IR congress news

CIRSE 2011 - Munich
Saturday, September 10, 2011

Join us for the CIRSE 2011 Opening Ceremony and Cocktail Reception!

Saturday, September 10, 16:00
Auditorium 1

CIRSE 2011 will welcome its delegates with a spectacular Opening Ceremony, taking place today at 16.00 in Auditorium 1. This annual tradition will, as always, honour some of Interventional Radiology's most distinguished figures, and will also provide top-quality entertainment to celebrate the opening of another CIRSE congress. This year, delegates will be enchanted by the majestic Ensemble Berlin. This musical gem was founded by a group of friends and colleagues from the Berlin Philharmonic Orchestra, who were looking for a more relaxed setting for their virtuoso talents. The end result is an innovative combination of classical, romantic and modern favourites, interpreted in new and captivating ways. Don't miss this wonderful opportunity!

The Opening Ceremony will be followed by a Cocktail Reception in the foyer area.
We look forward to seeing you there!

Welcome to CIRSE 2011!

Jan Peregrin
CIRSE President

Elias Brountzos
Chairman of the Scientific Committee

Thomas Helmberger *Josef Tacke*
Co-Chairmen of the CIRSE 2011 Local Host Committee

Joint ventures build community spirit, particularly if they are successful. The success of CIRSE can be traced back to the joint efforts of many different stake-holders – faculty members, congress delegates and our corporate partners – and likewise, this success helps reinforce the bonds that brought us together in the first place: a shared commitment to advancing the field of minimally invasive, image-guided therapies.

CIRSE 1988 was the last time Germany had the opportunity to host this prestigious meeting, and we are delighted to welcome delegates to the city of Munich. It is an exciting location for us: Munich is a wonderful city, and the ICM provides the perfect backdrop to our congress. But more importantly, the impressive number of colleagues attending lays the foundation for another great congress.

The CIRSE Annual Meeting reflects innovation, and our diligent programme committee has ensured that this remains an integral part of the congress, with both new topics and new formats guaranteeeing congress-goers a lively and interactive experience. We encourage you to attend the new Hot Topic Sessions on CCSVI and liver cancers, and hope you will benefit from the numerous Hands-on Workshops and Masterclasses available.

Education is central, with more than 250 hours of medical content within our extensive programme. Additionally, more than 50 of our young colleagues have signed up to sit the EBIR exam during the congress – we wish them all the best of luck!

Don't forget our CIRSE Meets… sessions, which will this year feature our host country, Germany, as well as Australia and New Zealand, our newly-joined overseas Group Members.

CIRSE 2011 is also raising the profile of IR, improving relations with patients and the public. A major PR campaign for the German media has been developed, including media workshops and press coverage, ensuring that CIRSE is not only a centre of learning, but also fosters IR as an important clinical force within radiology.

But what would CIRSE be without some socialising? Many functions have been organised, and we invite you all to attend our Opening Ceremony, to have a drink at the welcome reception, and to attend this evening's run S.M.A.R.T. and Soccer Cup, where a warm buffet will be provided for all visitors. The highlight will be the CIRSE Farewell Party – get your ticket while there's still time! Ask at the Hotels, Tours & Social Events Counter in the Entrance Hall. Don't miss your chance to see us all in traditional lederhosen, and feel free to wear your own too! See you there!

CIRSE 2011 Awards

Jim A. Reekers
CIRSE Gold Medallist

John A. Kaufman
Distinguished Fellow

Anthony F. Watkinson
Distinguished Fellow

Lindsay Machan
Distinguished Fellow

GOLD MEDAL

Jim A. Reekers

This year, CIRSE's prestigious Gold Medal will be conferred upon Prof. Jim Reekers, Professor of Radiology and Interventional Radiology at the University of Amsterdam. Prof. Reekers has long been a well-known face in IR circles, and has been a driving force in CIRSE, with his long involvement culminating in his presidency from 2007-2009.

A pioneer of subintimal angioplasty, Prof. Reekers has also developed numerous techniques, catheters and filters. But perhaps his most important contribution to IR has been his untiring efforts to establish IR as an evidence-based and clinical trial-driven discipline.

DISTINGUISHED CIRSE FELLOWSHIP

John A. Kaufman

CIRSE is honoured to welcome Dr. John Kaufman to the ranks of its distinguished fellows. Following a long professional career in Boston, Dr. Kaufman was recruited by the Dotter Interventional Institute in 2000. Dr. Kaufman has also been highly active in the SIR, and was elected President in 2008. He holds many honours and titles, and has been a driving force in IR educational reform in the USA.

Anthony F. Watkinson

Anthony Watkinson is a familiar face at CIRSE, and will this year be honoured for his contribution with distinguished fellowship. Dr. Watkinson was the first Interventional Fellow at Guy's and St. Thomas' Hospitals, London. After 8 years as Consultant Interventional Radiologist and Senior Lecturer at the Royal Free Hospital, London, Dr. Watkinson moved to Exeter in the south west of England, where he established programmes in EVAR, TIPS, RFA, TACE and treatment of AVMs.
He has been extremely active in the British Society of Interventional Radiology, serving as president from 2005 to 2007. He has also served on CIRSE's Membership and Scientific Programme Committees, and is author of a substantial body of interventional radiology works.

Lindsay Machan

Lindsay Machan has made many exceptional contributions to interventional radiology, and CIRSE is proud to honour him with distinguished fellowship.
Dr. Machan has performed multiple first-in-man procedures, including the first drug-eluting stent implantation in 1996. He is a founding member of the Canadian Interventional Radiology Association, has served as President of the Western Angiographic and Interventional Society, as well as on multiple committees for the SIR, the American Heart Association and the British Colombia Ministry of Health.

EBIR – the next generation of IRs

Robert Morgan
Chairman of the European Board of IR

A year on, and I am more convinced than ever that the European Board of Interventional Radiology is the future of our specialty.

Last year, 20 brave candidates sat the first ever EBIR exam in Valencia. In March, another batch signed up to test their expertise, and at CIRSE 2011, more than 50 of our young colleagues have begun their EBIR exams.

But what's it all about?

IR has long been a field of innovation and excellence, but our dedication to our medical work caused us to neglect our administrative duties. Without a strong group pushing for recognition of IR, our work has remained somewhat obscure, valued by those who experience it, but unknown to those who do not. Moreover, training has been a somewhat haphazard affair, an undefined add-on to a diagnostic radiology qualification.

Given the scope of and demand for interventional radiology nowadays, this is no longer good enough. In an era of cross-border cooperation, such as that we find at CIRSE, it is in all our interests to initiate a standardisation process, allowing our young trainees to train in their specialist area, regardless of geographical boundaries and local structures.

The EBIR exam aims to be that standardisation. Although being introduced on a voluntary basis, we hope that in time, the examination will become part of a standardised, dedicated training programme for IRs in Europe.

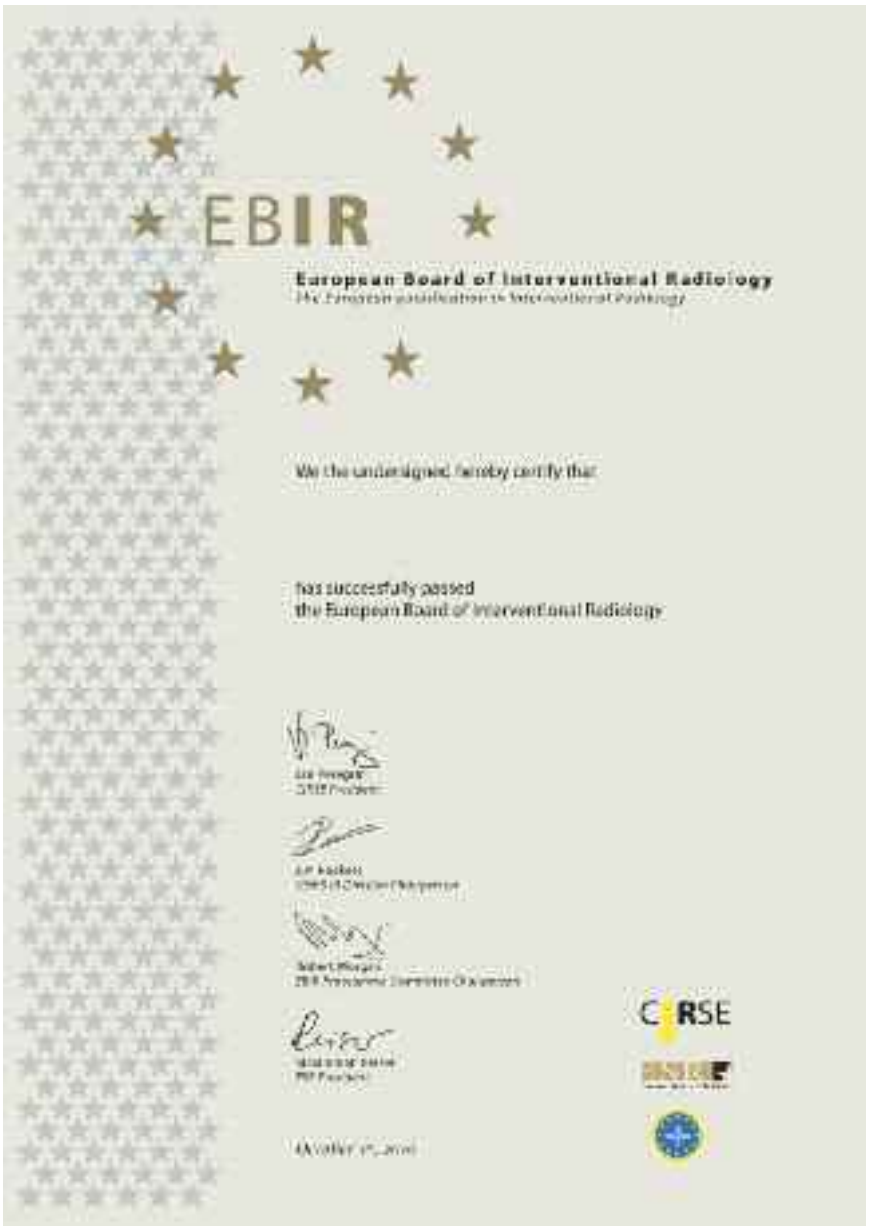
This qualification will allow colleagues and patients to recognise that IR is a distinct specialty, and one which takes its clinical responsibilities seriously. Moreover, the standardisation of training will improve patient safety across Europe, with all IRs receiving a similar training process, and allowing for better designed clinical trials, and more rigorous analysis of data.

The exam consists of a written component and two oral exams in selected areas of specialisation (vascular, non-vascular, oncology and general IR). The exams will be held throughout the congress in a dedicated examination hall in the Learning Centre Village, and candidates will be notified of their results shortly after the congress.

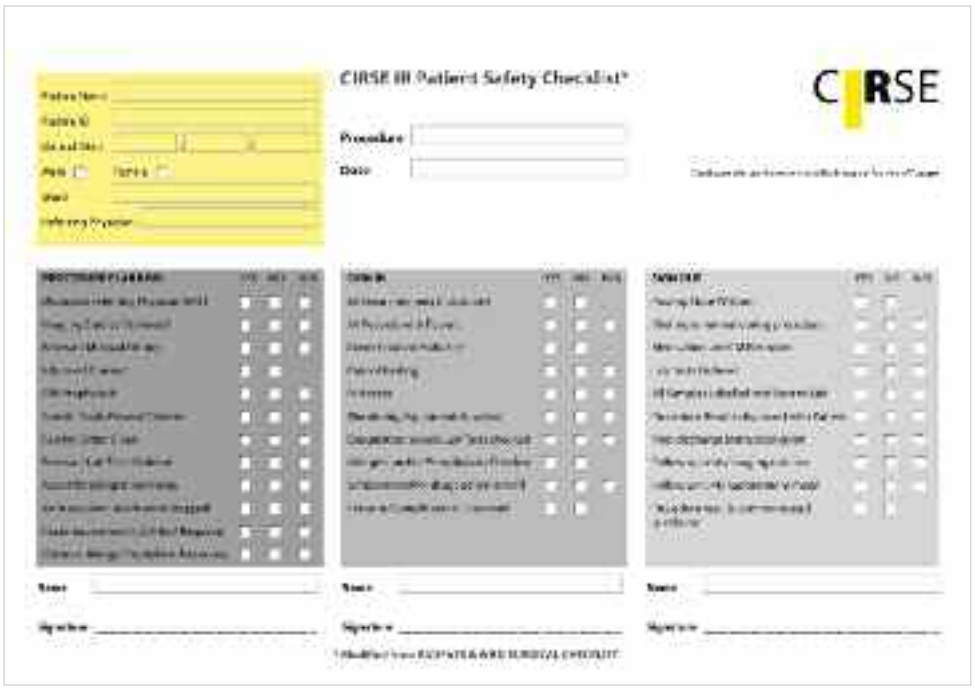
Three high-profile societies have endorsed the exam – CIRSE, the European Society of Radiology and the UEMS Interventional Radiology Division – and the exam is organised and supervised under their auspices.
We are offering the exam to all European (or resident in Europe) CIRSE members, but in order to maintain a high standard, certain criteria have been laid down. IRs with less than 7 years' experience are requested to submit a logbook of IR experience and a letter of support from their programme director; the logbook should show that the candidate has experience as first operator or first assistant in at least 150 IR procedures (with at least 25 as first operator).

Candidates who have practiced longer should provide proof of the completion date of their radiology training, and a letter of reference from a CIRSE Fellow. A CV, a completed application form and the exam fee must also be provided. Up until this summer, all CIRSE Fellows were eligible to apply for the qualification without sitting the exam.

