working Time Directive (EWTD), with most claiming that the Directive has had a negative impact. In particular, they point to insufficient time allocated to allow trainees to become competent surgeons as a result of the duty hours restrictions. According to Rafael, the apprenticeship model that has been utilised for decades is out-dated and is no longer fit for purpose under the current conditions: "As a result of the EWTD, we must optimize the time residents spend in hospitals and we have to shift the balance towards training from provision of service. Training should be competence-based and properly structured, which is not the case in the majority of European countries."

The outcomes were quite clear that cardio-thoracic surgical training in Europe is disorganized. There are unequal surgical requirements, unequal syllabuses, unequal methods of assessing progress, unequal lengths of training programmes, unequal methods of accreditation and unequal application of the EWTD.

Therefore, there needs to be significant changes in the structure of training. As an organisation, EACTS has no executive powers and can only voice its concerns and make recommendations. Nevertheless, Rafael claims that EACTS is in an ideal situation to look at the system from a European-wide perspective and provide learning management courses, workshops and advice on training and education, as well as facilitating exchange programmes.



Rafael Sádaba

Established standards of training

"We would like to see at the national level established standards of training that would be applicable across national borders. This would include technical proficiency, quality assurance and targets of knowledge. It is also important that the 'trainers' also have established standards and we need to have educational programmes on training for 'trainers'," he added.

The overall assessment of medical education in Europe is 'very poor', claims Rafael, as there is no Directorate of the European Union responsible for medical training. As a result he mentioned that a 'Bologna type reform', for post-graduate medical education could address some of these issues of medical training and assessment.

Best Trainer award

One innovation EACTS is planning to develop is a European-wide 'Best Trainer' award. To achieve this trainees/residents will be asked to nominate trainers who they believe are exceptional. The trainer will then undergo a process of evaluation including interviews with the trainer, trainees/residents, peers, nurses and other people in the hospital. It is hoped this will help communicate what makes a good trainer and what is incorporated into a good training programme.

In summary, the STMC would like to see:

- the harmonisation of educational programmes, which should be able to deliver minimal standards of knowledge and technical ability;
 - regular and independent assessment to ensure the quality of the training, and an 'exit exam' at the end of training; and
 - compulsory courses for the trainers so they can learn how to train to established levels to ensure universal standards across Europe.
- "The structure of surgical training in the US is more advanced than what we have in Europe. Nevertheless, there are countries in the European union that have excellent training programmes with comprehensive curriculums that could be adopted throughout the whole European Union," he added. "It is our job in the Committee to communicate to our members, trainers and trainees that these excellent programmes exist."

The papers were so good that Rafael said the panel of five members may have to be expanded in order to process the number of manuscripts. "It is clear there is high-quality research being conducted by cardio-thoracic residents in Europe and their efforts should be praised," said Rafael. "It is getting more difficult each year to decide the winners of the awards because the standards are so high. I believe that every surgeon is by nature a scientist and therefore research should be encouraged from the earliest years of training."

EACTS membership

As well as encouraging residents/trainees to join EACTS, he also encourages participation from medical students who would benefit greatly from the advantages membership brings. "We would like to invite medical students to join EACTS so they will have access to our educational activities and exchange programmes between countries, as well as have a pro-

gramme specifically for medical students at the Annual Meeting," revealed Rafael. "As a member of EACTS it gives you the opportunity to be part of the largest scientific society of cardio-

thoracic surgeons in the world. Also, it opens up opportunities for education and training, as well as access to a large network of cardio-thoracic specialists with whom members can share their knowledge and experiences.

"I believe that every surgeon is by nature a scientist and therefore research should be encouraged from the earliest years of training."

Young Investigator Awards

Of course, this is not to say that the quality of surgical trainees is poor. Indeed, judging by the outstanding papers presented at this year's Annual Meeting in Geneva, the quality has never been of such a high stan-

STMC database

If you are interested in the STMC database, please contact a member of the Committee via the EACTS website: www.eacts.org

Young Investigator Awards

If you are interested in submitting a paper for the Young Investigator Awards at the EACTS S Annual Meeting in 2011 (Lisbon, Portugal), please visit the EACTS website: www.eacts.org.

Members views

If you would like to comment on training standards for cardiothoracic trainees/residents, *EACTS News* would be delighted to publish your opinions. Please send your comments to: communications@e-dendrite.com.

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Training, education and accreditation

Leslie Hamilton
Freeman Hospital,
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My objective in writing is to stimulate debate. We must be concerned when we consider the myriad systems of training we currently have within Europe. The CCT (Certificate of Completion of Training) means different things in different countries and yet being ‘European’ means equal recognition of qualifications. There must be a possibility of agreeing the basic principles. And I mean the process, not whether it should be cardiac, thoracic, vascular or some combination.

Theoretically post-graduate training comes under the auspices of UEMS (European Union of Medical Specialists). Your EACTS Council has tried to generate some activity through this body but to no avail. EACTS should take the lead.

First, we need to define the innate abilities needed to be a good trainee – general aptitude, the ability to assimilate complex information and of course technical dexterity. Then we need to establish a method of measuring these so that we can have a selection process,

which is fair and transparent – interviews, presentations and technical skills stations? What place publications, research and references? Do we limit the number of trainees selected? We surely have a moral duty to have some relationship between the number of trainees and future manpower needs.

Training is the process of learning skills. So we need a curriculum to define what skills are needed to be an independent surgeon. How long should training be? – as long as it takes to acquire these skills. Is there a need for general surgical training and if so, how much? (some programmes in the US are now taking trainees directly into cardiothoracic surgery). As part of the training process, trainees must provide some service in caring for patients – in the ward and in the intensive care unit. This contribution will be in different ways at different stages of their training. The system should not depend solely on their contribution – other non-medical staff (nurse practitioners / surgeon’s assistants) can acquire the skills to care for patients so that the surgical trainee can be freed to train.

Mention of the European Working Time Directive is always guaranteed to spark debate. Yet I am amazed at the lack of understanding

of the details of these regulations when I talk to both trainers and trainees. The misconception that hours are limited to a maximum of 48 per week is widespread – up to 78 is within the regulations. The emphasis of the EWTD is how many hours can be worked without rest/sleep (13 is the maximum). I have read papers suggesting that when I was training I had >30,000 hours available – a large proportion of these were resident in the intensive care unit (learning a job which is now rightly done by Intensivists) and then the following day in theatre after no sleep. Sleep deprived brains do not facilitate learning and the acquisition of skills.

We need to consider how the trainee will learn (education) and be clear about how we will assess their progress. We should use tools/systems which are objective and not base judgements solely on our subjective feelings. Importantly, we must be open about how we will decide if they are not making progress and so be taken off the training programme. Often forgotten is how we select trainers (not every surgeon is a good teacher) and how we assess them in their role. Trainers should be selected and rewarded.

Finally, we need to give formal recognition (accreditation) to the fact that the trainee has acquired the necessary skills. This will require an assessment process with different components – to test the different aspects of a trained surgeon. A written examination to assess factual knowledge? An interview to probe their ability to apply knowledge to patient care and to assess their understanding of the evi-



Leslie Hamilton

dence base for practice? Observation of the interaction of the trainee with patients? (a “clinical” examination?). Possibly the most difficult but arguably the most important question is how do we assess their technical skills? Is confirmation from (several) trainers that they have “good hands” sufficient?

A sobering question to finish – who carries the responsibility if the subsequent results of the clinical practice of the trainee are poor?

This is an important debate, which we as the specialty Association have a responsibility to lead.

Three-year SYNTAX results

Continued from page 1

trial patients may not always be typical of those encountered in routine clinical practice².

For the first time there is an individual section on the process of decision making and patient information which recommends a multi-disciplinary/heart team approach when recommending intervention by stents or surgery. Likewise the guidelines recommend that there should be less use of ‘ad hoc’ stenting (ie the decision to proceed with stenting immediately after diagnostic angiography), and especially in the setting of multi-vessel disease, as this reduces the opportunity to fully discuss and allow time for consideration of all treatment options.

Although there are concerns that

the multi-disciplinary/heart team approach may be cumbersome, and particularly in hospitals without on-site cardiac surgery facilities, in reality most treatment recommendations can be made by following local protocols based on the guideline recommendations and do not require individual discussion of every patient. However, more complex clinical situations will still require multidisciplinary dialogue: for example there may be situations where surgery is the more suitable intervention but contraindicated by severe co-morbidities while, on the other hand, contraindications to the use of dual anti-platelet medication for drug eluting stents might favour surgery.

While randomized trials³ and large

propensity matched registries² confirm that CABG offers a survival benefit and marked freedom from re-intervention in severe coronary artery disease, CABG and stents have a similar survival over the short to medium term, in patients with lower tercile SYNTAX scores. However, at three years, mortality was 5.7% for CABG and 9.5% for stents (p=0.02) in all 1095 SYNTAX patients with three vessel disease, and with the same frequency of stroke at 2.9% and 2.6% respectively (p=0.64)⁴. This probably reflects the fact that while stents may directly treat proximal stenotic lesion(s), bypass grafts to the mid coronary vessel may offer additional prophylaxis against the development of new proximal disease².

In contrast, the respective mortalities were 8.4% and 7.3% (p=0.64) for all 705 patients with left main stenosis⁵; crucially the mortality was significantly lower for stents than CABG in patients with SYNTAX scores <33 while the reverse was observed in those with SYNTAX scores >32. Unlike three vessel disease, for all severities of left main stenosis stroke was higher with CABG whereas freedom from repeat revascularization for CABG was only seen in the highest tercile SYNTAX scores.

Taking all the SYNTAX patients together (including the 35% who went immediately to surgery because of severity of disease and were not randomized) this means that 80% of all patients with three vessel disease and two thirds with left main stem stenosis already have a significant survival advantage with CABG at three years – entirely consistent with reports from several propensity matched registries². A further important consideration is the remarkable safety of contemporary surgery; for example in all 78,000 patients undergoing elective CABG in the UK in 2004-08 the hospital mortality was 1.1%⁶ a figure similar to that in the 3102 patients in the Arterial Revascularization Trial⁷ while the mortality for elective stenting is even less at around 0.5%.

The collaborative evidence based approach of the new ESC/EACTS guidelines promotes a more transparent and robust approach to ensure

the best intervention, real patient choice and genuine informed consent. This approach serves the best interests not only of patients but also doctors by allowing them to robustly defend their rationale for particular interventions. We should work intensively in close collaboration with our cardiology colleagues to promote and implement the new guidelines in daily practice.

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Table1: Indications for CABG versus PCI in stable patients with lesions suitable for both procedures and low predicted surgical mortality

Subset of CAD by anatomy	Favours CABG	Favours PCI
1VD or 2VD – non-proximal LAD	IIb C	IC
1VD or 2VD – proximal LAD	IA	IIa B
3VD simple lesions, full functional revascularisation achievable with PCI, SYNTAX score ≤22	IA	IIa B
3VD complex lesions, incomplete revascularisation achievable with PCI, SYNTAX score >22	IA	IIIA
Left main (isolated or 1VD, ostium/shaft)	IA	IIa B
Left main (isolated or 1VD, distal bifurcation)	IA	IIb B
Left main + 2VD or 3VD, SYNTAX score ≤32	IA	IIb B
Left main + 2VD or 3VD, SYNTAX score ≥33	IA	IIIB

In the most severe patterns of CAD, CABG appears to offer a survival advantage as well as a marked reduction in the need for repeat revascularisation.