We currently have 167 EBIR holders, and I look forward to soon announcing that we have 218. The very best of luck to the 51 candidates who are currently sitting the exam – you are the future of IR.



CIRSE IR Safety Checklist



IR, like any other medical discipline, has patient safety as its top priority, and CIRSE is keen to assist IRs in their endeavours.

A recent study shows that the WHO Surgical Checklist helps reduce mistakes and decrease mortality. As a result, CIRSE has decided that an IR Checklist, based on this and RADPASS, would be a valuable tool in promoting and supporting patient safety.

Under the guidance of Prof. Michael Lee, a working group of experienced interventionists (Fabrizio Fanelli, Klaus Hausegger, Patrick Haage and Krijn van Lieden) have drawn up the CIRSE IR Safety Checklist.

This IR checklist has already been tested in the hospitals of the working group members, and has been modified and fine-tuned to reflect their findings.

Their final recommendations will be published in CVIR, alongside a white paper describing its background and aims. It will also be made available on the CIRSE website in a modifiable format, and members are encouraged to tailor it to fit their own practice. The document is no guarantee of a smooth procedure, but clinical data suggests that it may be a valuable tool to improve practice.

CIRSE is proud to have made this important step towards reducing complications, and is keen to translate the document into various languages, to ensure that patients across Europe can benefit.

The document can be found in your CIRSE congress bag, and members are strongly encouraged to get involved in this worthy initiative.

Michael Lee, Principal author of the IR Safety Checklist.

Transarterial chemoembolisation of liver tumours using cone-beam CT

Marcus Katoh
Director, Institute for Diagnostic and Interventional Radiology
Krefeld, Germany

Don't miss it !
Image-guidance and assessment of tumour therapy
Special Session
Saturday, September 10, 11:30-12:30
Room 13a

Transarterial chemoembolisation (TACE) is a minimally invasive palliative treatment for patients with hepatocellular carcinoma (HCC) or hypervascularised liver metastases, who are not candidates for surgical resection, thermal ablation or liver transplantation [1]. With TACE, a high concentration of chemotherapeutic agents and embolic particles can be delivered into lesions, causing ischaemic cell death. To increase efficacy of TACE and to minimise injury to the surrounding liver tissue, (super-)selective administration of chemoembolic material is desired [2].

Selectivity of TACE mainly depends on vascular anatomy and on the correct identification of tumour-feeding vessels. Until now, TACE is typically guided by digital subtraction angiography (DSA), providing two dimensional (2D) projection images, which depict hepatic arteries superimposed on one another. This might lead to misinterpretation with consequent incorrect or suboptimal positioning of the catheter [3]. Correct identification of tumour-feeding vessels is more difficult in tumours that are not hypervascularised, and in liver parenchyma with inhomogeneous density.

So far, the limitations of conventional DSA has been overcome by acquisition of multiple oblique projections, which, however, lead to increased contrast medium volume and radiation dose, as well as prolonged examination time.

A novel approach for increased detection of tumour-feeding vessels is cone-beam computed tomography (CBCT) [4]. CBCT represents a reconstruction technique of a volumetric data set acquired with an angiographic imaging system in the angiography suite [5]. This system enables generation of an entire volumetric data set covering a large anatomic region after a single rotation of the C-arm and the mounted detector. Today, CBCT is typically performed using a flat-panel detector [6]. Theoretically, voxel sizes of 0.008mm^3 are achievable using state-of-the-art flat-panels [7]. However, due to blurring caused by the x-ray converter and reconstruction filter, protracted reconstruction times, patient dose considerations, and general lack of clinical necessity, spatial resolution of CBCT is set similar to those of multi-detector CT. Dedicated post-processing algorithms provide not only 2D slices but also three-dimensional (3D) reconstructions. If combined with intravascular contrast medium injection, this technique allows for generation of rotational 3D angiograms, as well as computation of vessel models such as MIP, MPR, VRT, SSD etc., which permits assessment of complex vascular anatomy [8].

Before TACE, a native CBCT scan can be substituted for a multi-slice CT in order to assess residual embolic material within the tumour from the previous study. During treatment, a single injection of contrast medium in a main or segmental hepatic artery offers the option of selective perfusion imaging (Fig. 1) and to evaluate if tumours are covered completely by local treatment and to change the catheter position if necessary [9]. Finally, CBCT allows post-interventional evaluation of the accumulation of embolic material within the tumour. Hence, CBCT has the potential to combine pre- and post-interventional imaging as well as peri-interventional navigation [10]. It has the added advantage that this technique does not require transfer of patients from one unit to another, which might reduce overall examination time [11].

Obviously CBCT has also the potential to serve as an alternative diagnostic tool for evaluation of liver lesions. The acquisition of two contrast medium phases (arterial- and portal venous-phase) has been shown to provide sufficient image quality and information to detect HCC lesions [12]. For HCC lesions, the sensitivity of CBCT seems to be much higher compared to DSA and almost equal compared to MRI.

However, there are also some limitations. The field of view is spatially limited to the dimension of the flat detector, i.e. in some cases whole coverage of the liver might be difficult depending on the size of the detector and the organ [13]. Other problems are artifacts arising from respiratory/bulk motions or high-density objects. In addition, CBCT increases scattered radiation, resulting in image quality degradation [7]. Ongoing research in this field shows that anti-scatter grids and air gaps might be sufficient to eliminate contribution from scattered radiation to the image, however, at the cost of decreased signal-to-noise (SNR) and contrast-to-noise ratio (CNR). Though the use of an anti-scatter grid is still not a topic without controversy, employment of a grid is the current standard despite the trade-off of increased radiation dose.

In conclusion, the use of CBCT during TACE provides essential information, which directly influences the procedure. CBCT allows simple and fast reconstruction of 2D CT-like images and calculation of complex 3D angiograms. These images enable assessment of arterial perfusion, as well as accumulation of embolic material, without the need to change the modality, thus increasing accuracy for identification of tumour-feeding vessels, treatment efficacy, and safety. CBCT represents a valuable adjunctive tool during TACE, which yields significant information for the interventionalist.

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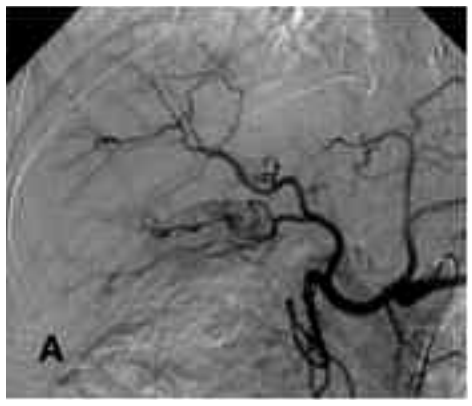


Fig. 1a: DSA of the coeliac trunk of a 57-year-old female patient with HCC. No suspicious area of hypervascularisation can be identified.

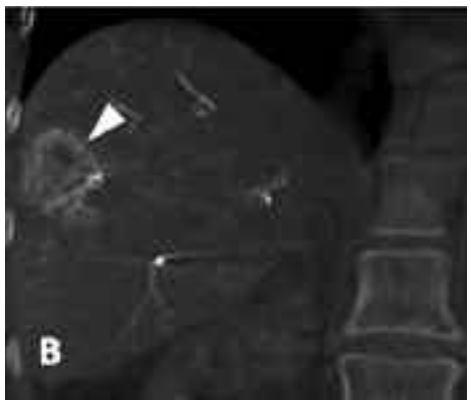


Fig. 1b: A coronal CBCT reconstruction image clearly identifies a moderately hypervascularised lesion in the right liver lobe. (Courtesy Dr. Adamus)

Advertorial

What's New at Cook Medical?

Cook Medical is back at CIRSE 2011 with a host of new medical devices to advance physicians' interventional procedures. Cook is excited to launch the only stent designed specifically to meet the challenges of iliofemoral venous stenting.

"This is a revolutionary new product designed to answer the needs of the ever-growing venous stenting community of physicians," says vice president and global leader of Cook Medical's Peripheral Intervention products division Rob Lyles. "The Zilver® Vena™ is the start of a larger venous offering from Cook along with our recanalisation sets, infusion catheters, balloons and wires coming on the market in 2011 and 2012."

As well as this exciting new venous offering, Cook has added the Micropuncture® Pedal Access Set, a new tool that may help increase the chances for limb salvage in patients with critical limb ischemia.

Additionally, the new Formula™ Vascular Balloon-Expandable Stent was developed to provide physicians with enhanced delivery options, accurate placement and one of the lowest crossing profiles for stenting of peripheral arteries.

Also available is Cook's expanded offering of the Zilver® PTX® Drug-Eluting Peripheral Stent. The device now features a smaller diameter delivery system and longer stent lengths.

Zilver PTX Drug-Eluting Peripheral Stent

The Zilver PTX Drug-Eluting Peripheral Stent is now available in a new 6 French diameter delivery system and stent lengths of up to 120 mm. The availability of the narrower delivery system and longer versions of the stent represents a landmark in the treatment of peripheral vascular disease (PVD) in the superficial femoral artery (SFA). The availability provides physicians with more choice.

Cook will also gain reimbursement approval for the Zilver PTX stent in France. The increase in reimbursement for Zilver PTX compared to bare metal stents in France is a testament to the affordability and efficacy of the device. It is welcomed by French physicians treating PVD, also known as peripheral arterial disease (PAD).

Cook Zilver PTX Drug-Eluting Peripheral Stent

Zilver Vena Venous Self-Expanding Stent

The Zilver Vena Venous Self-Expanding Stent is the only stent designed specifically to meet the challenges of iliofemoral venous stenting.

With this groundbreaking new product, Cook has managed to provide strong radial force from end to end as well as the flexibility and kink-resistance of proven Zilver technology. The Zilver Vena Stent is compatible with 7 Fr sheaths/ 9 Fr guiding catheters and is deployed via 80 and 120 cm delivery systems. Four gold markers feature on each end, and the stent is preloaded in a Flexor® Introducer.

The Zilver Vena Stent has no clinically significant stent foreshortening and is available in 14 and 16 mm diameters and 60, 100 and 140 mm lengths.

This flexible, self-expanding nitinol stent is the only product indicated to treat symptomatic iliofemoral venous outflow obstruction in the iliofemoral veins.

Cook Zilver Vena Stent

Micropuncture Pedal Access Set

Cook Medical is providing expanded access options in patients with critical limb ischema (CLI) with the first dedicated pedal artery access set. Infrapopliteal occlusions in these patients are a challenge. The failure rate when taking the traditional, antegrade approach has been reported as high as nearly 40%.[1] For such patients, amputation may be the only remaining alternative.

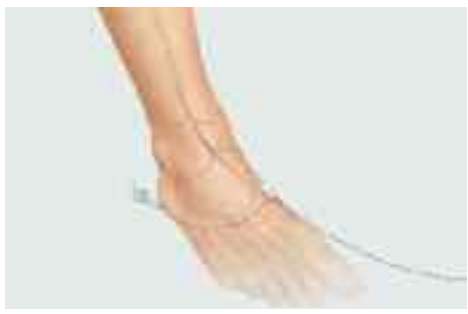
A new revascularisation technique – the retrograde approach – aims to give physicians another chance at limb salvage. In cases with complex popliteal and/or tibioperoneal occlusions in which an initial antegrade approach failed, Montero-Baker, Schmidt, et al reported an 86.3% success rate[2] with the retrograde approach.

The dedicated Micropuncture Pedal Access Set from Cook consists of a 21-gage, 4cm echogenic needle and a 7cm Micropuncture catheter engineered to increase control while gaining retrograde infrapopliteal access and also features .018" nitinol wire and hemostasis valve. The supplied Check-Flo® hemostasis valve attaches directly to the Micropuncture introducer, allowing it to be used as an interventional introducer with a 2.9 Fr inner diameter.

Complementary technologies from Cook, the Approach® CTO Microwire Guide, Approach® Hydro ST Microwire Guide and CXI™ Support Catheter, allow infrapopliteal approach completion.

Other Cook Medical Products

In addition to these new product releases, Cook Medical continues to offer innovative, time-tested devices such as the Zenith® Low Profile Endovascular Graft – the lowest profile device to treat abdominal aortic aneurysms (AAA). The device represents a breakthrough for surgeons treating patients with difficult or tortuous arterial access who might otherwise have been ineligible for EVAR. Available to medical doctors in the European Union, the Zenith AAA LP features a low-profile delivery system diameter of 16 Fr and simplified deployment for precise delivery of the device to the desired position in the patient's aorta.



Cook Micropuncture Pedal Access Stent

Cook's Zenith AAA LP device is significantly smaller than Cook's currently used EVAR delivery systems measuring 20-24 Fr. The newly engineered stent-graft is based on Cook Medical's ARC Technology™, which combines a series of barbs that engage the aortic wall to provide active fixation, radial force from self-expanding z-stents for stability and optimal graft-to-vessel apposition, and a long main body with columnar strength that mimics the aorta's natural anatomy.

The new patient group now eligible for EVAR includes many women and smaller-bodied adults whose more narrow and angulated arteries can impede the accurate position of an endovascular graft using currently available larger-diameter delivery systems. However, despite the Zenith AAA LP device's advantages, Cook will continue to offer its existing Zenith Flex AAA endograft system in order to offer physicians their choice of which EVAR system is best-suited to the individual needs of their patients.

While conventional EVAR systems require a surgical incision to access the femoral artery, for some patients, the Zenith AAA LP can be inserted into the femoral artery percutaneously in an approach where both the wire guide and delivery sheath are introduced by a needle inserted into the blood vessel through the skin. This procedure allows aortic access without the need for a surgical cut-down of the artery.

Cook Zenith AAA LP Device

1 *Söder HK, Manninen HI, Jaakkola P, et al. Prospective trial of infrapopliteal artery balloon angioplasty for critical limb ischemia: angiographic and clinical results.* J Vasc Interv Radiol. *2000;11(8):1021-1031.*

2 *Montero-Baker M, Schmidt A, Bräunlich S, et al. Retrograde approach for complex popliteal and tibioperoneal occlusions.* J Endovasc Ther. *2008;15(5):594-604.*

When the Robot takes over: Advances in Robotics in IR

Roy Santosham
Sri Ramachandra Medical College
Chennai, India

Don't miss it !
Image guidance and assessment of tumour therapy
Special Session
Saturday, September 10, 11:30-12:30
Room 13a

Background
Robots provide vital assistance to mankind, in different applications and across different fields. As a result of technological innovations, they have even pervaded the medical spectrum. In today's world, they play a key role in the field of medicine, revolutionising the way diseases are diagnosed and treated.

The most famous robot in medicine is Da Vinci, which is used in cardiac surgery. Da Vinci users have cited many advantages, such as surgeries through smaller incisions, which allow access for robots with specialised instruments. The smaller incision makes the procedure relatively painless, reduces blood loss and hastens healing. Robots also overcome human time and fatigue factors. They also augment specialised and unique surgeries that can be conducted from different and remote locations across the globe.

Robots in Interventional Radiology
Today, robots assisting interventional radiologists are commercially available across the world. They have made inroads in the field of non-vascular interventions and interventional oncology. One such commercially available robot is called **PIGA CT**, developed by an Indian company called Perfint. The PIGA CT assists in insertion of a needle, precisely targeting a point in the human body under CT-guidance without the need for CT fluoroscopy.

Of course, robots have still not replaced human intervention entirely, as tasks such as manipulation of catheters and guide-wires require a lot of skill and tactile feel!

How does PIGA CT help?
While conducting procedures under CT-guidance, it is important to locate the target (as it is the entry point on the body surface) and the needle trajectory (which is the line joining these two points) or the angle of incidence. It is relatively easy to push the needle to the target from the point of entry when the angle of incidence is vertical. This may get more difficult when the needle trajectory is tilted at an angle. The procedures may even get more tedious and demanding if the desired tilt is in the cranial or caudal direction, or a combination of both orbital and cranial/caudal direction, for example, in accessing a lesion in segment VIII of the liver that is surrounded by lung on CT images (Fig. 1a-c).

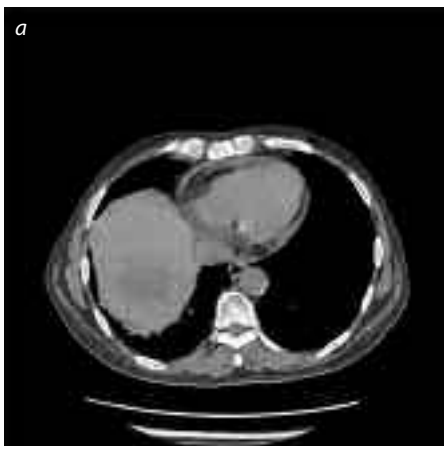
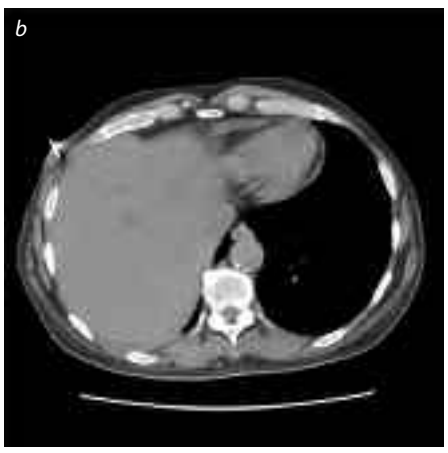


Fig. 1a: Lesion in segment VIII of liver. Procedure planned with cranial angulations to avoid puncturing the diaphragm.



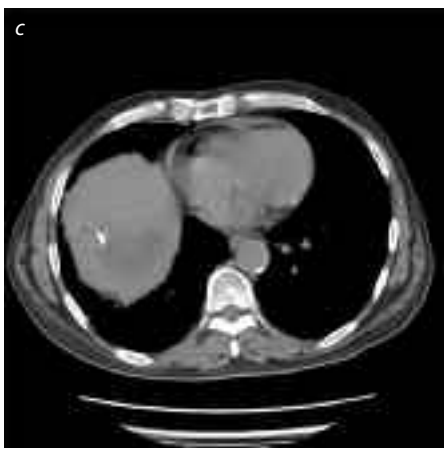


Fig. 1b-c: Biopsy needle is inserted with a combination of orbital and cranial angulations precisely into the lesion on first pass.

Piga-CT: a robotic system for the precise placement of needles during image-guided procedures.

Fig. 2: Artificial Bacterial Flagella (Credit: Institute of Robotics and Intelligent Systems/ETH Zurich)

Delivering local anaesthesia precisely in the trajectory of the needle path is a challenge that is accomplished with ease with PIGA-CT.

PIGA plays a vital part in helping accurate needle insertions with complex angulations.

Biopsy of Liver Mass
PIGA (Precise Intelligent Guiding Arm) is a software driven device mounted on the ground by the side of the CT table. CT images acquired in DICOM format are sent to PIGA console where the radiologist marks the target point and the point of entry on the image, and enters the length of the needle to be used. With the click of a button, the arm is set to move over the patient. A needle-holder at the end of the device accepts the needle, which when pushed with the hand ensures that the needle is inserted only up to the desired point.

PIGA Highlights:
- Decision on optimal points to place electrodes and antennae into large tumours for complete and quick overlapping ablations
- Accuracy of needle placement
- The radiation dose to the patient is minimised by reduction in the number of needle passes
- Drastically reduces procedural pain and discomfort
- Radiologist is not exposed to any radiation, as needle insertion is done without real-time imaging

Robots in Interventional Radiology – the Future
ETH Zurich [1] has built micro-robots that are as small as bacteria and look like spiral ribbons called "Artificial Bacterial Flagella" (ABFs - Fig. 2). They move like small corkscrews within the body and are propelled and steered by an external magnetic field. These robots have the potential to carry medication to precise targets within the body, remove plaques within vessels or even make changes to the cellular structure. The main challenge in this field, according to Bradley Nelson, Professor at the Institute of Robotics and Intelligent Systems at ETH Zurich, is the steering of ABFs to the target.

In my opinion, Interventional Radiology stands to play an important role in carrying these micro robots close to the target, with finer manipulations being done by external magnetic fields.

Robots currently play a major role in precise needle placement within the body, enhancing the precision of direct percutaneous interventional procedures. With micro-robots now being programmed for different tasks, interventional radiology is being revolutionised, with new, exciting applications on the horizon.

Reference:
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Radiation protection
Special Session
Saturday, September 10, 08:30-09:30
Room 2

Occupational Radiation Protection in Interventional Radiology: New proposed dose limits

Eliseo Vano
Professor of Medical Physics
Complutense University and
San Carlos University Hospital
Madrid, Spain

In 2010, CIRSE and SIR (Society of Interventional Radiology of North America) published a Joint Guideline on Occupational Radiation Protection in Interventional Radiology [1]. The benefits of interventional radiology to patients are extensive and beyond dispute, but many of the procedures used are also prone to produce patient radiation injuries, and occupational doses to interventional radiologists can be high enough to cause concern. The radiation dose received by interventional radiologists can vary by more than an order of magnitude for similar procedures and for similar patient doses.

There has been particular concern recently about occupational dose to the lens of the eye in interventionalists [2-4]. During two cardiology congresses held in 2008 and 2009 in Bogota and Montevideo, a voluntary evaluation of lens opacities was offered to the attendants [3]. Out of the 116 individuals screened, 38% of the interventional cardiologists and 21% of the nurses suffered from posterior subcapsular opacities that, although not exclusively due to radiation exposure, were consistent with and characteristic of such injury. Most of these professionals had worked several years without eye protection. Only 12% of the members of the control group non-exposed to radiation suffered from such opacities. A similar evaluation carried out in Malaysia (2009) and also promoted by the International Atomic Energy Agency (IAEA) showed lens opacities for 52% of the interventional cardiologists and for 45% of the nurses [4].

In April 2011, the International Commission on Radiological Protection (ICRP) proposed to reduce the current annual dose limit for the lens of workers from 150 to 20 mSv [5].

Occupational RP is especially important for image-guided medical procedures. It requires appropriate education and training for the interventional radiologist, as well as appropriate protection tools and equipment. Occupational RP is essential to all individuals working in the interventional fluoroscopy suite, including anaesthesiologists.

Measurement of Occupational Exposure
Dose limits to workers are expressed by the terms 'effective doses' for whole-body exposure and 'equivalent doses' when exposure only concerns part of the body. Both doses are measured in Sieverts (Sv) and cannot be measured directly. They must be calculated from other, simpler quantities that can be evaluated with personal dosimeters. A single under-lead dosimeter does not provide information about eye dose.

Personal dosimetry results are sometimes inaccurate because of mistakes: individuals may wear the dosimeter inappropriately or in the wrong location on the body and leave the dosimeter in a radiation environment. They may also forget to wear or purposely not wear their dosimeter. Such actions result in an incorrect value for occupational doses and make it impossible to determine the user's true occupational risk.

The ICRP recommends that interventional radiology departments include the wearing two dosimeters in their policy: one under the apron, and one at collar level above the lead apron [6]. Hand doses may also be monitored, using an additional dosimeter. For pregnant workers, fetal dose is usually estimated using a dosimeter placed on the mother's abdomen, under her radiation protective garments.

Dose Limits
In Europe, the limit for effective dose is 20 mSv per year, averaged over defined periods of 5 years. During pregnancy, the dose to the embryo/fetus should not exceed 1 mSv during the pregnancy. The current limit of radiation dose to the lens for workers under the European Directive [7] is 150 mSv/y, but as said before, the ICRP has recently advised to reduce this value to 20 mSv/y [5] and the Group of Experts of the Art. 31 of the Euratom treaty followed this recommendation in June 2011 and proposed to include this new limit into the coming European Basic Safety Standards. The annual limit for the hands and feet of the workers is 500 mSv.

The World Health Organization (WHO) recommends investigation when monthly exposure reaches 0.5 mSv for effective dose, 5 mSv for dose to the lens of the eye, or 15 mSv to the hands or extremities [8]. When changes to work practices are implemented, it can be helpful for the individual to wear a real-time dosimeter to provide frequent feedback of radiation dose levels. New electronic personal dosimeters with real-time displays in the interventional suites have recently been made available [9] (Fig. 1-3).

Radiation protection tools
Radiation exposure in the workplace mandates the use of protective tools in order to reduce occupational radiation dose to an acceptable level. There are three types of shielding: architectural shielding, equipment mounted shields, and personal protective devices. Equipment-mounted shielding includes protective drapes suspended from the table and from the ceiling. Properly placed shields have been shown to dramatically reduce operator eye dose. Lens injuries have been reported in both operators and staff when systems that lack ceiling-suspended shields are used for complex interventional procedures [3-4]. Personal protective devices include aprons, thyroid shields, eyewear, and gloves. The vest/skirt configuration is preferred by many operators, in order to reduce the risk of musculoskeletal/back injury. Transmission of 70-100 kVp x-rays through 0.5mm lead is approximately 0.5-5%. Substantial operator eye doses can be reached in unfavourable circumstances (large patient, high-dose fluoroscopy/fluorography, gantry angulation).

Practical advice to reduce the occupational exposure
Decreasing patient dose will result in a proportional decrease in scatter dose to the operator. Therefore, techniques that reduce patient dose will generally also reduce occupational dose. Some of the key advice to reduce occupational doses: Minimise fluoroscopy time; review the last-image hold for study; use fluoroscopy loop recording to review dynamic processes; use the virtual collimation feature; minimise the number of fluorographic images; use a stored fluoroscopy loop instead of a fluorographic acquisition if the image quality is adequate to document the findings; use available patient dose reduction technologies (low fluoroscopy dose-rate settings, low frame-rate pulsed fluoroscopy, spectral beam filtration, etc.); use of good imaging-chain geometry; position the patient support so that the patient is as far as possible from the x-ray tube; place the image receptor as close as possible to the patient; position yourself in a low-scatter area; use protective shielding; adjust collimator blades tightly to the area of interest; use all available information to plan the interventional procedure; use power injectors for contrast material injections when feasible; step out of the procedure room during fluorographic acquisitions (digital subtraction angiography); and obtain appropriate training in RP.

Management responsibilities
Management should provide an appropriate level of resources, such as staff, facilities, and equipment, to ensure that radiation dose is adequately controlled. Facilities and equipment include, but are not limited to, shielding, radiation monitoring instruments, and protective clothing. Quality assurance is an essential component of any monitoring programme. Each department should analyse occupational doses and investigate high doses and outliers.

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Fig. 1: Real-time occupational dose screen (arrow in the figure) in an interventional cardiology laboratory.

Fig. 2: Screen with the information on the occupational dose rates that can be seen during the procedures (colour changes when scatter dose rate increases).

Fig. 3: (a) Reference dosimeter attached to the C-arm to (b) measure the level of scattered dose without protection and dosimeter as used for the staff.

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TASC C and D lesions: Endovascular first!