Members views

If you would like to comment on any of the aspects concerning training and education, express your opinion regarding the outcomes from the SYNTAX trial or discuss the ESC/EACTS guidelines, EACTS News would be

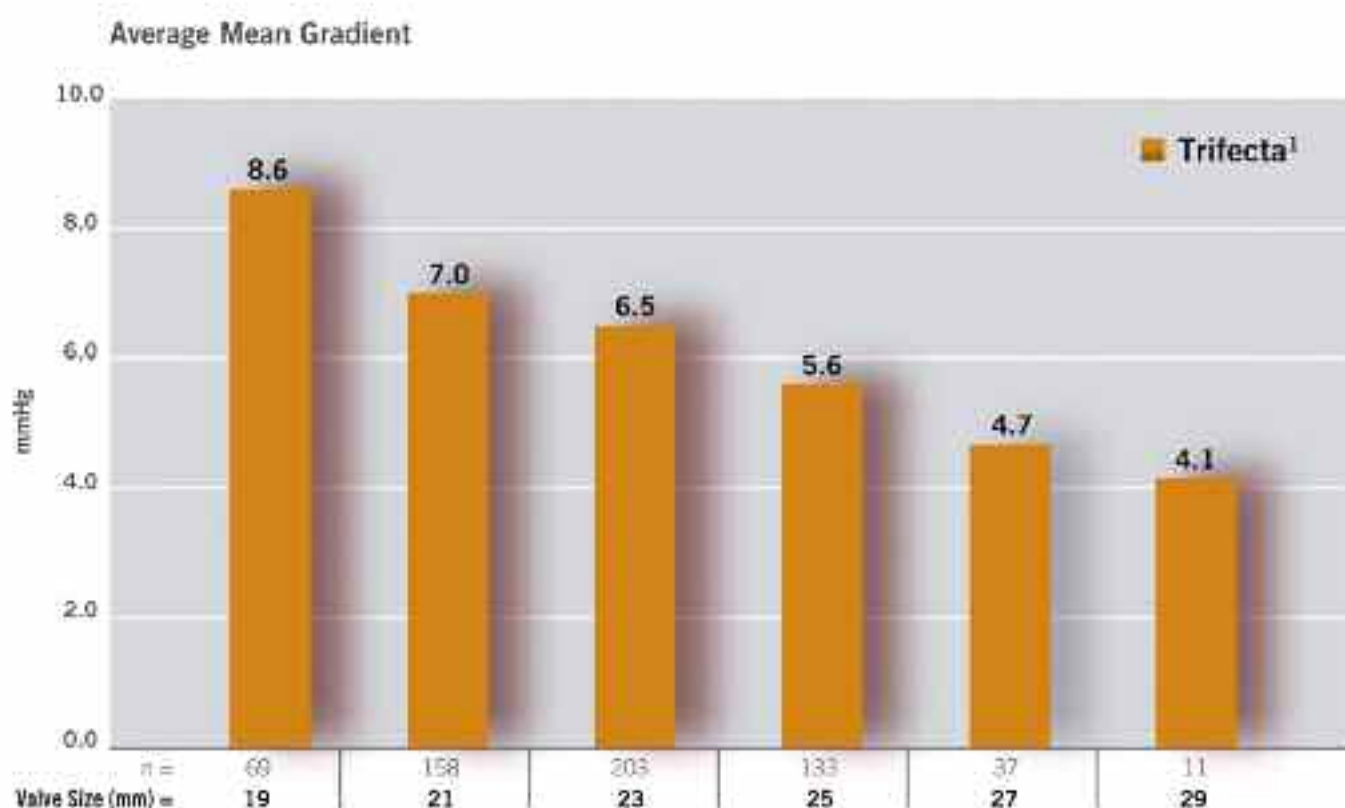
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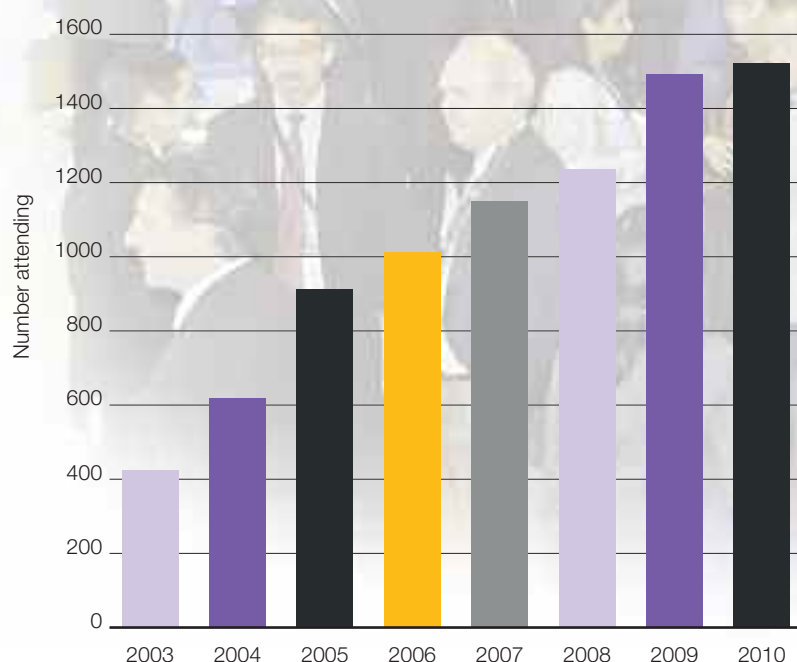
EACTS ANNUAL MEETING 2010 HIGHLIGHTS

Record attendance at EACTS Annual Meeting 2010

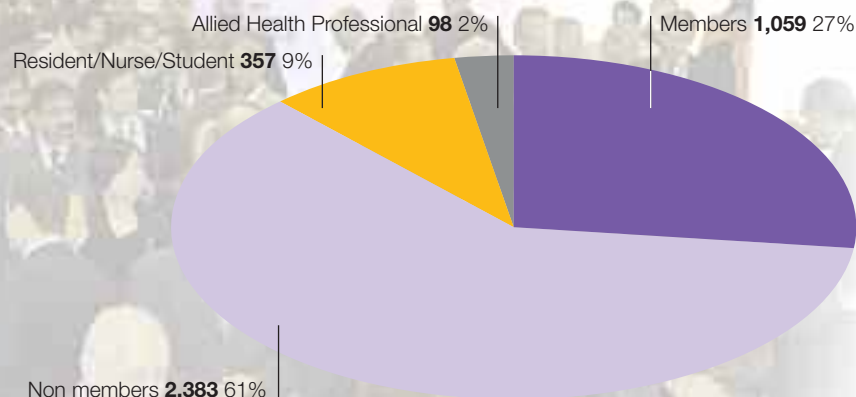
The 24th EACTS Annual meeting was held in Geneva, Switzerland, 11–15 September 2010. More than 4,000 delegates attended the meeting from the entire spectrum of the cardio-thoracic field. A breakdown of attendees can be seen in the figure below.

The organizers of the EACTS Annual Meeting would like to thank all delegates and industry sponsors for their continued support, and look forward to seeing you in Lisbon for 25th Annual Meeting 1–5 October.

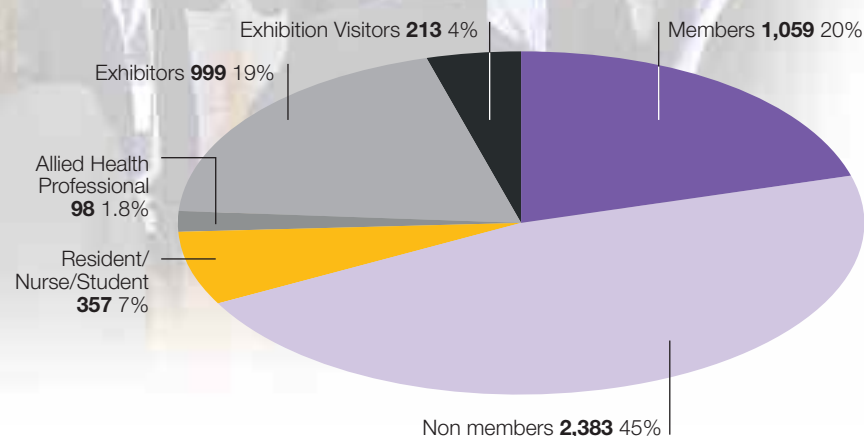
Techno-College participants 2003–2010



Breakdown of physicians attending



Breakdown of total attendance



‘The surgeon and the musician’

EACTS President, Pascal Vouhé, began his Presidential Address by stating that it was the climax of his career and paid tribute to his colleagues, patients, his wife Dominique and his three children. He also paid tribute to Professor Marko Turina, whom he thanked for his advice, support, his Presidential nominations and all he has done for the Association.

Entitled, ‘The surgeon and the musician’ the Presidential Address discussed the association between surgery and music. He cited examples from history of great musicians who were also talented and practiced physicians, such as René-Théophile-Hyacinthe Laënnec, a poet and a flute player, who invented the stethoscope and is considered to be the father of chest medicine.

Vouhé then explained in detail, several studies which have shown an association between music and improved outcomes for patients including reducing patients’ stress levels and reducing the requirement for analgesics. In addition, he also cited a study in which surgical staff reported an increase in efficiency and

greater communication when listening to music. Furthermore, there are studies which have shown surgeons who are asked to perform mathematical and laparoscopic procedures, performed the procedure with greater speed and accuracy if they were listening to music (Mozart), compared to surgeons who performed the procedures in silence.

He stated that MRIs have shown musicians have ‘special brains’ with

“Without music, surgery (life) may be a mistake.”

large left planum temple (the area responsible for acoustics and linguistics). Musicians have great accuracy in performance, excellent hand-to-eye



Pascal Vouhé

coordination and reaction times, and very good spatial visualization. Vouhé said that research has shown musicians who excel began playing music before they were ten years old and aided by years of deliberate practice (over 10,000 practice hours).

He said that surgeons too have special brains, as a surgeon who excels has great concentration levels, has great anticipation and improvisation

skills, has the capacity to listen, virtuosity and a respect of the protocol.

The aim of music is to arouse the emotions and provide a state of satisfaction, restoring harmony, explained Vouhé, and the goal of surgery is not that different, as surgeons hope to restore normal physiological function and also the patient’s harmony. Vouhé added that music is the most powerful of the arts, as it is a universal language that

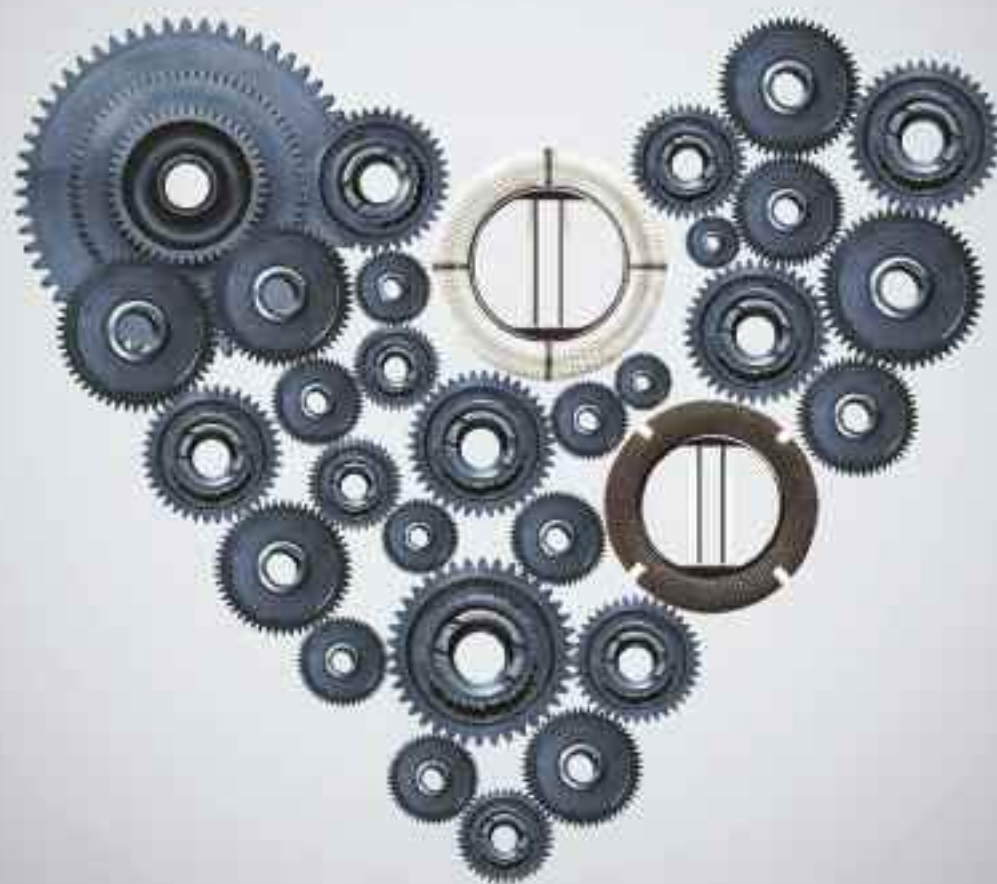


Roland Pidoux

teaches us how to listen and can express every human emotion. He concluded his Address by paraphrasing Friedrich Nietzsche: “Without music, surgery (life) may be a mistake.”

Following his Address, Vouhé welcomed onto the stage his good friend and world-renowned cellist, Professor Roland Pidoux, who captivated the audience with his recital of Johann Sebastian Bach’s Suite No.3 for Cello Solo.

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*Mitral valve repair for degenerative disease: A 20-year experience. Duke University Medical Center / Duke Clinical Institute / Cardiovascular Medical Center. J Am Coll Cardiol 2000;36:1525-31

EACTS ANNUAL MEETING 2010 HIGHLIGHTS

EACTS Techno College Innovation Award 2010

EACTS News is pleased to report the 2010 EACTS Techno College Innovation Award was won by Georg Nollert (Siemens) for the syngo Aortic ValveGuide, which supports image-guided transcatheter aortic valve implantations (TAVI).

According to Nollert, an increasing number of operating rooms are being equipped with high-end angiographic C-arms. These so-called "hybrid ORs" (figure 1) enable advanced imaging in 2D and CT-like 3D imaging ("syngo DynaCT").

"Technological advances have resulted in enormous growth of TAVIs. Until recently TAVI procedures had only been supported by 2D imaging (fluoroscopy), which has limitations in planning, finding the best projection, and evaluating the result", he added.

The automated process based on syngo DynaCT 3D images supports planning, execution, and evaluation of TAVIs to make them quicker, safer and easier, claims Nollert. All the necessary steps can be done in one single procedure in the hybrid OR based on 2D and 3D imaging with the angiographic C-arm. Leaving the sterile area to use a workstation, or even a transfer to radiology for a CT scan is no longer necessary.



Figure 1: Hybrid operating room at Rikshospitalet Oslo, equipped with Siemens' Artis zeego angiographic C-arm



Georg Nollert with the 2010 EACTS Techno College Innovation Award

Automated processes for safe and easy valve implantations

At the beginning of the procedure 3D images are acquired with the C-arm rotating around the patient for five seconds. These images are sent to the workstation and automatically reconstructed and segmented in less than 30 seconds. The software automatically detects the relevant landmarks and marks them in colour – the coronary ostia and a "perpendicularity ring". This ring is 1cm below the hinge points of the aortic cusps. The image can then be rotated to achieve an optimal perpendicular projection with the C-arm. This is indicated by the ring degenerating

into a line. With the push of a button, the C-arm moves into that exact position. The software also allows for the necessary measurements of the anatomy, e.g. maximum diameter of sinuses.

During imaging, the 3D syngo DynaCT images can be overlaid onto live fluoroscopy for further device guidance. They automatically adapt to movements of the table, C-arm or zoom. It is also possible to change the image to a 'contour view', which displays only the contours of the aorta as well as the anatomic landmarks. This way the visibility of the live fluoro image is higher than when

overlaying the full 3D volume.

Benefitting the surgeon and the patient

According to Nollert, the new solution makes TAVIs more efficient because the imaging greatly facilitates the positioning of the valve. "It can help save dose and contrast media in comparison to conventional CT and consequently will be safer for the user and the patient. And most importantly, it saves time and manual work by doing most of the steps fully automatically and much quicker than with existing conventional solutions," he concluded.

Hans Borst Award 2010: TEVAR vs. open surgical repair

Which is the more cost effective intervention for descending thoracic aortic pathologies?

Pradeep Narayan

Bristol Heart Institute, Bristol, UK

The management of descending thoracic aortic pathologies is a challenging prospect. Historically, the therapeutic options for the treatment of descending thoracic aortic pathology ranged from a very conservative medical management to an extremely invasive open surgical repair. Following reports of successful stent-grafting of thoracic aorta; thoracic endovascular repair of aorta [TEVAR] has emerged as another option for management of thoracic aortic pathologies.

In the last decade there has been a dramatic rise in the incidence of TEVAR as a therapeutic option for management of descending thoracic aortic pathologies. Compared to TEVAR, historically, open surgical repair was associated with higher mortality and signifi-



Pradeep Narayan accepts the Hans Borst Award from Pascal Vouhé and Peter Kappetein

cant post-operative morbidity. TEVAR is also associated with significantly shorter length of

stay in the intensive care unit, significantly reduced overall hospital stay and require fewer

blood transfusions. A shorter hospital and intensive care unit stay coupled with lesser

utilisation of other resources inherent with open surgical repair, like transfusion of blood products, may intuitively be translated into cheaper hospitalisation costs thereby reducing the financial burden on the institution and the health care system.

We therefore carried out a retrospective study over a period of 13 years to examine the hypothesis that compared to operative repair; TEVAR may be a less expensive option for management of descending thoracic aortic pathologies. A consecutive series of 85 patients undergoing intervention on the descending thoracic aorta were included in the study.

In our study, compared to operative repair, TEVAR was associated with a better short term outcome but similar mid term outcome. While staff costs, costs of consumables, transfusion, intensive care and hospital stay were all significantly higher in patients undergoing operative repair, this was offset by the high costs of stents leading to significantly higher procedural costs in the TEVAR group. Also, the incidence of re-interventions was higher in the TEVAR

group. As a result, in our study TEVAR did not prove to be cost effective compared to operative repair of descending thoracic aortic pathologies in the short term. Any survival advantage in the early period is lost at follow up.

Our findings mirror the data available from interventions on abdominal aorta. The United Kingdom EVAR Trial Investigators reported that during an eight year follow up period endovascular repair was found to be associated with a greater risk of graft related complications and higher risk of re intervention and was found to cost more than the operative repair group. Also one has to bear in mind that the results and durability data of stent grafts beyond ten years is largely unknown and hence patients undergoing TEVAR will need monitoring for long periods of time with computed tomography scan or magnetic resonance imaging. Thus, a higher risk of re-interventions and longer term surveillance issue for possible stent graft deterioration will eventually prove TEVAR to be a much more expensive option compared to operative repair.

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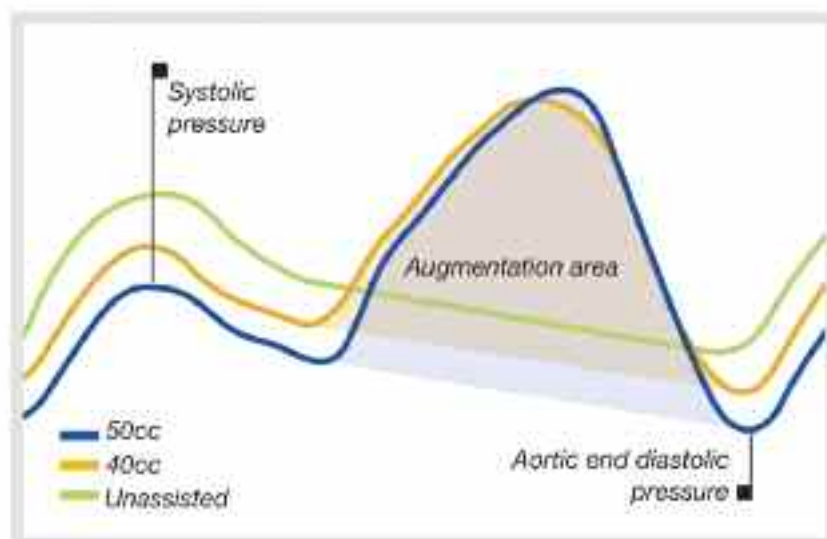
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This year's meeting in Geneva was attended by a record number of delegates. Here are some of the memorable highlights...





EACTS ANNUAL MEETING 2010 HIGHLIGHTS

C Walton Lillehei Young Investigators Award 2010: New concept for transcatheter replacement of the tricuspid valve

Kenji Iino and Georg Lutter
University of Schleswig-Holstein,
Kiel, Germany

Transcatheter valve surgeries have already been conducted in selected patients with aortic and pulmonary disease and have gained increasing acceptance in high-risk patients. This has prompted investigation of the feasibility of transcatheter implantation of atrioventricular valved stents. Indeed, Boudjemline et al. reported that placement of a valved stent into the tricuspid position is feasible in 2005, while von Segesser et al. described transcatheter mitral valved stent implantation at the same time. When considering the use of such devices in patients with tricuspid regurgitation (TR), the gap between the native annulus and the stent present an obstacle, especially because the tricuspid annulus is not exactly circular and because it must be dilated to various degrees in patients with severe TR. Preservation of the tricuspid valve apparatus can be difficult due to the interference of the radial force of the stent and its positioning and rare repositioning. Dr Kenji Iino, a young cardiac surgeon from Kanazawa University, Japan was able to design a novel self-expanding valve stent with super-absorbent polymer (SAP) for minimally invasive replacement of the tricus-



Kenji Iino accepts the C Walton Lillehei Young Investigators Award



Georg Lutter

pid valve under the mentorship of Prof Dr Georg Lutter, a cardiac surgeon from University of Schleswig-Holstein, Kiel, Germany who pioneered several transcatheter aortic, pulmonary and mitral valve procedures. After deployment, SAP absorbed aqueous fluids from the bloodstream. This results in gel formation and distension, which promotes sealing and reduces paravalvular leakage.