Thomas Jahnke
Friedrich-Ebert-Krankenhaus
Neumünster, Germany

Don't miss it !
Aorto-iliac disease
Special Session
Saturday, September 10, 08:30-09:30
Room 14c

Introduction
The TASC-II document categorises peripheral vascular lesions according to complexity, and defines anatomic indications to recommend a preference for percutaneous or surgical treatment. Briefly, for TASC A and B lesions endovascular therapy is recommended, while for TASC C and D lesions surgery is regarded as first line treatment [1]. However, because the document is based on older clinical data, and does not incorporate recent advances in recanalisation techniques and balloon/stent technology, these recommendations seem outdated today. Although TASC type D lesions may have lower primary and assisted-primary patency rates, high secondary patency rates are comparable with other TASC scores. In addition, recent clinical data provide evidence to support endovascular therapy as primary management for all peripheral vascular lesions, regardless of the TASC score. A newly revised contemporary consensus, the TASC-IIb document, is on the way, but has not yet been endorsed by all societies. It will include important clinical considerations on decision-making, such as the patient's anatomy, clinical presentation, physiology, and goals of treatment. In the updated version, an "endovascular first" strategy will be recommended for the majority of patients, leaving surgical revascularisation for complex anatomy or following unsatisfactory endovascular results. This article gives a literature update for endovascular treatment of advanced peripheral vascular disease in the aortoiliac and the femoropopliteal region.

Aortoiliac TASC C and D Lesions
While focal disease in the common and external iliac artery responds well to balloon angioplasty alone, results for treatment of long stenoses, tandem lesions or occlusions have been less encouraging [2-5]. Traditionally, long segmental disease, chronic total occlusions and/or failure of angioplasty in the iliac arteries were considered as primary indications for stent placement. In many institutions today, however, the threshold for stents is rather low, even for shorter lesions. Clinical data seem to support this, because stenting improves technical results without increasing the complication rates. Bosch et al. reported a 4-year success rate for iliac angioplasty of 44-65%, increasing to 53-77%, after stent placement [6].

While many of the available older studies did not stratify results according to TASC-II lesion severity, early reports have indicated that extensive iliac disease can be treated effectively by endovascular means. Newer clinical data provide more evidence: Sixt et al. conducted a retrospective analysis of 375 symptomatic patients who underwent 438 interventions for aortoiliac arterial obstructions. Lesions were stratified according to the TASC II classification. Acute treatment success was 100%, 96%, 93% and 100% for TASC A, B, C and D lesions, respectively. The primary 1-year patency rate was similar for all TASC classifications. The 5-year event-free survival (70%) was not significantly better in the TASC A/B cohort compared to the C/D cohort (57%, p=0.124). Clinical outcome improved significantly in all TASC subgroups and was maintained up to 1 year. Stenting was an independent predictor for lower restenosis rates (p=0.008) [7].

In another study with 436 patients, Koizumi et al. found differences in the initial success rates for Type B and Type D lesions when compared to endovascular treatment of Type A lesions (P<0.05). Patency rates at 3, 5 and 10 years were significantly lower for advanced disease (Type C/D lesions) when patients were treated by angioplasty alone. However, patency after stenting did not differ significantly between Type C/D and A/B [8]. In a retrospective study by Ichihashi and colleagues, long-term outcome of primary stent placement for TASC-II C/D iliac disease was compared to TASC-II A/B lesions. Technical success was 99% in both groups. Although procedure time was significantly longer and complication rates were higher in TASC-II C/D disease compared to TASC-II A/B, there were no statistically significant differences in cumulative primary patency rates at 1, 3, 5 and 10 years, with 90%, 88%, 83% and 71% in TASC-II C/D and 95%, 91%, 88% and 83% in TASC-II A/B, respectively [9].

Recently, a meta-analysis of studies on endovascular treatment of TASC-II C and D aortoiliac lesions was undertaken to assess potential differences in outcomes between patients with varying types of aorto-iliac lesions, and between primary or selective stenting. Sixteen articles consisting of 958 patients were enrolled. Subgroup analyses demonstrated a technical success rate of 93.7%, and a 12-month primary patency rate of 89.6% for TASC C lesions. For TASC D lesions, the rates were 90.1% and 87.3%, respectively. For primary stenting technical success and 12-month primary patency were 94.2% and 92.1%, respectively. With selective stenting, results were 88.0% and 82.9%. In the long-term, primary patency rates for patients after direct stenting were significantly better than those with selective stenting. The study confirms that early and midterm outcomes of endovascular treatment for TASC C and D aortoiliac lesions are acceptable, with a better patency for primary than selective stenting [10].

Femoropopliteal TASC C and D Lesions
Advances in technology and practice have already led to increased endovascular management of all TASC-graded SFA lesions. Although TASC type D lesions can have lower primary patency rates, high secondary patency rates – comparable with other TASC scores – are achieved with effective prevention of limb loss. Newer clinical data now provide evidence to support endovascular therapy as primary management for all femoropopliteal lesions, regardless of the TASC score. Han et al. retrospectively evaluated 499 femoropopliteal lesions treated in 427 patients. Primary patency rates at 24 months were 77.7% for TASC type A and B lesions, 76.0% for TASC type C lesions, and 61.2% for TASC type D lesions. Secondary patency rates were 86.7% for TASC type A and B, 85.0% for TASC type C and 78.2% for TASC type D lesions. Although primary patency was worse in TASC type D lesions, there was no statistically significant difference in secondary patency between TASC type A/B and TASC type D lesions. The TASC score was not a significant predictor of post-operative complication rates, and the 24-month limb salvage rate in patients with TASC type D lesions presenting with critical limb ischaemia was high, at 71.9% [11].

When compared to historical, previously published series, endovascular interventions for TASC C and D lesions are associated with restenosis/occlusion rates that are at least as good as those of open femoropopliteal bypass surgery. Self-expanding Nitinol stents produce acceptable outcomes for treatment of SFA disease and provide good long-term primary and assisted-primary patency. In a study by Dosluoglu et al., percutaneous balloon angioplasty and stenting was compared to above-knee PTFE femoropopliteal bypass for TASC-II C and D lesions. It was found that for TASC-II C lesions midterm patency rates were higher after endovascular treatment, while for TASC-II type D lesions patency rates were better after above-knee PTFE femoropopliteal bypass. The authors recommend a change in the guidelines to treat SFA TASC-II C lesions by PTA rather than PTFE bypass. For TASC-II D lesions, endovascular treatment is to be considered for high-risk patients who cannot tolerate a bypass procedure with PTFE [12].

A study by Rabellino and colleagues recommends endovascular treatment as first choice in femoropopliteal TASC II D lesions. They retrospectively analysed results of endovascular treatment for SFA TASC II C and D disease. 234 limbs in 190 patients were treated with PTA, fibrinolysis and PTA, subintimal recanalisation and PTA, and finally stent-graft. Half of the patients had critical limb ischaemia; the other half were claudicants. Technical success was achieved in 97% of cases. During a mean follow-up of 13 months, 72% of patients with claudication remained asymptomatic vs. 29.8% in the CLI group. Symptomatic with clinical improvement was noted in 22% of claudicants vs. 33.7% of patients with CLI, and major amputation occurred in 3% of patients with claudication vs. 23.3% in CLI. The authors concluded that claudicating patients with femoropopliteal TASC II C and D lesions would benefit from the endovascular treatment. Although CLI patients had a worse outcome, endovascular treatment could delay amputation, and preserve the native vessel without impeding surgical bypass if needed [13].

Modern stent technology, with new flexible and long stents available, seems to play an important role in the shift towards endovascular treatment of higher TASC scores. Long stents have fewer overlap zones, fewer fractures and show better results. First generation stents are relatively short and stent overlap is often required to cover total lesion length, resulting in increased stiffness and fracture risk at the region of stent overlap. The latest generation stents are up to 20cm in length, thus fracture risk is decreased. In a recent study by Bosiers and colleagues, it was shown that stenting of TASC C and D with long stents is feasible with acceptable results. 100 patients with TASC C and D femoropopliteal lesions were treated with at least one 200mm-long Protégé EverFlex stent. Primary study endpoint was primary patency at 12 months and lack of target lesion revascularisation (TLR) ≤12 months. Average lesion length was 242mm. 158 Protégé EverFlex stents were used to treat 100 lesions. Kaplan-Meier estimation reported a 12-month freedom from target lesion revascularization of 68.2%, and a primary patency rate of 64.8%. These results show an acceptable primary patency rate after 1 year in a patient cohort with TASC C and D femoropopliteal lesions [14].

While for shorter SFA lesions, stenting has no advantages over plain balloon angioplasty, recent studies showed that for TASC C and D lesions, primary stenting is superior compared to POBA: In the study by Nguyen and colleagues, long-term primary patency of POBA versus stenting for TASC II A & B lesions was not different, while primary patency at 5 years was significantly higher after stenting of TASC II C and D lesions (34% vs. 12%; P < .05). Stenting resulted in equivalent long-term outcomes compared to POBA when stratified by indications. However, stenting yielded statistically better primary patency in patients with TASC II C & D lesions [15].

A technique that has evolved into an important revascularisation procedure for complex lower extremity lesions is subintimal angioplasty (SIA). Although patency rates are lower than those for autogenous bypass, limb salvage rates are comparable. In a retrospective study by Sidhu and colleagues, it was shown that subintimal angioplasty (SA) for treatment of TASC C/D lesions of the SFA is a viable alternative to bypass, especially in high-risk patients. Technical success in 120 patients was high (91%). Primary patency at 6 and 12 months was 90% and 73%. Secondary patency at 6 and 12 months was 94% and 85%. One-year amputation-free survival was 90%. One-year limb salvage was 98% [16].

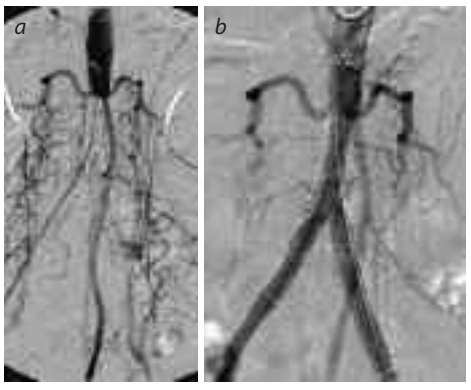

Fig. 1a and b: Aorto-iliac TASC D lesion with occlusion of the distal aorta and both common iliac arteries. Retrograde recanalisation from both groins with kissing stent implantation shows an excellent result.

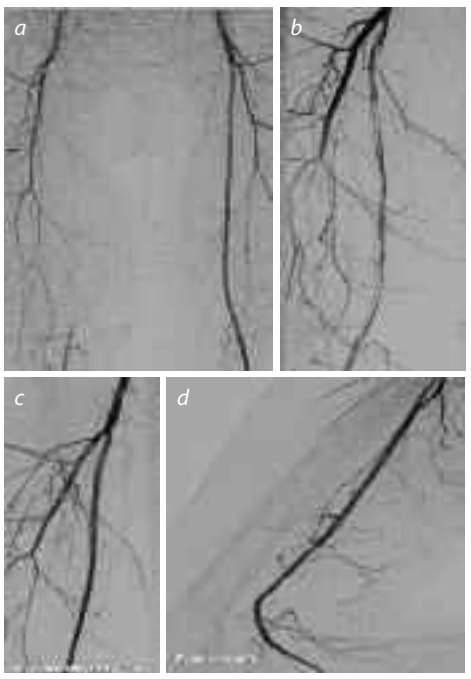

Fig. 2a-d: Angiogram in Fig. 2a shows a flush occlusion of the right SFA (TASC D) in a patient with severe lifestyle limiting claudication. The SFA was recanalised subintimally and predilated with a long balloon (Fig. 2b). An "endobypass" with two Viabahn stent grafts was created (Fig. 2c and d). After a follow-up of 13 months, no restenosis has developed.

The combination of subintimal angioplasty with stent grafts, a technique also termed as "endobypass", may be another development with the potential to expand indications for SFA treatment. In a small study by Schneider and colleagues, the concept of "Viabahn stent-graft-assisted subintimal recanalisation" (VASIR) was evaluated for TASC C and D disease of the SFA. Overall, 28 VASIR procedures for severe SFA disease were reviewed. Viabahn stent-graft-assisted subintimal recanalisation was technically successful in all patients. During a median follow-up of 20 months there were 3 perioperative (<30 days) and 7 later failures, including revision prior to any thrombosis. Estimated 1-year primary and secondary patency were 70% and 73%, respectively. Failure was not significantly associated with indications, comorbidities, or run-off status. The authors conclude that despite significant early failures, VASIR is an acceptable alternative to vein bypass in selected patients with severe SFA disease [17].