Iino and Lutter conducted acute animal ex-

periments in Kiel, Germany and were able to successfully deploy the novel tricuspid valved stent with SAP across normal tricuspid valves in pigs using transesophageal guidance. The deployments were performed through a transventricular approach via of a small lower ministernotomy incision. Six of seven pigs exhibited normal haemodynamics immediately after tricuspid valve stent implantation and maintained stability for the entire period of

monitoring. Accurate positioning of the valve stent was documented in six of seven pigs. SAP expanded and filled the gap between the stent and the native annulus in all animals. Mild paravalvular leakage was found in two of six animals. However, the observed leakage decreased to trace levels six hours after implantation. These encouraging acute experimental results lead to a series of successful survival experiments which are currently underway.

Young Investigators Award 2010: Cardiac Mild hypothermia during cardiac ischaemia: A simple and powerful approach to prolong ischaemic tolerance

Mathieu Stadelmann,
Thierry Carrel, Hendrik
Tevaeearai
and Sarah Longnus,
Berne University Hospital and
University of Berne, Switzer-
land

The lack of donor hearts is a major obstacle in cardiac transplantation and is expected to worsen as the number of potential candidates continues to grow. Non-heartbeating donors (NHBDs) represent a currently untapped source of hearts that could significantly increase the availability of donor organs. However, unlike those from brain-dead donors, hearts from NHBDs are subjected to an inevitable period of warm ischaemia between cardiac arrest and preservation. These hearts are generally considered unsuitable for transplantation, given that cardiac ischaemic tolerance is believed to be close to zero. Therefore, prolonging cardiac ischaemic tolerance would provide a



Mathieu Stadelmann (left)

greater window of time for cardiac preservation, which could effectively increase the availability of donor hearts by enabling widespread adoption of NHBDs for heart transplantation.

We investigated the hypothesis that mild hypothermia

(32°C) during cardiac, global, no-flow ischaemia preserves functional and metabolic recovery upon reperfusion. To do so, we established a model of ischaemia-reperfusion in isolated rat hearts to simulate the period of warm ischaemia prior to heart preservation in

the setting of cardiac transplant from NHBDs. Hearts were subjected to 30-minutes, working-mode, aerobic perfusion, then global, no-flow ischaemia and 60-minutes reperfusion. Ischaemia was either normothermic (37°C) for 20 or 30 minutes,



Isolated Heart Preparation

or mildly hypothermic (32°C) for 40 minutes.

Among hearts exposed to normothermic ischaemia, contractile function recovered almost completely after 20 minutes, whereas no recovery was detectable after 30 minutes. With mildly hypothermic ischaemia, contractile function also recovered almost completely, despite a two-fold longer period of ischaemia (40 minutes). Therefore, simply slightly reducing temperature during ischaemia effectively

improves functional recovery upon reperfusion. Mild hypothermic ischaemia likely acts through increasing coronary perfusion, decreasing anaerobic/aerobic metabolic mismatch and reducing necrosis. The identification of complementary parameters may help in development of strategies to maximize cardiac ischaemia-reperfusion tolerance, thereby contributing to the development of protocols for transplantation of hearts from NHBDs.



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EACTS ANNUAL MEETING 2010 HIGHLIGHTS

Young Investigators Award 2010: Thoracic

Novel approach for detection of isolated tumor cells in the PV

Drs Soichiro Funaki and Noriyoshi Sawabata

Osaka University Graduate School of Medicine, Osaka, Japan

The presence of isolated tumor cells (ITCs) in the pulmonary vein (PV) of a lung resected for lung cancer has been reported to be a prognostic factor. Previous investigations noted correlations between prognosis and the presence or amount of ITCs, though few studies have investigated the clinical implications of the morphological characteristics of those cells. We assessed the clinical implications of ITCs in the PV using a novel approach of enrichment that maintained their morphological characteristics.

Ninety-four consecutive patients with primary non-small cell lung cancer (NSCLC) without preoperative chemo- and/or radiation therapy (p-stage I in 75, II in 13, III or IV in six) were studied. Blood samples were drawn from the PV draining the lung just after pulmonary resection, then ITCs were enriched using a CD45 negative selection method and density-gradient centrifugation, followed by Papanicolaou staining using 1ml of PV blood and immunohistochemical staining for cytokeratin in cases with an additional available blood sample. The ITCs were classified based on patterns of cluster formation into four types (Figure 1); no tumor cells (N), singular tumor cells (S), clustered cells (<0.2mm) (CS), and bulky clustered cells (>0.2mm) (BCS). We evaluated the correlations between ITC morphology and clinical results.

ITCs were detected in 68 of 94 patients (72.3%). BCS type was observed in two, CS in 33, and S in 33 cases, with N type found in 26. Over a median follow-up period of 13 months (six–22 months), cancer recurrence occurred in 16 cases (17.0%), 14 in the CS/BCS group, one in S, and one in N. Log-rank analysis revealed that the disease-free survival rate was exclusively worse in patients with clustered ITCs as compared to the other two groups ($p<0.01$) (Figure 2).

The present method was useful to detect and enrich ITCs from the PV, and showed the clinical relevance of their morphology in lung cancer cases. The presence of ITC clusters may be a prognostic biomarker for patients with resected NSCLC.



Soichiro Funaki (left) accepts the award

Noriyoshi Sawabata



Figure 1

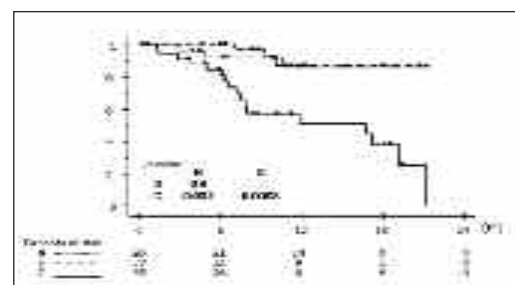


Figure 2:

Young Investigators Award 2010: Congenital

Prognostic significance and correlations of neurohumoral factors in early and late postoperative period after Fontan procedure

Jacek Kolcz,

Polish–American Children's Hospital, Krakow, Poland

The fate of patients with single ventricle defects after the staged construction of Fontan circulation with recent modifications is unknown but like many predetermined courses can be predicted in some respects. In the natural history of diseased cardiovascular system complex interactions between local, humoral, and neural factors lead to abnormalities in the circulatory control. These adaptive responses are aimed at maintaining adequate vital organ perfusion but can lead to unfavourable and undesirable changes both in the heart and the vascular system. Fontan patients have an impaired regulation of cardiac autonomic system and activation of many neurohormonal factors as well as the rennin-angiotensin-al-dosterone system. These changes may contribute to numerous early and late postoperative complications e.g. dysregulation of fluid homeostasis, effusions, detrimental remodeling, protein-losing enteropathy and limited exercise capacity. They can also serve

as important indices for risk stratification, prediction of unfavourable events and adjustment of treatment. This research work focused on neurohumoral activity and its clinical associations in early and late postoperative period after fenestrated, lateral intra-atrial total cavopulmonary connection (TCPC) stratified by single ventricle morphology. Between 2007 and 2010, we prospectively studied 28 early postoperative and 48 late post-

operative TCPC patients. Plasma concentrations of vasopressin, endothelin-1, proBNP, proANP were measured. Forty-eight patients underwent exercise tests 15 years after TCPC on average. We reviewed hemodynamic and clinical data to determine neurohumoral activation and clinical status early and late after TCPC depending on ventricular morphology. Within the group of patients hospitalized longer than 14 days, regardless of ventricular

morphology, plasma concentration of proBNP in the 7th postoperative day was significantly higher compared to patients hospitalized shorter than two weeks ($p=0.04$, Figure 1).

There was a significant effect of preoperative ventricular end-diastolic pressure VEDP ($p=0.008$) and vasopressin concentration ($p=0.02$) on the appearance of postoperative prolonged pleural effusions regardless of ventricular morphology. A significant correlation

between a combined predictor (a product of preoperative vasopressin concentration & VEDP), time of effusions ($r=0.59$, $p=0.006$) and length of hospitalization ($r=0.61$, $p=0.04$) was noted. The cut-off point with 89% specificity and 95% sensitivity was determined (Figure 2.). There was a significant correlation of endothelin-1 ($r=0.84$; $p=0.008$) and proBNP ($r=0.88$; $p=0.02$) concentrations with respiratory equivalent of carbon dioxide at peak exercise (VE/VCO_{2peak}) related to older age at TCPC.

Conclusions

Prevalence of postoperative pleural effusions and length of hospitalization can be predicted using a combined prognostic factor, i.e. the product of preoperative vasopressin concentration and VEDP. Prolonged hospital stay may be anticipated by preoperative proBNP plasma concentration. Exercise performance is related to the age at TCPC. Endothelin-1 and proBNP can be useful for the identification of high-risk Fontan patients and adjustment of treatment in late follow-up.

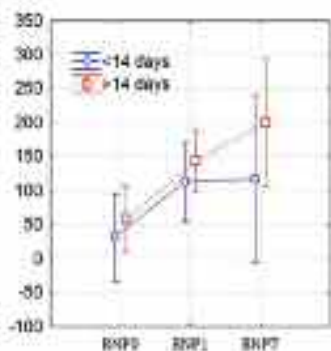


Figure 1. Relationship between prolonged length of stay and proBNP plasma concentration (BNP – brain natriuretic factor).

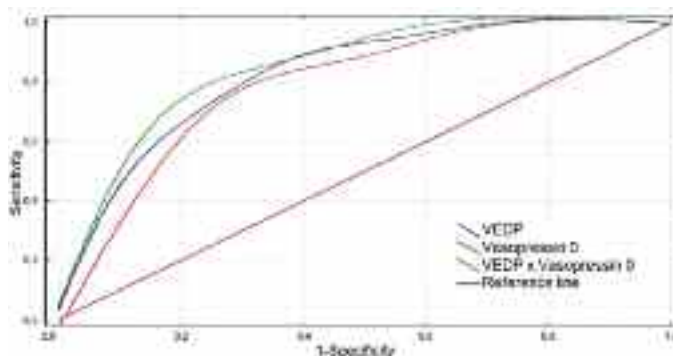


Figure 2. Comparison of ROC curves for preoperative VEDP, preoperative vasopressin concentration and combined predictor (a product of preoperative vasopressin concentration & VEDP) for postoperative effusions.



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EACTS First Postgraduate Leadership Course

Intense, outstanding and enlightening are just three of the many adjectives used by cardiovascular and thoracic surgeon attendees to describe the EACTS First Postgraduate Leadership Course held in Ascot, UK from November 8th to 12th.

The course opened with an enlightening speech by Sir Bruce Keogh, Medical Director of the UK National Health Service, who challenged participants with a clear vision for the new patient-led approach that health care providers will face in the future. This was a comprehensive vision of what the understanding of delivering better health care services should be.

Immediately after, F Charles Brunicki, Chair of the Michael E. DeBakey Department of Surgery at Baylor College of Medicine, enthralled EACTS surgeons with an outstanding talk about the role of modern leadership in healthcare.

Over the next 35 hours of an intense learning experience, William Murray, Eva Archer Smith, Adrian Lee, Marko Turina, Ottavio Alfieri, Paul Sergeant and many other keynote and exceptional speakers brought to the table the most relevant leadership issues both from the perspective of their expertise in the field and their personal experience, as well-known performers in leader-



ship roles within EACTS and other prestigious European universities and hospitals.

Thanks should also be given to Edwards Lifesciences, Medtronic and

St Jude Medical for providing some solid speakers that kindly addressed the audience and added an extra and priceless value to the course.

In summary, a remarkable experi-

ence that in the future should not be missed!

I look forward to seeing you in Ascot next year for the second edition of the Leadership Course.

Jose Luis Pomar
Chair: Acquired Cardiac Domain and Course Organiser

The European Registry of Aortic Disease (EuRADa) coming up soon

Ernst Weigang
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Most aortic diseases are life-threatening, requiring surgical, interventional or medical therapies. Most of the information on the management and treatment of these patients reflects retrospective single-centre experience. Many questions are unanswered regarding what constitutes the best treatment, and controversy remains about what the best acute medical care, including diagnostics, peri-operative management and optimal surgical technique, interventional or medical treatment and long-term therapy are. The main goal of clinicians is to reduce the morbidity and mortality rate of these diseases.

Current studies do not adequately define the best treatment options for aortic diseases. The decision as to which treatment is best is highly individual and depends on the underlying aortic pathology, extent of aortic disease, and each patient's anatomy and

co-morbidities. Further studies are necessary to ensure that individual decisions regarding the best medical care are based on a high level of evidence.

The aim of the European Registry of Aortic Disease (EuRADa) is, by collecting standardised data on patients with aortic diseases, to enhance our knowledge about these diseases via intensive data analysis. With this knowledge we hope to improve treatment in the future and identify key parameters affecting patient survival rates. EuRADa is designed to collect specific information about patient clinical status, diagnostics, treatment options, complica-

tions, cause of death, and follow-up data. The mid- and long-term aim of EuRADa is to continuously improve therapy by analysing and interpreting these data.

The key aspect is the database itself for collecting anonymous patient data. EuRADa collects parameters addressing all aortic diseases and all potential treatment options (conservative/pharmaceutical, interventional/endovascular, and open surgical). Each set of data is closed by the user when all the data have been included and the data has been validated. Those data can no longer be changed and are then included in the analysis. Thus, in-

complete data sets cannot be subject to analysis. Follow-up data, which must also be validated, can be included at regular intervals. Postoperative follow-up data will be collected at 30 days, six months, one year and then once annually for up to ten years.

EuRADa is a long-term project. After a test phase of EuRADa, the centres will be connected to



Ernst Weigang

the registry step by step. Achieving a high level of evidence in the treatment of patients with aortic disease is this register's primary goal. To successfully translate into action the evidence-based knowledge gained through EuRADa, it is important that as many European centres and other medical societies treating aortic diseases as possible participate in this ambitious project.

EuRADa is being developed under the leadership of Ernst Weigang (Department for Cardiothoracic and Vascular Surgery of the University Medical Center, Mainz), and is supported by the Vascular Domain of the EACTS and the EACTS Council.





EACTS
European Association For Cardio-Thoracic Surgery

25TH

**ANNUAL
MEETING**

1–5 October 2011
Lisbon, Portugal

Abstract deadline: 1 April 2011

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the big

Is a transfemoral approach a transapical approach for a

Trascatheter aortic valve implantation (TAVI) is the natural evolution of surgical aortic valve replacement: the prosthesis is delivered via a vessel, and it is implanted sutureless, compressing rather than excising the native valve, using image guidance¹. The clinical adoption of TAVI is beyond expectations as it has rapidly become a valuable alternative to surgery and medical therapy in high-risk patients. The initial reports were surrounded by scepticism: first Andersen suggested feasibility of the transfemoral approach (TF-TAVI) in the animal model², and then Alain Cribier applied the concept in clinical practice³. TF-TAVI has the potential to disruptively change the speciality of cardiothoracic surgery as we have learned and practised it in the last 50 years. Why should aortic valve surgery not follow the track of oesophagocopy, bronchoscopy, electrophysiology, aortic endografting and other examples of minimally invasive evolutions of surgery?

The value of TF-TAVI

The least invasive access for transcatheter implantation of an aortic valve is the TF-TAVI: it is usually carried out under local anaesthesia, with a totally percutaneous approach. Small size catheters, rapid pacing and steerable delivery catheters for balloon expandable valves and advanced delivery systems for the self-expanding valves have improved implant precision, although vascular complications are still a frequent adverse event following TF-TAVI. In the future adjunctive devices such as dedicated sheaths, closure devices and embolic protection devices will further enhance the TF-TAVI outcomes. Recently, publication of the results of cohort B of the PARTNER trial, showed that TF-TAVI applied to inoperable patients with critical aortic stenosis reduces repeat hospitalization and more impressively one year all-cause mortality by approximately

50% , as compared to either medical therapy or balloon valvuloplasty⁴. Considering that these data were collected in a first generation era (more complex devices delivered utilizing larger bore sheaths by operators still near the beginning of their learning curve), the results show that the safety and efficacy profile of the TF-TAVI approach in very high-risk patients are unequivocal.

YES

size of the delivery system⁸. The latter feature is becoming less important as the most recent TF-TAVI delivery systems are miniaturized enough to be applicable in the large majority of patients although it underlines the versatility

of the approach (to implant larger devices, to treat the mitral valve, aortic endografts, etc). Direct approach offers excellent control during the deployment of the valve and reduces aortic manipulation. However, in the SOURCE registry (the largest study including TF-TAVI and TA-TAVI), the risk of stroke is not reduced by the TA approach⁵. Also the procedural success rate is not different in TF vs. TA-TAVI: TA-TAVI patients have a higher rate of SAPIEN-in-SAPIEN implants for valve malposition, conversion to open surgery, and valve embolization (Table 1). It must be noted that the SOURCE registry was not designed to compare the TF vs. the TA approach and that outcomes may be strongly influenced by selection bias and learning curve. However, data from the self-expanding CoreValve experience suggest that when the subclavian access has

been used instead of the TF-TAVI, outcomes were not different, despite of a similar selection bias compared to the SOURCE TA-TAVI patients (transfemoral first policy)⁹. The Canadian registry is the only dataset showing comparable results of the two approaches: of note, patient characteristics of the TF-TAVI and TA-TAVI in the Canadian registry are less different and suggest a more fair distribution of high risk patients in the two arms⁷. No registry supports TA-TAVI superiority compared to TF-TAVI. In addition, TA-TAVI is associated with a number of unanswered issues: How we can predict apical intraoperative or delayed bleeding? What is the role of the apical scar? Is the apical approach repeatable¹⁰? It is obvious that in centers where the TA-TAVI approach comes first, the TA-TAVI results are better than those reported in the SOURCE data. This is most probably as the result of the patient selection, however, this strategy is operator-centered rather than patient-centred.

Choosing the optimal access

In the absence of specifically designed comparative trials, access choice should be based on a multidisciplinary team approach. Indeed, the operator should adapt the approach to the patient rather than the patient adapt to the approach, according to feasibility, efficacy and safety. Even assuming equal efficacy

and safety, one should choose the least invasive approach: the one that does not require general anaesthesia, chest tubes, thoracotomy. With the current delivery systems, the precision of TF-TAVI implant is equal to the TA-TAVI, and the risk of vascular complications is mitigated. This is why TF-TAVI comes first in my practice, although alternative approaches (TA-TAVI, subclavian, and the direct aortic approach) are key to increasing safety and efficacy in selected patients and offering the possibility of TAVI to a wider range of patients. Surgeons should adopt TF-TAVI as part of their armamentarium to offer an unbiased choice of the approach that best fits to the individual anatomical and clinical characteristics.

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“Surgeons should adopt TF-TAVI as part of their armamentarium to offer an unbiased choice of the approach that best fits to the individual anatomical and clinical characteristics.”

The results of the PARTNER trial confirm findings from several registries⁵⁻⁷: early and long term mortality risk in the TF-TAVI cohorts are promising, although survival data are strongly affected by patient selection. Vascular complications and stroke remain the most challenging adverse events in all series, although their rate will be reduced by new generation devices.

TA-TAVI: The option for the patients not suitable for the TF approach

The transapical approach (TA-TAVI) provides direct approach to the aortic valve, with no constraints in the

Table 1: Thirty days outcomes in the SOURCE registry (non matched data)

	Transfemoral (n=463), n (%)	Transapical (n=575), n (%)	Total (n=1038), n (%)
Death	29 (6.3)	59 (10.3)	88 (8.5)
Short-term procedural success*	434 (95.2)	522/563 (92.7)	956 (93.8)
SAPIEN-in-SAPIEN valve	3 (0.6)	19/575 (3.3)	22 (2.1)
Conversion to open AVR	8 (1.7)	20/575 (3.5)	28 (2.7)
AR>grade 2+	7 (1.5)	13 (2.3)	20 (1.9)
Valve embolization	0 (0)	3 (0.5)	3 (0.3)
Coronary obstruction	3 (0.7)	3 (0.5)	6 (0.6)
Transfusion	46 (9.9)	51 (8.9)	97 (9.3)
Stroke	11 (2.4)	16 (2.6)	27 (2.5)
Renal failure requiring dialysis	6 (1.3)	41 (7.1)	47 (4.3)
Permanent pacemaker	31 (6.7)	42 (7.3)	73 (7.0)
Vascular complications	106 (22.9)	27 (4.7)	133 (12.8)

Adapted from M. Thomas et al, *Circulation*. 2010;122:62-69.⁵

question

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Approach preferred to aortic valve implantation?



To defend the transapical (TA) against the transfemoral (TF) approach for transcatheter aortic valve implantation (TAVI) is perhaps more difficult than contrawise. This is because:

1. It means to argue against an increasing number of (referring) interventional cardiologists since most of TF procedures will not be performed by surgical hands and
2. To defend the obviously more invasive procedure requiring general anaesthesia and minithoracotomy. Undoubtedly the transfemoral approach became more and more attractive and less invasive, which can be explained by smaller transfemoral delivery systems (18F) and the availability of percutaneous femoral artery closure systems, but this can not be a rational for a transfemoral first strategy.

TA approach is not inferior

Until today there are significant site biases in the use of TA- vs. TF-TAVI procedures which cannot be explained on a rational clinical need basis. Published intra- and inter-study comparisons of TAVI registry data using all previous device generations frequently indicate improved clinical outcomes in TF vs. TA patients. Data from the recently published SOURCE trial for example demonstrated lower 30-day mortality rates in TF (6.3%) than in TA (10.3%) procedures. However, these differences can be easily explained by intrinsic differences in the key risk factors and higher comorbidity profiles of the TA patients and by an associated strong selection bias. The lack of a true intrinsic difference in the application approach is also supported by data from the Canadian multi-centre TAVI registry that showed comparable early and mid-term results in TA and TF patients in a balanced

casemix. In centres with a TA-first strategy clinical results had even a lower 30-day mortality rate than in TF procedures (Leipzig experience). Procedure-related adverse events like high-grad atrio-ventricular conductance blocks and paravalvular leakages vary exclusively between the different valve concepts, but not between the delivery routes. Thus, it can be summarized that there were absolutely no reliable scientific data to support the TF over the TA approach.