While for patients with claudication, subintimal recanalisation of TASC D lesions remains a matter of debate, SIA is poised to bring about a paradigm shift in the management of CLI. In a 5-year observational parallel group study, Sultan et al. compared the effectiveness of subintimal angioplasty (SIA) to bypass grafting (BG) for treatment of TASC II type C/D lesions in the lower limb arteries. All patients had critical limb

continued on page 11 >>

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TACE and the evolving treatment paradigm in the management of intermediate HCC

Saturday 10 September, 13.00–14.00
ICM - International Congress Center Munich
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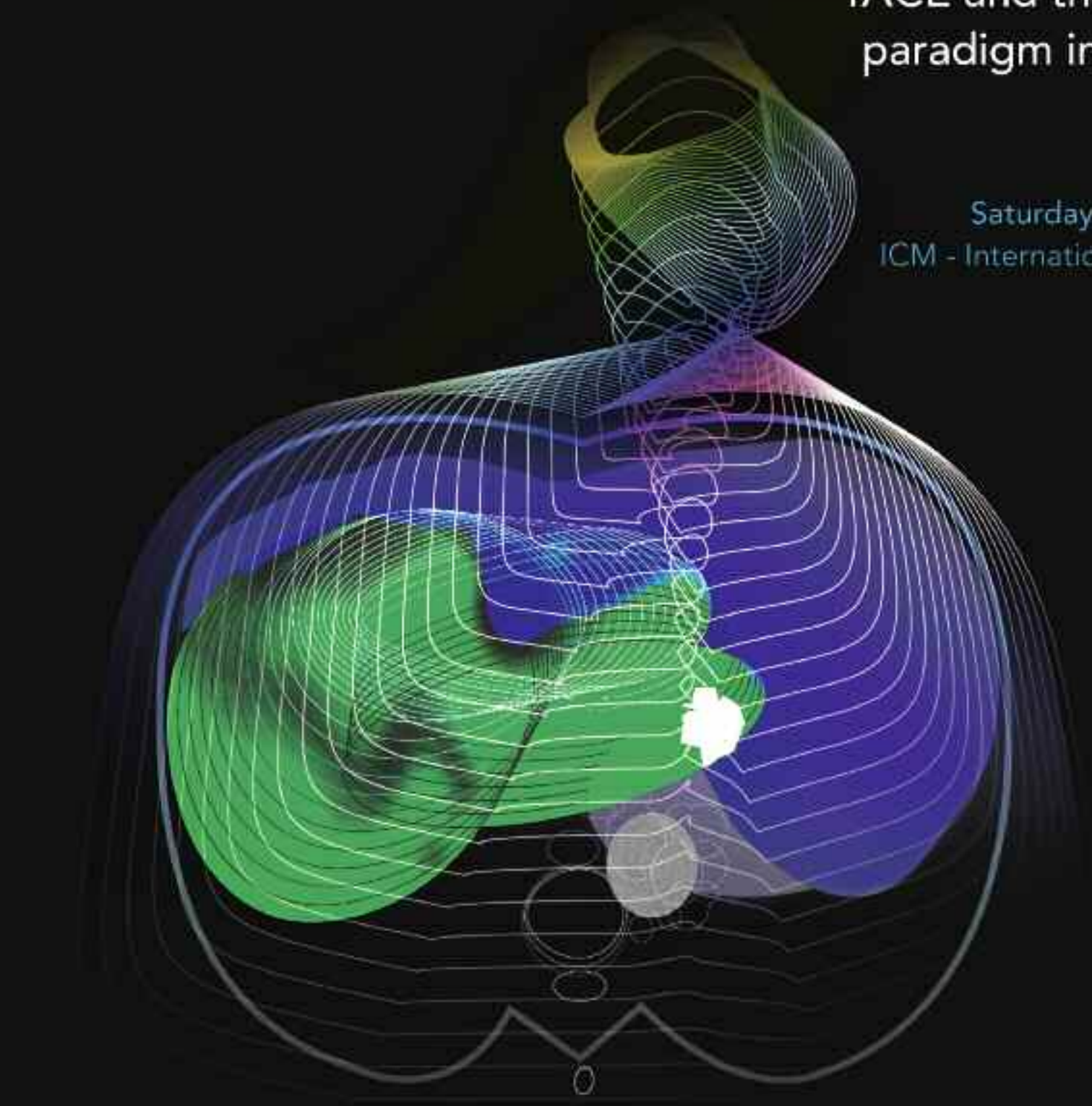

PROGRAM

13.00–13.05 **Welcome**
Chair: Philippe Pereira *SLK-Kliniken, Heilbronn, Germany*

13.05–13.20 **Current practice and technical evolution of TACE in the treatment of intermediate HCC**
Thierry de Baere *Gustave Roussy, Villejuif, France*

13.20–13.35 **Potential rationale for systemic therapy with antiangiogenic properties in intermediate HCC**
Riccardo Lencioni *Pisa University School of Medicine, Pisa, Italy*

13.35–13.50 **Advances in the treatment of intermediate HCC: systemic therapy with antiangiogenic properties used concomitantly with TACE**
Jean-Francois H. Geschwind *Johns Hopkins University School of Medicine, Baltimore, MD, USA*

13.50–14.00 **Panel discussion**
Chair and Faculty

14.00 **Concluding remarks**
Chair: Philippe Pereira *SLK-Kliniken, Heilbronn, Germany*

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Room 14b

EVAR: Proof of a standard

Johannes Lammer
Allgemeines Krankenhaus Wien (AKH)
Vienna, Austria

Endovascular aneurysm repair (EVAR) was pioneered by Volodos and Parodi 20 years ago. In various randomised controlled trials (RCT), EVAR of abdominal aortic aneurysms (AAA) has been compared with open surgical repair (OSR). All RCTs demonstrated a significant reduction of the 30-day mortality rate after EVAR in comparison to OSR.

In the EVAR 1 trial, 1252 patients with abdominal aortic aneurysms (≥5.5cm in diameter) were randomly assigned to undergo either EVAR or OSR. Patients were followed for rates of death, graft-related complications, reinterventions, and resource use. The mean follow-up time was 6 years. The mean age of the patients was 74 years and the mean diameter of the aneurysm was 6.4cm. About 42% of the patients had a history of cardiac disease. The 30-day operative mortality rate was 1.8% in the EVAR group and 4.3% in the OSR group (adjusted odds ratio for endovascular repair as compared with open repair, 0.39; 95% confidence interval [CI], 0.18 to 0.87; P=0.02) [1].

The total number of patients who died during hospitalisation for aneurysm repair was 14 of 614 patients (2.3%) in the EVAR group, and 36 of 602 patients (6.0%) in the OSR group (adjusted odds ratio, 0.39; 95% CI, 0.20 to 0.76; P=0.006) [2]. At the end of follow-up, 42% of the patients were dead in both groups. Aneurysm-related death was observed in 5.7% vs. 6.3% in the EVAR vs. OSR groups, respectively. Graft-related complications were observed in 282/626 (12.6%) patients in the EVAR group and 78/626 patients (2.5%) in the OSR group. However, endoleaks were counted as a complication in the EVAR group. Any other complication such as wound complications (delayed healing, infection, seroma, hernia) were not reported in the OSR group [2].

In the DREAM trial, 178 patients were randomly assigned to undergo OSR and 173 to undergo EVAR. The mean age of the patients was 70 years; 44% had concomitant cardiac disease [3]. The median follow-up was 6.4 years. The 30-day mortality rate was 1.2% versus 4.6% in the EVAR versus OSR group, respectively. Severe complications were observed in 4.7% versus 9.8% the EVAR versus OSR group, respectively. Six years after randomisation, the cumulative survival rates were 69.9% for OSR and 68.9% for EVAR. The cumulative rates of freedom from secondary interventions were 81.9% for OSR and 70.4% for EVAR (difference, 11.5 percentage points; 95% CI, 2.0 to 21.0; P=0.03). After OSR, the most frequent reintervention was correction of an abdominal incisional hernia, whereas EVAR reinterventions were most often performed because of an endoleak and endograft migration [4].

During long-term follow-up (up to 8 years), the aneurysm-related survival and the overall survival were the same for EVAR and OSR, as demonstrated by the EVAR-1 and DREAM trial. However, secondary interventions were significantly more common after EVAR vs. OSR. This was mainly due to the observation of type 2 endoleaks with retrograde reperfusion of the aneurysm sac through lumbar arteries and the inferior mesenteric artery or due to device failures of first and second generation devices. Current stentgraft devices have addressed the problem of migration and disconnections causing secondary type I and type III endoleaks. The risk for rupture in patients with type II endoleaks has shown to be low in several observational studies over a period of 10 years.

In a third randomised, multicentre clinical trial (OVER), 881 US veterans with abdominal aortic aneurysms were treated by either EVAR or OSR. Mean follow-up was 1.8 years. The mean age was 70 years, the mean aneurysm diameter was 5.7cm. Perioperative mortality (30 days or inpatient) was lower for EVAR vs. OSR (0.5% vs 3.0%; P=.004)[5]. There were no differences between the 2 groups in major morbidity, procedure failure, secondary therapeutic procedures, aneurysm-related hospitalisations, health-related quality of life, or erectile function. There was no significant difference in mortality at 2 years (7.0% vs 9.8%, P=0.13). The aneurysm-related mortality rate was 1.4% in the EVAR group and 3.0% in the OSR group. Post-repair aneurysm-related interventions were observed in 108 EVAR patients and 86 OSR patients. The 61 secondary therapeutic procedures in the EVAR group included 42 endovascular procedures, 3 explantations of the graft with conversion to open repair, 9 other arterial procedures with an open component, 5 groin wound procedures, and 2 amputations (both legs of 1 patient). The 55 secondary therapeutic procedures in the OSR group included 24 incisional hernia repairs, 7 aortic graft procedures, 4 procedures for wound complications, 4 amputations (1 toe, 1 leg, and below and above knee on same leg), 4 laparotomies for bowel obstruction, 2 laparotomies for haematoma, 2 procedures to relieve claudication, and 8 miscellaneous minor procedures. Incisional hernia was reported in 30 patients who had open repair, resulting in secondary therapeutic procedures in 21 patients (4.9%), all of whom had undergone an anterior surgical approach in the original open repair [5]. In the EVAR group, there were 134 endoleaks in 110 patients (25%), resulting in 21 secondary therapeutic procedures in 18 patients (4.1%) [5].

In a large cohort study of 22,830 US Medicare patients, the perioperative mortality rate was 1.2% vs. 4.8% for EVAR vs. OSR, respectively. The CESAR trial compared surveillance versus EVAR for small AAAs (less than 5.5cm in diameter) in a RCT. There was no significant difference between the 5-year mortality rate in both groups. In the surveillance group, the probability of delayed repair was 84.5% at 54 months. However, patients with small AAA under surveillance compared with early EVAR had significant impaired functional health 6 months after assignment.

However, it has recently been shown in a retrospective analysis of 10,228 patients that the anatomic instructions for use of all devices have been followed in less than 50% of cases and that these patients had a high rate of sack growth within 5 years of follow-up.

In conclusion, EVAR can be seen as a standard of care for those patients who are anatomically suitable for stentgraft placement.

>>

ischaemia manifesting as rest pain and/or tissue loss. Endpoints were amputation-free survival, clinical improvement, major adverse events (MAE), binary restenosis rate, freedom from TLR, and a special quality-adjusted life year (QALY) endpoint (Q-TWiST), incorporating both length and quality of life to evaluate treatments.

At 5 years, clinical improvement was sustained in 82.8% of the SIA group versus 68.2% of the BG patients (p=0.106). Similar among the groups were five-year all-cause survival, amputation-free survival and freedom from binary restenosis rates. 5-year freedom from TLR rates was not significantly different, and the 5-year risk of reintervention (p>0.05) plus the mean number of procedures were also similar. The risk of MAE and length of hospital stay, however, were significantly reduced in the SIA group (p<0.0001). In addition, Q-TWiST significantly improved (p<0.001), and cost-per-QALY was reduced with SIA. The authors concluded that with a five-year freedom from MAE was enhanced by 20% in the SIA group: with substantial cost reduction and better Q-TwiST, subintimal angioplasty represents a minimally invasive alternative to bypass, expanding amputation-free and symptom-free survival in patients with TASC C/D lesions of the SFA [18].

There is one recent paper that raises words of caution, however, when it comes to endovascular treatment of TASC C and D lesions. Gur and colleagues analysed 239 angioplasties and stents in 192 patients by TASC II classification. After primary stenting, limbs initially classified as TASC C and D were more likely to fail with occlusion (P <.0001), require open operation (P=.032), or lose run-off vessels (P=.0034) than those classified as TASC A or B. In two patients initially classified as TASC C, stent failure changed the level of open operation to a more distal site. Percutaneous re-intervention was performed on 35 limbs. Successful re-intervention at 12, 24, and 36 months improved the patency of TASC A and B lesions to 92%, 85%, and 64% and TASC C and D lesions to 78%, 72%, and 50%, respectively. Initial TASC classification was highly predictive of first anatomic failure, but it did not predict the durability of subsequent catheter-based reintervention.

According to the authors, these results indicate that primary stenting of the superficial femoral artery (SFA) and popliteal artery for lesions classified as TASC C or D are more likely to fail with occlusion, lose run-off vessels, or alter the site of subsequent open operation when compared to TASC A and B lesions. Thus, when deciding upon the proper treatment strategy for patients with infrainguinal occlusive disease, it must be taken into account that complications associated with interventions might have a negative impact on later attempts at surgical revascularisation [19].

Conclusion
In light of the continued evolution of technology available for the endovascular treatment of PAD and the expanding skill level of many endovascular specialists across vascular disciplines, a shift to an "endovascular-first" approach for more complex anatomies in a majority of patients has taken place. Currently, more and more evidence from the literature is supporting this strategy. The Inter-Society Consensus for the Management of PAD (TASC II) Working Group has been elaborating on the original TASC II guidelines concerning the role of endovascular techniques in relation to open surgery based on the TASC classification.

The updated version will include guidance for more severe lesions than those covered in the TASC II publication. For the aorto-iliac segment an "endovascular first" approach will be recommended for TASC A, B, C and D lesions, with surgical revascularisation being reserved for endovascular failures and unfavourable anatomy. For femoropopliteal TASC A to D lesions, the endovascular strategy will also be recommended as first line treatment. However, it remains clear that for TASC D, the overall risks and benefits versus an initial option of surgical revascularisation must be considered. Surgical revascularisation will likely stay the first option for endovascular failures, occlusion of the profunda femoris artery, severe disease of the common femoral and profunda artery, and occlusion of the popliteal artery with concomitant infrapopliteal disease.