However, even if results are comparable in many situations, patients and referring medical doctors give mostly preference to a less invasive strategy. We have to accept that probably about 60% of all TAVI candidates can be treated by either approach. It is foreseeable that in the near future these patients will be provided predominantly by TF approach, especially when even smaller delivery sheaths and more flexible transfemoral catheter systems will be available. Thus, CV surgeons have to adapt for these new technologies and like cardiologists have to be trained in these procedures.

“We and our cardiology partners should aim to overcome personal and financial interests and to find a team decision for the best approach in every particular patient.”

But when does it favour the TA approach? There are several potential technical advantages like an easier antegrade crossing of the aortic valve, more precise valve positioning and better coaxial valve alignment by a short distance between the access point and the aortic valve, the use of larger valve sizes and a

NO

shorter interval between balloon valvuloplasty and TAVI deployment. Moreover, at present time the TA approach is the only option to treat patients with a 29mm balloon-expandable prosthesis. Due to several rationales the transapical approach seems also to be ideal for TAVI-in-surgical-valve procedures. There are also patient-related factors which might favour selection of the TA approach in a given patient. These specific risk factors can be identified by looking to the differences in baseline characteristics between TF and TA patients. Accordingly, primary TA-TAVI candidates are patients, who are more likely to have peripheral vascular disease, aortic arch pathologies, carotid artery disease, porcelain aorta, concomitant coronary artery disease, mitral valve disease, previous cardiac surgery or severe spine deformities and thus can be summarized as true non-surgical candidates. In these pa-

tients might be in the future combined with an aortic coronary artery bypass surgery or the application of left atrial appendage closure devices to treat concomitant coronary artery diseases or to reduce the lifetime risk of cardiac embolization in patients presenting persistent atrial fibrillation, respectively.

Finally, advocating the transapical approach does not only include highlighting the advantages of the transapical approach, but also addressing the limitations of the transfemoral approach. One major limitation of the TF approach is the high vascular complication rate by accessing the femoral artery. Even if TF-TAVI can be made through an 18 French sheath, major vascular complications remains significant and are associated with a significantly higher rate of 30-day mortality rate (93.5 vs. 82.2, $p < 0.01$) as shown in the combined cohort 1 and 2 of the SOURCE registry.

Limitation of the opponents approach

Approximately 20% of all TAVI candidates might favourably be treated by transfemoral approach. Considerations for a TF approach include patient risk factors like O_2 -dependence, COPD, extreme frailty or chest wall deformity/radiation, but also anatomic aspects like a small hypercontractile left ventricle, severe LV dysfunction or an unfavourable LV apex anatomy. Other potential disadvantages of the TA approach are a steeper learning curve, more frequent hypotension and the risk to entrap the mitral valve apparatus during implantation. Compared to the TF approach, the impact of adverse events during TA-TAVI implantation (apical bleeding, cardiopulmonary bypass use, resuscitation or conversion to sternotomy) on survival is much greater

than for TF procedures.

TF-TAVI offers the potential to perform the procedure under local anaesthesia. However, it is not well proven that this is more comfortable and safer for the patients, but it might be beneficial in severely impaired lung function. Beyond this, it is obvious that local anaesthesia means to abandon periprocedural transoesophageal echocardiography as an important imaging modality to control periprocedural success.

Conclusion

Clinical data less than the lower invasiveness today favour TF approach. However, based on experiences CV surgeons have from percutaneous coronary interventions it is not useful to give the indication and performance of TF procedures exclusively to interventional cardiologists. This potentially bears the risk of an uncontrolled wild TF-TAVI application, limited follow-up interests and increasing costs. Thus, we and our cardiology partners should aim to overcome personal and financial interests and to find a team decision for the best approach in every particular patient. Better understanding of TA and TF procedure outcomes has already resulted in differential patient profiling favouring one or the other approach under many circumstances. TA and TF are thus complimentary and not competitive procedures and the decision for the one or the other approach should be an individualized case-based team process in the best interest of our patients.

TA approach is of course more invasive today, but offers several benefits compared to the TF route. TA will, however, never be as ‘less invasive’ than TF. This limitation can be eliminated only when percutaneous transapical application systems will be available in the future.

Members views

Which approach do you favour and which approach do you believe results in the best outcomes? EACTS News would be delighted to publish your views.

Please send your comments to: communications@e-dendrite.com. We will publish as many of your comments as possible.

PARTNER trial

Clinical significance and implications

The Placement of Aortic Transcatheter valves (PARTNER) trial is the first randomized, controlled, clinical trial to compare transcatheter aortic valve implantation (TAVI) against standard therapy or surgery. The results from the first cohort (comparing TAVI with standard therapy in high-risk patients with severe aortic stenosis) were recently presented at the 22nd Transcatheter Cardiovascular Therapeutics (TCT) scientific symposium in October and published in the *New England Journal of Medicine* (2010; 363:1667-1668). EACTS News spoke with the trial's co-Principal Investigator Dr Martin B Leon (Center for Interventional Vascular Therapy, New York-Presbyterian Hospital/Columbia University Medical Center), who outlined the clinical significance of the results and the important implications the trial could pose for treating valvular heart disease.

Trial design

The trial has been divided into two cohorts (Cohort A and Cohort B). Uniquely, all patients were assessed by a surgeon and interventionalist using the assistance of the Society of Thoracic Surgeons (STS) risk score and best clinical judgment. The inclusion criteria included patients with severe calcified aortic stenosis defined as an echo-derived valve area of $<0.8 \text{ cm}^2$ (EOA index $<0.5 \text{ cm}^2$) and a mean gradient of $>40 \text{ mmHg}$ or jet velocity $>4.0 \text{ m/s}$; NYHA functional class II or greater; and a risk of death or serious irreversible morbidity as assessed by a cardiologist and two surgeons that must exceed 50% in the 'inoperable' cohort.

Cohort A included 700 patients and is designed to compare patient outcomes after treatment with either the Edwards SAPIEN transcatheter valve or traditional open-heart surgery. Patients in this cohort were deemed high-risk candidates for surgery and were randomized to receive either transcatheter valve replacement or surgical valve replacement.

Cohort B has recruited 358 patients with aortic stenosis who were not considered to be suitable candidates for surgery. Patients were then randomized to receive standard therapy (a combination of watchful waiting, medications, and balloon aortic valvuloplasty) or TAVI of a balloon-expandable bovine pericardial valve. Of 179 patients in the TAVI group, 173 underwent the procedure. Of 179 in the standard-care group, 84% underwent balloon valvuloplasty, 10% eventually underwent aortic valve replacement, and 2% underwent TAVI at a non-participating institution. The primary end point was the rate of death from all-cause at one year.

Outcomes

At one-year, the rate of death from any all-cause (Kaplan-Meier analysis) was 30.7% in the TAVI group, compared with 50.7% in the standard therapy group (hazard ratio with TAVI, 0.55; 95% confidence interval [CI], 0.40 to 0.74; $p<0.001$). The rate of the composite end point of death from any cause or repeat hospitaliza-

tion was 42.5% in the TAVI group, compared with 71.6% in the standard therapy group (hazard ratio, 0.46; 95% CI, 0.35 to 0.59; $p<0.001$). Among survivors at one year, the rate of cardiac symptoms (New York Heart Association class III or IV) was lower among patients who had undergone TAVI, compared with patients who had received standard therapy (25.2% vs. 58.0%, $p<0.001$).

"The outcomes from this cohort of patients from the PARTNER trial show that the difference between the two groups in all cause mortality (Kaplan-Meier analysis) was 20% at one-year. So it was a highly statistical significant study showing that

even in these 'sickest of the sick' patients that are not candidates for surgery, TAVI results in such a substantial reduction in all-cause mortality," said Leon. "Based on the reduction in mortality during the first year of the study, balloon-expandable TAVI should be the new standard of care in patients who are not suitable candidates for surgery, when you consider that you only need to treat five patients to save one life in this study."

Stroke rate

However, the positive all-cause mortality data were tempered by a higher incidence of major strokes (5.0% vs.



Martin Leon

1.1%, $p=0.06$) and major vascular complications (16.2% vs. 1.1%, $p<0.001$), at 30 days in the TAVI group vs. standard therapy group.

"If we look at both arms of the PARTNER trial, those who were inoperable and those who could have surgery, we are still operating on the upper decile of patients with aortic valve stenosis, so these patients are not patients we see every day. At 30-days there is a significant difference in major strokes rates. Interest-

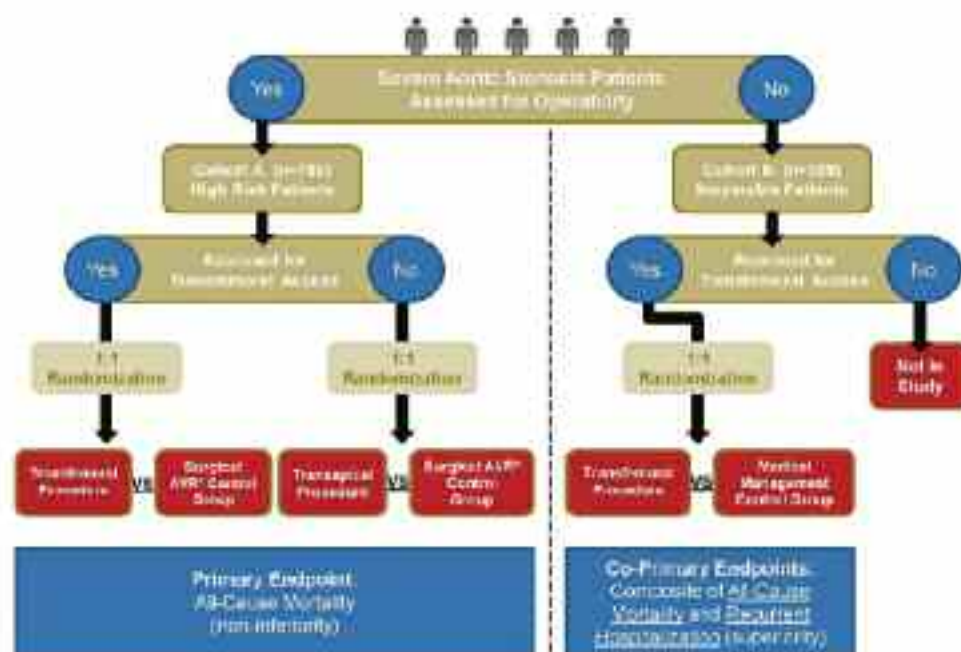
ingly, between 30-days and a year there were no further changes, with an additional 2.8% of patients in both groups suffering strokes. This suggests this is an elderly stroke-prone patient population," commented Leon.

"The stroke issue is somewhat confusing. For the major strokes that occurred in the TAVI group, some occurred early, some many days later and some were haemorrhagic and not ischaemic. The etiology of the strokes is not entirely clear, although many were clearly procedure-related, occurring in the first several days after TAVI." He added that the stroke rate could be a multi-factorial issue with many patients in atrial fibrillation and also receiving a variety of anti-platelet and anti-thrombotic medications.

Nevertheless, although Leon believes that the stroke rate is a concern but even if strokes are added to all-cause mortality in a composite analysis there is still an absolute reduction of 18.5% in a year in favour of those in the TAVI group.

In regard to vascular complications, he suggested that these could be explained by the use of first generation devices (22-24 Fr sheaths) in elderly patients (small stenosed vessels) and hoped that with improved techniques and new-generation devices the rate of vascular complications will be reduced in the future. "In older patients with vascular disease, it is difficult to utilize the larger device used in the PARTNER trial. The next-generation devices, such as the Sapien XT will reduce both the vascular and bleeding complications as they make it easier to navigate the peripheral vasculature and make the trauma of approaching and crossing the valve less, and may reduce some of the embolic complications that may have contributed to the strokes," he added.

Encouragingly, in the year after TAVI, there were no reported instances of deterioration in the functioning of the bioprosthetic valve. However, Leon cautioned that bioprosthetic valve durability must be



PARTNER Trial design diagram (AVR = Aortic valve replacement)



Edwards Sapien XT transcatheter heart valve



Edwards Sapien transcatheter heart valve

compared to surgical valve and therefore examined out to ten and 15 years.

Heart team

PARTNER utilized a 'heart team' approach, with an interventionalist and a surgeon agreeing that a patient was not eligible for surgery for that patient to be enrolled (a full 66% of patients were screened but never included in the trial as a result). According to Leon, this approach was a very important aspect of the study and helps to explain the 'pretty good' procedural results in this study considering how sick the patients were.

"We continue to believe that this is a very important aspect of the study. It was based on the SYNTAX model and built on so that at every site there had to be a co-Principal Investigator that was a surgeon and an interventionalist and the executive committee consisted of four surgeons and four interventionalists. Everything was carefully shared and discussed, and every procedure had to be attended by both a surgeon and an interventionalist," he commented.

"So we think the patient screening, procedures, complication management and post-operation therapy is greatly benefitted by having this co-ordinated 'heart team' approach. I think such an approach is going to be good for cardiovascular medicine, as it could lead to changes in how

we train young people and how we take care of patients."

Although he acknowledges the importance of these results, Leon is under no illusion that more results are needed to confirm the role of TAVI in additional patient groups. "In these patients, I believe that TAVI should become the standard of care. However, this is a vast minority of patients and I do not believe you can extrapolate these data to include other patients groups who could undergo surgery and determine that TAVI is somehow superior. That question can only be answered by future randomised clinical trials", he concluded. "At the American College of Cardiology meeting in 2011, we hope to present some results from the surgical cohort and these outcomes will guide us further as to where TAVI fits in the overall treatment strategy. This study demonstrates the power of random-

"The results do not represent a paradigm shift in treatment, but in management"

ized trials to compare treatments and provides us with the observations and data that prove invaluable in our decision-making process, and ultimately improving the outcomes for all our patients.

EACTS News also discussed the PARTNER results with two TAVI ex-



John Pepper

perts, Professor John Pepper and Mr Neil Moat (both from Royal Brompton & Harefield NHS Foundation Trust, London, UK), and asked what impact they believed the results

"The patients included in the PARTNER trial were from a very high risk population group and to that extent the results were very encouraging," commented Moat.

"However, the outcomes at one-year were still poor in the TAVI group and we really need to see the longer term survival (out to three or five years) in this cohort, as well as cost effectiveness data before we can say this is the gold standard even in this very high risk cohort."

"The PARTNER trial shows that for patients judged as 'inoperable' by experienced aortic valve surgeons, TAVI is better than a 'watch and



Neil Moat

wait' policy. The results do not represent a paradigm shift in treatment, but in management," said Pepper. "I think it is impressive that the number needed to treat in this trial to show that TAVI was better than standard treatment was only five. It is also interesting that 64% (114 patients) in the control group had a balloon valvuloplasty, which was ineffective, something that we already knew. There was a small 'cross-over' of 6.7% to conventional AVR where the mortality was high at 33% for AVR and 80% for AVR and root replacement although the numbers were low."

In regard to the higher incidence of major strokes and major vascular events, neither Moat nor Pepper were surprised stressing that this was understandable and predictable in this group of patients given the fact that they underwent a proce-

dures that is associated with specific peri-procedural risks (eg. manipulation of the ascending aorta and arch with the catheter).

The 'heart team' approach was also endorsed by Moat who added that the approach was the way that decisions should be made on individual patients (see ESC/EACTS guidelines on revascularisation), and represents a return to the principles of good medical practice.

The next-generation Edwards Sapien XT transcatheter heart valve will be utilised in the PARTNER II study and Pepper believes that this will lead to changes: "I think it is most likely that new technology will improve results, but I also believe it is likely that patient selection will also change." Moat agreed with Pepper that the improvements in technology, implantation techniques and patient selection will improve the short term outcomes.

As for the results from cohort A (comparing TAVI with conventional surgery), Moat believes the outcomes could have a greater bearing on clinical practice than the results from cohort B: "They will be very interesting and informative. I suspect that they will have greater relevance given that they will address a larger potential patient population."

"We wait to see the results of TAVI versus conventional aortic valve replacement, promised in the Spring of next year. Patients and primary care physicians may well prefer TAVI," added Pepper.

The PARTNER trial is funded by Edwards Lifesciences



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Clinical comment: David Taggart assesses the Arterial Revascularisation Trial (ART)

David Taggart

Professor of Cardiovascular Surgery University of Oxford, UK, and Principal Investigator of the Arterial Revascularisation Trial (ART).

The one-year outcome of the Arterial Revascularisation Trial (ART) was presented at the European Society of Cardiology in Stockholm and simultaneously published as a fast track article in the *European Heart Journal* (Taggart DP et al; on behalf of the ART Investigators. Randomized trial to

compare bilateral vs. single internal mammary coronary artery bypass grafting: One-year results of the Arterial Revascularisation Trial (ART). *Eur Heart J* 2010;20:2470-2481).

The Trial is a trial of 3,102 patients (making it one of the largest trials ever conducted in cardiac surgery) randomised to bilateral or single internal mammary artery (IMA) grafts. In 1986 the Cleveland Clinic established that there was a survival benefit in patients receiving at least one IMA and in 2001 our own group published a systematic review in the

Lancet suggesting there was an additional survival benefit with two IMA. Nevertheless the use of bilateral IMA grafts is uncommon being used in only around than 10% of patients in Europe and fewer than 5% in the US.

We therefore undertook a trial funded for ten-year follow-up by the Medical Research Council and the British Heart Foundation in the United Kingdom to randomise over 3,102 patients in 28 different centres in seven countries (Austria, Australia, Brazil, India, Italy, Poland, United Kingdom) with 68 participating surgeons.

The one-year outcomes showed a very low 30 day mortality of 1.2% and a one year mortality of 2.4% in both groups demonstrating the safety of contemporary CABG. There were no differences in the incidence of death, myocardial infarction, stroke or need for repeat revasculari-

sation. There was however a small increase in the risk of sternal wound reconstruction from 0.6% in the single IMA group to 1.9% in the bilateral IMA group. This translates into a number needed to harm of more than 70 patients to result in an extra sternal wound reconstruction. However we hope to identify, by multivariable regression, the factors which predispose to sternal wound reconstruction and therefore to avoid bilateral IMA in those patients.

Once again all the contributors to the ART Trial should be congratulated for their fantastic efforts in demonstrating the safety of contemporary CABG with one or two IMA. As the ART Trial is funded for ten-year follow-up we should be able to establish whether there is a survival benefit with bilateral IMA and reduction in the need for repeat interventions at one year which were all under 2%.



Members views

If you would like to comment on any of the aspects concerning training and education, or express your opinion regarding the outcomes from the ART Study, EACTS News would be delighted to publish your views.

Please send your comments to: communications@e-dendrite.com.

We will publish as many of your comments as possible.

EACTS Robotic Course in Cardio-Thoracic Surgery

Franca Melfi

University of Pisa, Italy

February 23-26, 2011

The advanced engineering technology on minimally-invasive surgery, makes it possible to overcome some technical difficulties which can occur during a 'conventional' minimally invasive surgery. Robotic-assisted surgery represents an extraordinary technological advance for a broad range of procedures traditionally requiring open surgery. By enabling surgeons to perform complex operations through small incisions, the robotic surgical system (Surgical Intuitive, Inc., Mountain View, CA) can be considered the most recent and advanced stage of this process thanks to its 3D vision and seven degrees of freedom (7DOF) of its instrumentation, to replicate the human wrist. The surgeon's hand movements are scaled and filtered to eliminate hand tremor then translated into micro-movements of the proprietary instruments. The camera used in the system provides a true stereoscopic picture (3D) transmitted to a surgeon's console. These improved ergonomic conditions and instrument mobility at distal articulations seem beneficial in thoracic procedures.

In cardiothoracic surgery there is not yet a standardized technique the surgeon can precisely follow, and even very experienced surgeons may have very limited robotic experience. To perform robotic surgery in a safe and straightforward manner, it is neces-



Robotic cardio-thoracic surgery in action



Franca Melfi

sary to standardize procedures and establish operative schemes. EACTS plays an important role by promoting the educational opportunities for the training surgeons in the field of high-technology

On February 23-26, 2011, the 2nd EACTS Robotic Course on Cardio-Thoracic Surgery will be held in Strasbourg (France). The course will cover important clinical aspects relating to the use of robotics in variety of cardiac and thoracic procedures. Surgeon faculty will demonstrate operating room configuration, system preparation, port placement, as well as pre-, intra- operative techniques using the robotic surgical system. Cadavers and large animal models will be employed.

Target Audience and Objectives

Surgeons who have access to the da Vinci system and are interested in learning robotic cardio-thoracic surgery, are highly recommended to join this course. By the end of the training programme participants should be able to:

- List the basic features and potential benefits of the robotic surgical system
- Understand the application of various instruments
- Demonstrate the techniques of cardio-thoracic suturing and knot tying using robotics
- Articulate patient selection, patient positioning, surgical techniques, indications and contraindications
- Apply the principles in order to be a safe and efficient robotic surgeon

A highly-qualified international panel of ex-

perts will take part to this course. Their presence will give precious information in terms of indications and technical surgical sequences in order to avoid an inappropriate use of this new technique. What we expected for the attendees to this Course is:

- Improvement in surgical performance.
- Reductions in operative times with increasing number of procedures while obtaining results that conform to specific standards

We are all aware of that there will be in the future a great need for highly skilled surgeons in this field. We believe that this course will give a great opportunity to train surgeons in the field of high-technology applied to surgery, which is in line with the mission of the EACTS 'to promote and foster education and research in the field of cardiothoracic surgery.'