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Drug-Eluting Beads and Irinotecan: One Step Further

William S Rilling
Medical College of Wisconsin
Wisconsin, USA

Don't miss it !
Colorectal hepatic metastases
Special Session
Saturday, September 10, 11:30-12:30
Room 14c

While chemoembolisation (TACE) has become well established in treating unresectable HCC and neuroendocrine metastases, the role of this therapy in colorectal and other liver metastases is less well defined. The development of drug-eluting beads has been an important advance in chemoembolisation, not only because of the improved pharmacokinetics compared to conventional TACE, but also because of the ability to deliver drugs such as irinotecan tailored to particular malignancies. The reproducibility of DEB TACE, as well as the ability to standardise protocols for multi-centre trials are additional advantages of DEB TACE.

Current techniques with irinotecan DEBs mirror what has been learned with doxorubicin DEBs for HCC. Most current protocols involve 100mg of irinotecan loaded on one vial of 100-300 micron DEBs. The beads are delivered with standard microcatheter technique usually targeting one hepatic lobe at a time. Aggressive management of intra-procedural and post-procedural pain is required with narcotics, intra-arterial lidocaine administration, anti-emetics and steroids.

Patients generally experience more immediate post-procedural pain with irinotecan DEB TACE. Recent studies have shown that the pharmacokinetics of irinotecan DEB are markedly different from doxorubicin DEB. Jordan et al. studied the in vitro drug-release characteristics of doxorubicin and irinotecan with two different drug-eluting bead platforms. The study showed incomplete (27%, 18%) doxorubicin release at one week. In contrast, complete irinotecan release was seen in 2-3 hours for both DEB platforms.

Early results with irinotecan DEBs have shown this therapy is well tolerated with relatively high response rates in colorectal metastases. Aliberti et al. reported the first experience with 20 patients treated with irinotecan DEBs. RECIST response was 90% and toxicities were minimal, paving the way for further studies. Martin et al. recently reported results in 55 patients with colorectal metastases refractory to conventional systemic therapy. Response rates were 68% and 75% at 6 and 12 months, with a median survival of 19 months and progression-free survival of 11 months. Additional phase II studies have been reported in abstract form showing promising response rates with acceptable toxicity. Ongoing and recently completed phase III studies, once reported, will help to further define the role of irinotecan DEBs in metastatic colorectal cancer and in other metastases. A phase III multi-centre study of first-line unresectable colorectal metastases comparing standard FOLFOX chemotherapy alone vs. FOLFOX plus irinotecan drug-eluting beads is currently ongoing. These and other studies may help move irinotecan DEB TACE out of the salvage realm and allow this therapy to be integrated into earlier treatment algorithms for metastatic colorectal cancer.

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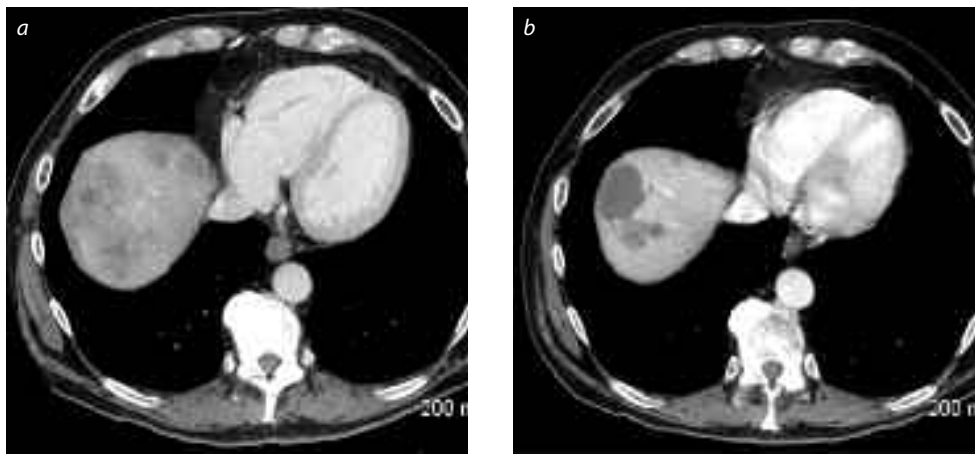


Fig. 1a-d: 69-year-old with metastatic colon cancer, six weeks post DEBIRI TACE

Electronic Poster Awards 2011

SCIENTIFIC POSTERS

Magna Cum Laude

Evaluation of a phase III clinical trial comparing transarterial chemoembolisation (TACE) using irinotecan-loaded polyvinyl alcohol microspheres (DEBIRI) vs systemic chemotherapy Folfiri (CT) for the treatment of unresectable metastases to the liver (LM) in patients with advanced colorectal cancer (MCRC)
G. Fiorentini[1], C. Aliberti[2], M. Tilli[2], A. Mambrini[3], G. Turrisi[1], P. Dentico[1], G. Benea[2]; [1]Empoli/IT, [2]Lagosanto/IT, [3]Carrara/IT

Cum Laude

Improved drug targeting of liver tumors following transarterial embolization (TAE) using magnetic nanoparticle (MNP) and lipiodol complex: preclinical assessment in a rabbit model of liver tumor
Y.I. Kim, C.-H. Ahn, E.-J. Cha, I.J. Lee, I. Ryoo, J.W. Chung; Seoul/KR

Is there a role for prophylactic gastroduodenal artery embolization in the management of patients with active upper GI haemorrhage?
S. Dixon, V. Chan, V. Shrivastava, M. Bratby, S. Anthony, R. Uberoi; Oxford/UK

Certificate of Merit

Transcatheter shunt occlusion for porto-systemic encephalopathy: interventional management and clinical outcome
K. Kobayashi, S. Hirota, H. Maeda, S. Yamamoto, S. Achiwa, Y. Kako, Y. Furukawa, M. Yamasaki, Y. Igarashi, T. Katsuura, R. Ishikura; Nishinomiya/JP

A randomized phase II trial of irinotecan drug-eluting beads administered by hepatic chemoembolization with intravenous cetuximab (DEBIRITUX) versus systemic treatment with intravenous cetuximab and irinotecan in patients with refractory colorectal liver metastases and Kras wild-type tumors
A. Stein[1], M. Duex[2], R. Kickuth[3], A. Petrovitch[4], S. Pluntke[5], J. Ricke[6], C. Stroszczynski[7], T.J. Vogl[2], D. Arnold[1], P.L. Pereira[8]; [1]Hamburg/DE, [2]Frankfurt a.M./DE, [3]Würzburg/DE, [4]Bad Berka/DE, [5]Essen/DE, [6]Magdeburg/DE, [7]Regensburg/DE, [8]Heilbronn/DE

Trans-caval endoleak embolization (TCEE) of type I and II endoleaks occurring after endovascular abdominal aortic aneurysm repair (EVAR)
R. Gandini, D. Konda, M. Chiocchi, D. Morosetti, A. Chiaravalloti, G. Loreni, G. Simonetti; Rome/IT

Experience on the use of SIR-CIRSE guidelines for patient radiation dose management in neuroradiology
E. Vano, J.M. Fernandez, R.M. Sanchez, L. Lopez Ibor, A. Gil, C. Serna; Madrid/ES

EDUCATIONAL POSTERS

Magna Cum Laude

Insulation and temperature monitoring during tumor thermal ablation: state of the art
G. Tsoumakidou, J. Garnon, X. Buy, J.F. Cabral, A. Gangi; Strasbourg/FR

Cum Laude

Interventional MRI of the musculoskeletal system in children and adults: principles and procedures
J. Fritz[1], J.A. Carrino[1], C.D. Claussen[2], J.S. Lewin[1], P.L. Pereira[3]; [1]Baltimore, MD/US, [2]Tübingen/DE, [3]Heilbronn/DE

Percutaneous prostate cryoablation under MR-guidance: technique, advantages and limitations
G. Tsoumakidou, H. Lang, J. Garnon, X. Buy, E. Bieton, M. de Mathelin, C. Kauff, A. Gangi; Strasbourg/FR

Certificate of Merit

Treatment of orbital venous and lymphatic malformations with percutaneous sclerotherapy
G.K. Chiramel, S.N. Keshava, V. Moses, S. David, S. Sen; Vellore/IN

The role of primary percutaneous drainage in the management of acute necrotising pancreatitis: an evidence-based radiology review
E.J.P. McCarthy, N. O'Mahony, K. Cronin, C. Johnston, N. McEniff; Dublin/IE

Adrenal venous sampling: tips for technical success
S. Kubo[1], M. Ishii[2], E. Aoki[2]; [1]Kyoto/JP, [2]Otsu/JP

Pictorial review of gastrointestinal complications following open aortic aneurysm repair
R. Patel[1], S.K. Agarwal[2], S. Puppala[1]; [1]Leeds/UK, [2]Wrexham/UK

Challenges for IR in Europe

Dierk Vorwerk
Klinikum Ingolstadt
Ingolstadt, Germany

Don't miss it !
Strategic plan for IR
Special Session
Saturday, September 10, 10:00-11:00
Room 2

Interventional Radiology is currently experiencing a boom in Europe. This follows many decades of pioneering and hard work, and now interventional radiological therapies are widely accepted in vascular diseases, and are utilised for diagnostic and interventional procedures in nearly all parts of the body. These days, there is practically no speciality that does not rely on the assistance of IR.

Due to its increasing importance in patient care, IR is far from endangered. However, the situation of individual interventional radiologists is often far from secure, with some colleagues retaining old-fashioned views of the radiologist as purely diagnostic, rather than as a performing physician.

While the increasing interest in IR has many positive aspects, an unfortunate downside is that the turf of IR becomes an attractive playground for others, many of whom do not possess appropriate skills in interventional procedures. The driving factors in this encroachment are – sad to say – the usual ones: ego and money. Some specialities feel themselves to be under pressure, such as vascular surgeons who are afraid of losing ground if they stay with conventional surgical procedures. For others, such as cardiologists, it is an easy leap to make, as they have easy access to the machines, resources and skills necessary to expand into other fields. In some countries, arterial procedures are completely or partly gone to non-radiological specialities, while in others there is no or only a slight trend towards it. Different medical systems, forms of payment and other considerations are key factors in this discrepancy.

At a first glance, radiologists seem to be in a weak position, as they traditionally have no direct patient access. But we hold many strong cards: shortage of staff and money, radiation protection rules, and access to expensive angiographic units might be utilised in the fight for keeping IR within radiology.

There should be a joint initiative to explain to health authorities that self-referral is problematic, as the authorities are then no longer able to control expenses and indications, and that a closed-shop system will cost the community a lot of money. The team approach is the best way of ensuring self-control in a medical system, and radiologists are best qualified to deal with expensive machines such as angio-labs.

It is important that we move towards this team-approach in medicine. Scrub room angio-labs with air filtering techniques comparable to OR standards should become widely available in radiology, in order to make in-OR angio machines avoidable.

Simultaneously, interventional radiologists should find ways and opportunities to run out-patient clinics and consultation hours within their particular medical system, which will make the specialty and its benefits more evident to both patients and colleagues.

Most important, however, is that interventional radiologists offer a full-time, full-skill service, 24 hours a day, and that they document and teach their expertise both publically and within their individual institutions. In this way, we can continue to expand patient access to our minimally invasive therapies.

How to write a clinical paper

Don't miss it !
How to write a clinical paper
Sunday, September 11, 08:30-09:30
Room 2

Quality and clarity of reporting is essential if manuscripts are to be accepted for publishing. Join us in Room 2 at 08:30 tomorrow to pick up some valuable tips and tricks.

Laura Crocetti
University of Pisa School of Medicine,
Cisanello Hospital
Pisa, Italy

All research papers involve hard work and long hours. It would be a shame to have your paper rejected because of simple formatting issues or poor referencing. Dr. Laura Crocetti, a much published medical researcher, will host a short session on how to show your work off to best effect, and how to improve your paper's chances of passing the peer-review process.

The session will address two main categories: the ethical principles and the technical aspects of preparing manuscripts.

Technical advice will cover:

1. The different categories of studies (major, minor and invited papers)
2. Choosing a journal and the relevance of impact factors
3. The IMRAD structure (Introduction, Materials, Results and Discussion)
4. Referencing and illustrations

We look forward to seeing you at 08:30 tomorrow!

This session is kindly sponsored by Biocompatibles.

Advertorial

DC Bead® loaded with Irinotecan versus systemic therapy for hepatic metastases from colorectal cancer: positive results from a randomized clinical trial assessing survival

Giammaria Fiorentini[1], Camillo Aliberti[2]

[1] **Oncology Unit, Department of Oncology and Hematology, Ospedali Riuniti Marche Nord – sede Muraglia, Pesaro, Italy**
[2] **Interventional Radiology Unit, Department of Radiology, Delta Hospital, Ferrara, Italy**

Corresponding Author: Giammaria Fiorentini M.D., Oncology Unit, Department of Oncology and Hematology, Ospedali Riuniti Marche Nord, via C. Lombroso 1, 61100 Pesaro (PU) Italy.
Tel: 0039 0721 364097 Fax: 0039 0721 364094
e-mail: g.fiorentini@alice.it

Complete results of the study to be presented at TERUMO Europe symposium, on Monday, from 11h30 to 12h30 (Room 14a)

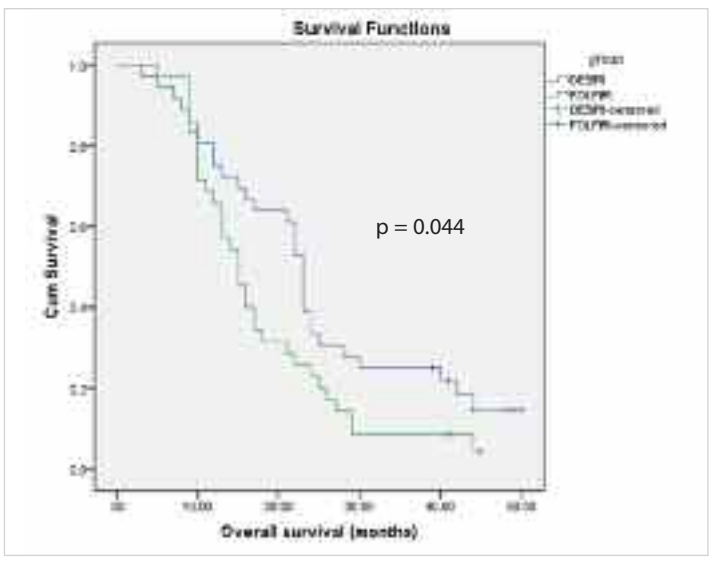
Background
The cancer of colon and rectum (CRC) is one of the leading causes of cancer-related death worldwide. Liver metastases (LM) occur in approximately 60% of the 150,000 patients in the United States who develop metastatic colorectal cancer each year. The liver will remain the only site of metastatic disease until end stage in most patients and a small number of patients will be candidates for surgical resection. Most of the patients will receive several lines of palliative chemotherapy. Toxicity is common and median survival is 20-24 months. Ablative or trans-arterial techniques allow localised, minimally invasive therapy without systemic toxicity or morbidity.

DEBIRI technique aim is no inject irinotecan-eluting beads in hepatic arteries. It was reported to be feasible and safe in a Phase 2 study. High response rates were reported but randomized studies are lacking and the impact of this procedure on survival is unknown.

This multicenter trial was designed in 2005 to compare DEBIRI treatment with Irinotecan, fluorouracil, folinic acid given intravenously in second or third line patients. No cross-over was allowed; therefore it addresses the fundamental question of whether DEBIRI therapy is more effective than systemic therapy for the treatment of LM from CRC. Primary end point of the study was survival; secondary end points were tumor response, toxicity, quality of life (QoL), and cost effectiveness.

Results
A comparison of DEBIRI versus systemic therapy in patients with unresectable hepatic metastases from CRC indicates DEBIRI therapy prolonged the median survival (23 vs 15 months, p=0.044), and was a associated with a greater likelihood of objective tumour response in the liver (68.6% vs 20 %), enhanced time to hepatic progression (7 vs 4 months; p=0.006). The regional approach was not inferior to FOLFIRI in preventing extrahepatic metastatic progression.

These data indicate that controlling the liver disease it is possible to extend survival of patients presenting liver metastases from colorectal cancer.



Conclusion
This study is the first in literature that provides evidence that chemoembolization therapy provides superior survival with better physical functioning when compared with the same chemotherapeutic compound administered systemically. Benefits of the chemoembolization in combination with systemic chemotherapy are minimally explored. Whether this regional strategy can be enhanced further through the addition of concurrent systemic treatment will be the focus of future studies.

DC BEAD is a registered trademark of Biocompatibles UK Ltd

Advertorial

Unique training possibilities with Orcamp

Orzone is a Swedish medical training company that focuses on improving medical outcome by developing creative tools, which support training and assessments of medical skills. The products are based on e-learning and advanced simulation technology for individuals or teams. Orzone is committed to improving healthcare quality and minimising the risk of medical errors by facilitating medical training. CIRSE Society and Orzone enables the unique possibilities for CIRSE delegates to train in educational sessions led by proctors from the CIRSE faculty.

To sign up for sessions, please register onsite with Orzone staff at the Orcamp booth, located near the Simulator Gallery and the Society Lounge.

Globally there is an increasing number of regulations, procedures and processes, which aim to advance healthcare economic effectiveness, as well as increased patient safety for all citizens. Strong forces on both medical and political levels are advocating for a swift and firm harmonisation of standards for training, skills development and a unified framework for certification of all healthcare professionals.

The virtual reality simulation sector expanded rapidly in the end of the 1990s and has today become a tool, enabling the teaching of simple tasks, as well as full real life procedures, without putting the patient at risk. Interventional radiology has not remained untouched by these advances.[1]

Orzone, a medical training company, has envisioned the modular platform for multidisciplinary training, where medical teams are enabled to train and collaborate in real life situations. The platform, called Orcamp, is a unique comprehensive training environment which can be used for facilitating the harmonisation of training and assessment of knowledge, skills and behaviours. Orcamp offers a unique opportunity for the educator as well as the examiner to improve and evaluate skills of their trainees in a realistic environment without interfering with real patients.

Educational training sessions for CIRSE delegates

Full-scale OR, comprising simulated imaging equipment, patient table and screens; the Orcamp installation is built within a 25m^2 glass box in Hall B0 at CIRSE 2011, similar to last year's meeting in Valencia. Orcamp educational sessions premiered for interventional radiologists at 2010's meeting, and slots were immediately filled with enthusiastic participants.

This year, the educational content for the Orcamp educational sessions at CIRSE has been developed in collaboration with **Dr. Fabrizio Fanelli (Rome/IT)** and **Prof. Lars Lönn (Copenhagen/DK)** and demonstrate the **Critical Limb Ischemia (CLI/BTK)** and **Superficial Femoral Artery (SFA)** procedures. The training will be performed on the Mentice VIST-C procedural VR simulator. Orcamp will also offer the **Uterine Artery Emoblisation (UAE)**, with material developed by Prof. Jon Moss (Glasgow/UK) and Prof. Lars Lönn. Orcamp is integrated with the high fidelity procedural VR simulator; VIST® -C, developed by Mentice and novel for 2011, the SimMan® 3G; a realistic, adult full-body patient simulator, developed by Laerdal. Instructors from the CIRSE faculty will oversee the procedures throughout the conference.

Harmonisation of medical knowledge, skills and professionalism

Orzone also collaborates with the European Union of Medical Specialists (UEMS) to harmonise training of European medical doctors, and the collaboration has resulted in a comprehensive electronic platform to support medical training, examinations, assessment and continuous professional development.

Novel and unique features not previously shown:

- Orsync; a technical step-by step software for the individual team members in a hybrid OR team. The tool enables the proctor or/and the trainee to survey the different tasks in a procedure for each individual team member. It is used for both briefing and debriefing and as a guide during the live training in Orcamp.
- Two new procedures provided by Mentice
- Laerdal integration
- A video multi-channel recording system to monitor all team members
- Logbook to capture clinical and training experiences

[1] *Coates et al, Endovascular Simulator Is of Benefit in the Acquisition of Basic Skills by Novice Operators, J Vasc Interv Radiol 2010; 21:130–134*

There will be a total of 12 Orcamp training sessions at CIRSE 2011:

SFA:
Saturday, Sept. 10
11:30, 13:30, 15:30

UAE:
Sunday, Sept. 11
11:30, 13:30, 15:30
in collaboration with the Hands-on Masterclasses

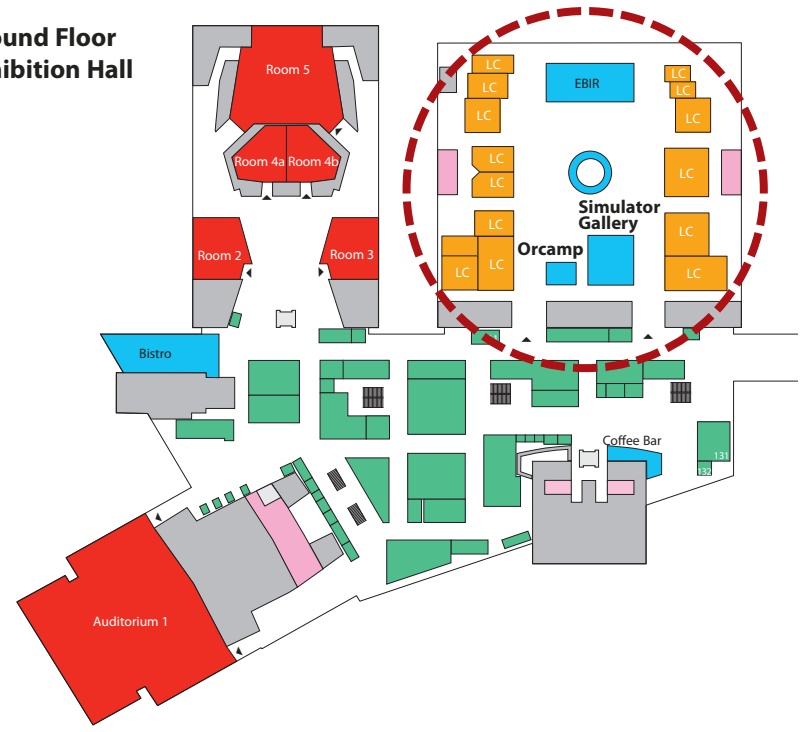
CLI/BTK:
Monday, Sept. 12
11:30, 13:30, 15:30
in collaboration with the Hands-on Masterclasses

CLI/BTK:
Tuesday, Sept. 13
11:30, 13:30, 15:30

Each session will last approx. 60 minutes.

PLEASE NOTE that Orcamp is an Orzone product unrelated to CIRSE.
Orzone is a participant at CIRSE 2011 under the terms and conditions applicable to all technical exhibitors.

Ground Floor Exhibition Hall



The Simulator Gallery and Orcamp are located in our dedicated Learning Centre Village

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CIRSE 2011
Lunch Symposium

LONG TERM CLINICAL DATA OF PACCOCATH® TECHNOLOGY, PRECLINICAL EVIDENCE, AND PLANNED COTAVANCE® DEB STUDY DESIGNS.

September 13, 2011 13:00-14:00
Room 14a

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Come cheer your colleagues at the Run S.M.A.R.T. and Soccer Cup!





Cooperation and teamwork are essential in professional medical life – but wouldn't it be nice for once to get all the glory? To compete, to strive, to win? Well, here's your chance!

CIRSE offers all delegates the chance to take part in its two sporting events, the annual Soccer Cup and the 3km Run S.M.A.R.T. race, both of which will be held this evening at 19:00. From 18:00, a shuttle bus service will bring all participants and spectators from the congress centre to our destination, the SoccArena of the Olympiapark Munich, where you can join the role-call of famous sportspeople who competed there!

Separate dressing rooms and showers are available for men and women, and a delicious warm buffet will be provided for all attendees, ensuring cheerleaders and participants are well fed and watered!

The Olympiapark can also be reached by two nearby underground stations, the U3 (orange line) Olympiazentrum or Petuelring stops, both of which are about a 10 minute walk. Alternatively, the 173 bus goes directly to and from Petuelring station. Kindly note that all attendees are requested to arrange their own return journey.

When: Tonight at 19:00
Where: SoccArena Olympiapark, Spiridon-Louis Ring 21, 80809 Munich

Spectators and competitors welcome!
Join us this evening at 19:00!

Advertorial

AZUR® HydroCoil®: expanding your capabilities

Based on technology used successfully in cerebral vascular applications, the AZUR® HydroCoil® Embolization System is the only peripheral platinum coil embolization system with a hydrogel coating that expands when introduced into the bloodstream. This means greater filling and mechanical occlusion.
HydroCoil® implants are helical platinum coils with outer layer made of a biologically inert hydrogel polymer.

The hydrogel technology was developed to improve the endovascular occlusion of intracranial aneurysms. When hydrogel-coated coils are deployed into the vascular space using conventional coil techniques, the acrylamide/sodium acrylate polymer swells. In contact with blood, the coating undergoes a limited expansion within the first three minutes, and fully expands within 20 minutes.
The result is greater filling and stabilization of vascular space – nearly five times more filling volume for the 0.018-inch coil versus platinum coils of the same size. The mechanism of cross-sectional occlusion differs widely between hydrogel-coated coils and fibered coils. Pathology has demonstrated that the percentage of thrombus is significantly lower with hydrogel-coated coils. This greater filling of the interstices of the coil mass and resulting high-percentage filling volume associated with less thrombus may result in reduced recurrence rates in the peripheral system.
HydroCoil® implants provide biologically inert scaffolding for natural tissue proliferation and wound healing. The hydrogel layer does not degrade in the body and is not bioactive. In fact, acrylamide polymers are commonly used in other implants, such as ocular lenses and vascular sealing devices. The expanded hydrogel, which remains soft and compliant, provides a stable and permanent platform for blood stasis, thrombus organization, and neointima formation. The hydrogel-coated coils will not continue to expand once equilibrium is achieved. They also do not exert expansive force on the walls of the vessel, as the hydrogel only expands where there is space available, and they are compatible with imaging modalities.

Detachable delivery system: the peace of mind of the absolute control
The HydroCoil® system uses a detachable delivery system, allowing physicians to detach coils in less than one second with the push of a button. With the capability to withdraw and reposition the coil until it is securely placed, the easy-to-use system minimizes the risk of coil migration and non targeted embolization. This design provides a high level of control, especially important in high-flow areas and challenging vascular anatomy such as that found in the peripheral vasculature, in which targeted embolization with pushable coils is difficult.

Since the beginning of 2011 Terumo offers a new version: **AZUR® HydroCoil® Detachable 0.035”/0.89mm**

AZUR® HydroCoil® is now available in a complete set of sizes and lengths:

AZUR® HydroCoil® Pushable 0.018”/0.46mm
AZUR® HydroCoil® Pushable 0.035”/0.89mm
AZUR® HydroCoil® Detachable 0.018”/0.46mm
AZUR® HydroCoil® Detachable 0.035”/0.89mm
AZUR® Framing Coil 0.018”/0.46mm

PAD Guidelines – Fighting diabetic foot one step at a time

Dr. Karel Bakker,
Chair IWGDF, IDF DFP,
Heemstede, the Netherlands

Prof. Nicolaas C. Schaper,
Scientific Secretary IWGDF,
Maastricht, the Netherlands

Prof. Jim A Reekers,
Member of the IWGDF PAD Working Group,
Amsterdam, the Netherlands

Every 30 seconds, a lower leg is lost to diabetes somewhere in the world (Lancet 2005).