EACTS is meeting the National Societies

During the past few years the EACTS always organized a meeting with representatives from the national societies during the EACTS Annual Meeting. However, the possibility to discuss issues in depth was limited due to time constraints during the meeting. Therefore, the EACTS has convened a meeting with the Presidents of the National Societies on

8 April 2011, Paris, France

and would like to discuss the following issues:

- Organization of post-graduate education
- Harmonization of cardio-thoracic training programs in Europe
- Functioning and representation for the UEMS
- European Board of Thoracic and Cardiovascular Surgeons
- European Databases

The National Societies have been personally invited by the Secretary General. If you do not have received an invitation please contact Rianne Kalkman: RianneK@eacts.co.uk

EACTS Events in 2011

23–26 February

**EACTS Academy:
Cardio-Thoracic Robotic
Surgery Level II**
Strasbourg, France

11–12 March 2011

**Right Ventricular Outflow
Tract Management from
Neonates to Adults: An
Interdisciplinary View**
Palma de Majorca, Spain

16–18 March

**EACTS Academy:
Open and endovascular
aortic therapy**
Windsor, UK

1–5 October 2011

**25th EACTS Annual
Meeting**
Lisbon, Portugal

For information, contact:

EACTS Executive Secretariat
3 Park Street, Windsor, Berkshire
SL4 1LU, UK
Phone: +44 1753 832166
Fax: +44 1753 620407
Email: info@eacts.co.uk
Web: www.eacts.org

Key International Events in 2011

January 31–February 02

**Society of Thoracic
Surgeons 47th Annual
Meeting**

San Diego, US

Contact The Society of Thoracic
Surgeons, 633 N. Saint
Clair Street, Suite 2320,
Chicago, IL 60611

Phone: (+1) 312 202 5800

Fax: (+1) 312 202 5801

Email: sts@sts.org

2–5 April

**60th American College of
Cardiology Annual
Scientific Session & Expo
(ACC.11)**

New Orleans, US

Contact

Conference Secretariat – ACC

Email: resource@acc.org

7–11 May

**American Association for
Thoracic Surgery (AATS)
91st Annual Meeting 2011**

Philadelphia, US

Contact: Meeting Organiser:
American Association for
Thoracic Surgery (AATS)

Phone: (+) 978 927 8330

Fax: (+) 978 524 8890

17–20 May

EuroPCR

Paris, France

Fax: +33 5 34 45 26 46

Email: europcr@europa-organisation.com

27–31 August

**European Society of
Cardiology Congress 2011**

Paris, France

Contact: Congress Secretariat

Phone: (+33) 4 9294 7600

Fax: (+33) 4 9294 8629

7–11 November

**Transcatheter
Cardiovascular
Therapeutics (TCT 2011)**

San Francisco, US

Contact Cardiovascular Research
Foundation

Phone: 646-434-4500

Email: info@crf.org

10–16 November

**American Heart
Association Scientific
Sessions (AHA 2011)**

Orlando, FL

Contact Conference Secretariat –
AHA

Email: scientificconferences@heart.org

If you would like to list your events here please
email the details to:
communications@e-dendrite.com

Competition crossword Fax back to +44 (0) 8700 560 633

Compiled by Sam Nashef, Papworth Hospital, UK. Entries must be received by 13 January 2011. The winner will be the first correct answer randomly selected by the Editor.



Your name

Your email

Cryptic clues

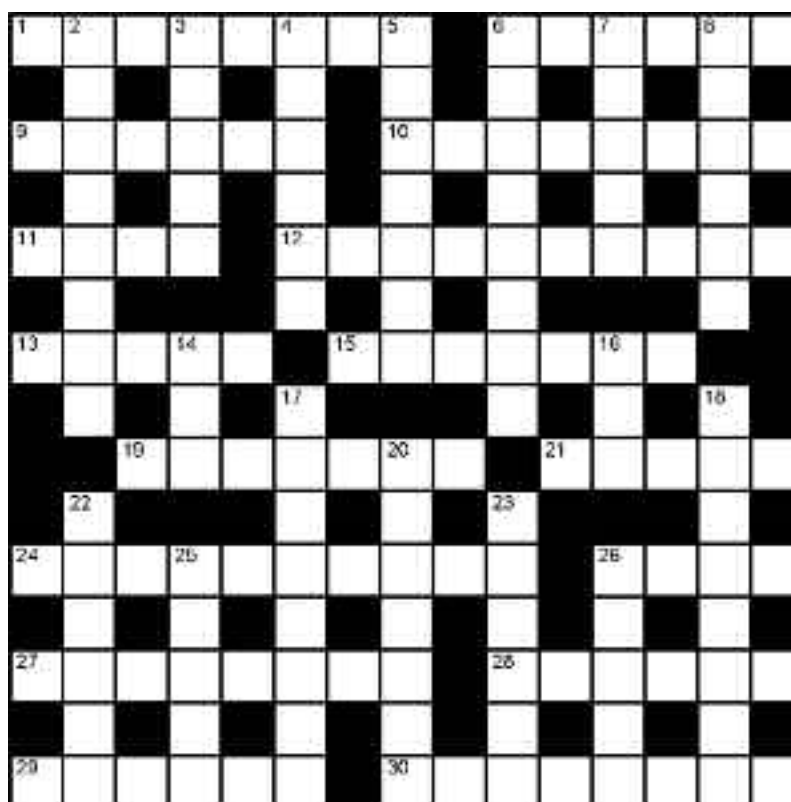
Across

- 1/6/29/30 Moving to granary by frying peas, carrots and cabbage when familiar (8,6,6,8)
9 Satire is cute, but oddly uncompromising (6)
10 Drop in and work on board for seafood (8)
11 See 26 Down
12/24 From California city, random 26down attack (10,10)
13 I forgot to mention maltreated song (5)
15 Nonconformist to defeat the devil? Sounds like it (7)
19 See 26 Down
21 Poet after Bob and before Thomas (5)
24 See 12
26 Greeting said to be lofty (4)
27 Earl of Beaconsfield shows princess round the country (8)
28 Script is essential to merit a license (6)
29 See 1

Down

- 2 Much emotion expressed when tour bus breaks down at junction (8)
3 In the red shabby gown worn by compiler (5)
4 Fall of Man-U playing in Paris: you come in (6)
5 Agreed veto? The opposite! (3,4)
6 Salad: scary item at heart of menu (1,2,5)
7 Like bathroom, but led it astray (5)
8 You've already seen this agent dine (6)
14 Field is clear, but avoid extremes (3)
16 Compiler extremely chilly indeed (3)
17 Elegant Kenneth's birds (8)
18 Swelling with pride – leader follows group (8)
20 Fixing North in trouble (7)
22 Some spent it yearning for independent existence (6)
23 Perhaps gain an indication for 1, 6ac, 29, 30 (6)
25 Large vessel in the sea, or tanker (5)
26/11/19 Listen to yours once, taking a breather with overcoat used in 1,6ac,29,30 (5-4,7)

In a cryptic crossword, the clue is in two parts. One part gives the definition of the answer, another part gives a different way of reaching the same answer. The parts of the clue are run together to further mislead the solver. For example, for the clue, "Planet's broken heart (5)" the answer would be 'Earth' ('Planet' = the definition, and "broken heart" implies an anagram is needed of "heart" = 'earth'). Try the cryptic clues first, but if these are too difficult, the non-cryptic ones will help as both sets of clues have the same answers. Please use BLOCK CAPITALS and BLACK INK and complete your personal details.



Non-cryptic clues

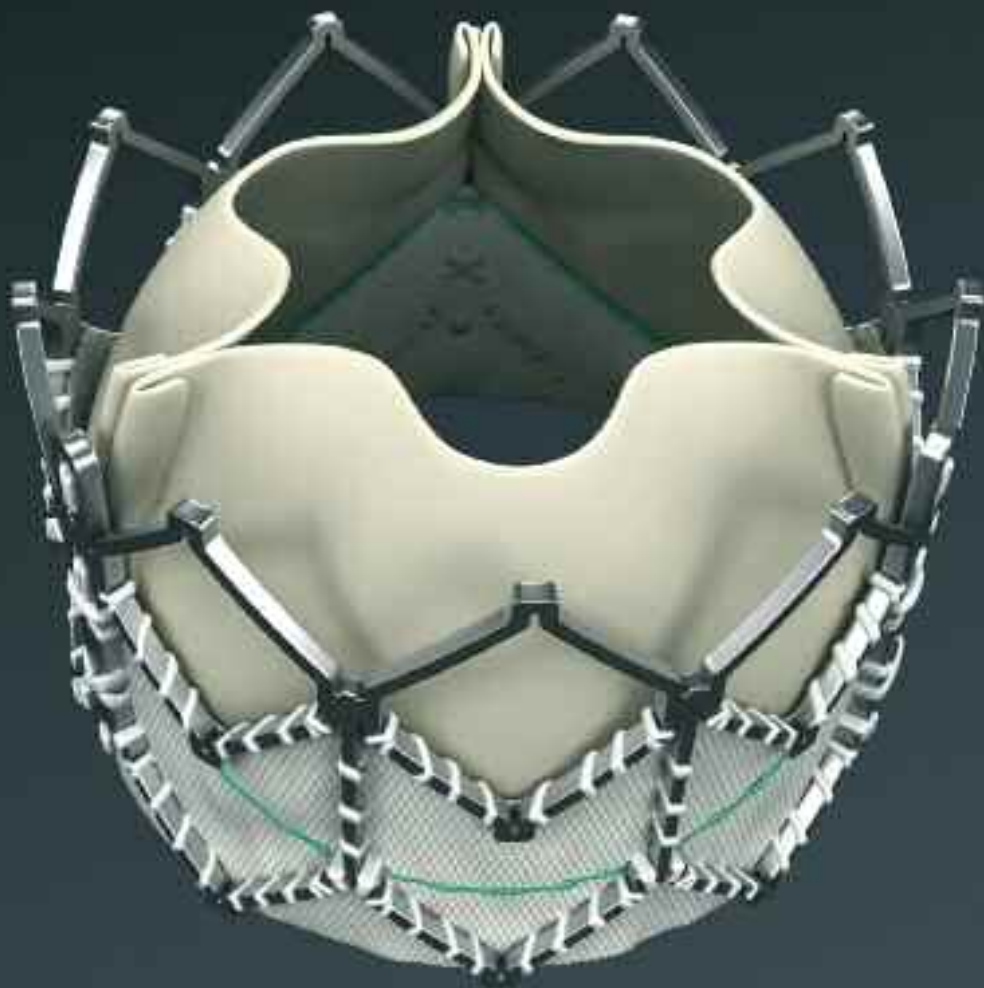
Across

- 1/6/29/30 Operation (8,6,6,8)
9 Stern (6)
10 Seafood (8)
11 See 26 Down
12/24 Heart attack (10,10)
13 Religious song (5)
15 Nonconformist (7)
19 See 26 Down
21 Folk singer (5)
24 See 12
26 Elevated (4)
27 British prime minister in 1868 and 1874 (8)
28 Script (6)
29 See 1

Down

- 2 Explosion (8)
3 In debt (5)
4 Fall (6)
5 Positive ballot result (3,4)
6 Alternative to set menu (1,2,5)
7 Like bathroom wall (5)
8 Redo (6)
14 Field (3)
16 Very cold (3)
17 Poultry (8)
18 Swelling (8)
20 Fixing (7)
22 Body (6)
23 A possible indication for 1, 6ac, 29, 30 (6)
25 Large vessel (5)
26/11/19 Kit which may be used in 1,6ac,29,30 (5-4,7)

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