However, this does not have to continue to be the case. The International Working Group on the Diabetic Foot have been a driving force in education and advocacy for diabetic patients at risk of amputation, and a new, updated edition of their PAD Consensus Guidelines will be published shortly. Renowned experts Karel Bakker, Nicolaas Schaper and Jim Reekers tell us why these guidelines matter, and what IRs can look out for at CIRSE 2011.

How prevalent is diabetic foot? What impact does it have?

Karel Bakker: For patients with diabetes, the future can be bleak. Diabetes is considered the global epidemic of the 21st century, with 350 million people currently living with diabetes worldwide, and the numbers set to grow further. Naturally, this rapid increase in diabetes prevalence will be mirrored by an increase in the numbers of diabetic complications. Foot problems are a source of major suffering in many diabetic patients, and a lower leg amputation is one of the most feared complications of diabetes. Neuropathy, infection and peripheral arterial disease (PAD) are responsible for chronic foot ulcers which all too often lead to the loss of a lower extremity.

Loss of independence, depression and loss of income leading to poverty all have a major social impact on the individual and his or her environment. Amputations and foot problems in general are among the most costly complications of diabetes. In developing countries, it has been estimated that diabetic foot problems may consume as much as 40% of the healthcare resources available for diabetes.

What can be done to reduce this impact?

Nicolaas Schaper: Besides creating more awareness of the condition, investing in diabetic foot care guidelines can be one of the most cost-effective forms of healthcare expenditure, provided that the guideline is goal-focused and properly implemented. To this end, the International Working Group on the Diabetic Foot (IWGDF) was founded in 1996. The objective of the IWGDF is to develop guidelines that will reduce the impact of diabetic foot disease through cost-effective and quality healthcare.

Based on these guidelines, which can be tailored to suit local circumstances, health workers can also be trained, and their knowledge and skills improved. The IWDGF has initiated several training programmes around the world to further improve the quality of foot care for diabetic patients. One of the unique aspects of the IWDGF is its truly multidisciplinary approach, and experts from many different areas are involved, such as diabetologists, vascular and orthopedic surgeons, podiatrists, radiologists, infectious disease specialists, movement scientists, rehabilitation doctors, wound care specialists, general practitioners, and many others.

The IWGDF produced guidelines in 2003 and 2007 – how have these helped?

KB: The first IWGDF Consensus guidelines on the management and prevention of diabetic foot were launched in 1999 in Noordwijkerhout, the Netherlands. This launch was an instant success. The document was subsequently translated into 26 languages, and 80,000 copies were distributed throughout the world. However the development of guidelines is an ongoing process and after 1999, several IWGDF working groups on specific topics of the diabetic foot were installed. These workings groups consisted of renowned experts in the field. Based on a systematic review of the literature, drafts on specific topics were produced, including wound care, treatment of infection and osteomyelitis, off-loading and management of PAD. All these drafts were sent for comments to the members of the extensive IWGDF network of over 100 country representatives for approval. After reaching worldwide consensus, the review reports and specific guidelines were launched at the ISDF Symposiums in 2003, 2007 and 2011. In May 2011, the following guidelines were approved: Wound management, Infection and Peripheral Arterial Disease. In addition, the workings groups produced background material such as systematic reviews and progress reports. All these materials were handed out on a USB stick during the ISDF 2011 and will be published in peer reviewed journals early 2012.

The original guidelines in 1999 were more expert opinion-based than evidenced-based. Since 2007, all the IWDGF guidelines are produced according to a strict protocol. In order to ensure that the recommendations are applicable in daily clinical practice, the recommendations have to be judged as regards their universality, applicability, and clinical impact. In this manner, the link will be made between the scientific evidence and recommendations from experts in the field for daily clinical practice.

An updated 2011 guideline is due soon – what are the most important differences compared with earlier editions?

Jim Reekers: One of the major achievements of 2011 was the creation of a systematic review and the guidelines on the management of PAD in patients with a diabetic foot ulcer. In the systematic review the available evidence of the efficacy and risks of vascular procedures to improve wound healing and to prevent amputation are described. These data are summarised in a concise set of guidelines that can be used in daily practise.

One new aspect was the growing role of endovascular procedures in the management of PAD. One of the important conclusions was that although comparative studies are lacking in this area, both open and endovascular procedures seem to have equivalent benefits and risks. However, the results of both open and endovascular procedures will greatly depend upon the morphological distribution of PAD, as well as the local availability and expertise in a given centre. The definitive choice for either treatment should therefore be based on a multi-disciplinary discussion that includes the different vascular specialists involved, including specialists with expertise in endovascular procedures.

What important take-home points are there for diabetologists and surgeons?

NS: PAD is one of the main determinants of outcome of a diabetic foot ulcer and is now present in up to 50% of all diabetic patients with a foot ulcer. It contributes to impaired wound healing and is an important risk factor for amputation. All patients need a thorough examination to rule out PAD and if present, its severity should be estimated using non-invasive vascular tests (e.g. toe-pressure or transcutaneous pressure of oxygen). In particular, patients with the combination of PAD and infection are at risk for amputation. "Time is tissue" in these infected ischaemic diabetic foot ulcers and patients should be treated as a medical urgency, preferably within 24 hours.

What can IRs (individually or collectively) do to help reduce the burden of diabetic foot?

JR: Patients with a diabetic foot ulcer should be treated by a comprehensive diabetic foot team that has all the expertise and skills to treat these patients, with wound healing, prevention of amputation, revascularisation as well as prevention of recurrence as primary goals. Up until now, the scientific literature in interventional radiology has much been focused on patency and/or limb salvage. However, a salvaged limb that a patient cannot use because of a chronic wound is of little value.

In our opinion, the focus should be more on wound healing and long-term follow-up. These goals can only be reached once intervention radiologists become active members of multidisciplinary diabetic foot teams, in which all aspects of a diabetic foot ulcer are addressed, including wound care, infection treatment, off-loading, glucose control, etc. Moreover, it is likely that the availability of a 24-7 endovascular service will probably also improve the outcome of several patients.

Fig. 1: IWGDF PAD Consensus Guidelines 2011: A data stick was presented to all Symposium delegates in Noordwijkerhout, the Netherlands in May 2011

Due to its rather unique morphological distribution and heavy vascular calcifications, endovascular treatment of PAD in diabetic patients with a foot ulcer is frequently a technical challenge, requiring specific skills of the endovascular specialist. Specific training in very distal and endoluminal procedures is necessary. Finally, endovascular procedures can also fail or be technically not possible, and this is an area where further improvement with rigorous outcome research is clearly needed.

Do you have any practical tips for CIRSE attendees, or sessions you would recommend?

KB: It is of major importance that these new guidelines and recommendations are known and implemented within every clinic that treats diabetic foot problems. A multidisciplinary approach and better logistics will be of huge benefit to diabetic patients with PAD. Interventional radiologists can play an important role it this treatment and this role will be even more important if this is done in such a team.

JR: A prerequisite of that is, naturally, that more IRs should be trained in these often challenging procedures. The European School of Interventional Radiology can play in important role in this. Any IRs with an interest in this rewarding field should attend the following lectures:

Special Sessions:

BTK recanalization
Monday 10:00, Room 13a

Outcomes of BTK recanalizations
Tuesday 08:30, Room 14a

Workshops:

The Diabetic Foot: an intergrated IR approach
Sunday 17:45, Room 13a

BTK vascular interventions
Monday 18:00, Room 13a

Gore Scientific Programme
Join us at CIRSE 2011, Booth #103

Sunday, 11 September

8.00 – 8.20
Gore Breakfast Symposium/Room 3

The role of SFA endoluminal bypass: latest clinical evidence, ongoing studies
Chairman: Eric Verhoeven, Nürnberg, Germany

- GORE® VIABAHN® Endoprosthesis for in-stent restenosis update: a multicenter, randomized, controlled trial
  Marc Bosiers, Dendermonde, Belgium
- VIASTAR update: what we have learned about bare metal stents and SFA endoluminal bypass in the treatment of SFA occlusive disease
  Johannes Lammer, Vienna, Austria

11.30 – 12.30
Gore Learning Center
Refreshments will be served

Repositioning the future of EVAR
Chairman: Dierk Vorwerk, Ingolstadt, Germany

- Control, Cannulation, Confidence: optimizing EVAR with the GORE® EXCLUDER® AAA Endoprosthesis featuring C3 Delivery System
  Claudio Rabbia, Turin, Italy
- GREAT GORE® C3 REGISTRY: what does the data tell us?
  Richard McWilliam, Liverpool, UK
- Interactive case presentation on the GORE® EXCLUDER® AAA Endoprosthesis featuring C3 Delivery System
  Philipp Schäfer, Kiel, Germany

14.00 – 15.00
Gore Learning Center
Refreshments will be served

Advanced endovascular treatment of femoro-popliteal artery: data review, tips and tricks, lessons learned
Chairman: Claudio Rabbia, Turin, Italy

- GORE® VIABAHN® Endoprosthesis with PROPATEN Bioactive Surface: rationale, indications, techniques and evidence
  Niels Zorger, Regensburg, Germany
- Clinical studies updates: VIASTAR and 25cm GORE® VIABAHN® Endoprosthesis for long lesions
  Philipp Schäfer, Kiel, Germany
- Total endoluminal bypass for the treatment of SFA obstructive long lesion
  Giovanni Esposito, Naples, Italy
- Endoluminal popliteal bypass evidence: tips and tricks – a review of challenging cases
  Ignace Tielliu, Groningen, The Netherlands

Monday, 12 September

10.00 – 11.00
Gore Learning Center
Refreshments will be served

The effect of early TIPS in the treatment of cirrhotic patients admitted with ascites
Chairman: Fabrizio Fanelli, Rome, Italy

- Meta analysis bare stent TIPS vs. paracenthesis: expectations using covered TIPS
  Francesco Salerno, Milan, Italy
- TIPS for refractory ascites. GORE® VIATORR® TIPS Endoprosthesis vs. bare stents. Results of a single centre trial
  Frederik Nevens, Leuven, Belgium
- The economical aspects of using GORE® VIATORR® TIPS Endoprostheses compared to LVP
  Nigel Hacking, Southampton, UK

11.30 – 12.30
Gore Learning Center
Refreshments will be served

Interactive review of challenging endovascular cases with GORE® VIABAHN® Endoprosthesis
Chairman: Thomas Zeller, Bad Krozingen, Germany

Sebastian Sixt, Bad Krozingen, Germany
Arindam Chaudhuri, Bedford, UK
Giancarlo Mansueto, Verona, Italy
Daniele Savio, Turin, Italy

14.00 – 15.00
Gore Learning Center
Refreshments will be served

Endovascular treatment of the thoracic aorta: interactive case discussion
Chairman: Johannes Lammer, Vienna, Austria

- Management of endoleaks in thoracic endografting
  Mohamad Hamady, London, UK
- Endovascular treatment of dissection: what did we learn?
  Gianpaolo Carrafiello, Varese, Italy
- Acute aortic syndrome: how to treat patients in an emergency setting
  Philipp Schäfer, Kiel, Germany

Tuesday, 13 September

11.30 – 12.30
Gore Learning Center
Refreshments will be served

The future of covered biliary stents for the treatment of benign and malignant biliary obstructions
Chairman: Pierre Goffette, Brussels, Belgium

- Percutaneous treatment of malignant jaundice due to extrahepatic cholangiocarcinoma. GORE® VIABIL® Biliary Endoprosthesis vs. bare stents
  Fabrizio Fanelli, Rome, Italy
- The removable GORE® VIABIL® Biliary Endoprosthesis for treatment of benign biliary strictures
  Karel Caca, Ludwigsburg, Germany

Cardiovascular and Interventional Radiological Society of Europe

ECIO 2012

Third European Conference on Interventional Oncology

Mark your Calendar !

April 25-28
Florence | Italy

www.ecio2012.org

CIRSE foundation

Advertorial

New Product Launches

ABBOTT VASCULAR

Armada 35 and Armada 35 LL PTA Balloon Dilatation Catheters

Abbott Vascular, a global leader in endovascular care, announced the introduction in Europe of the Armada 35 and Armada 35 LL PTA Balloon Dilatation Catheters, the newest technology platform for opening blockages in the renal, iliac, femoral, popliteal, tibial, and peroneal arteries. Armada 35 is the second product offered in our Armada balloon family and is available in lengths up to 250mm and diameters up to 14mm, enabling physicians to treat a broad range of lesions. Armada's advanced design incorporates multi-layer CrossFlex2 balloon technology, which provides low profiles, flexibility, and higher rated burst pressures. Armada 35 and Armada 35 LL are built to provide optimal performance to help streamline procedures from start to finish. The introduction of the Armada 35 and Armada 35 LL PTA Balloon Dilatation Catheters demonstrates Abbott's continued commitment to providing innovative endovascular products to meet physician needs and potentially improve patient outcomes.

Xpert Pro Self Expanding Stent System

Abbott Vascular, a global leader in endovascular care, announced the introduction of the Xpert Pro Self Expanding Stent System for the treatment of peripheral artery lesions. The next-generation Xpert Pro features an innovative, tri-layer catheter design which includes an advanced stabilizer coil that allows precise stent deployment and placement and a slim, intra-laced outer sheath that improves deliverability and access for tight anatomies. Xpert Pro also has customized stent designs for each vessel diameter with thinner struts in small vessels to minimize vessel lumen reduction. Xpert Pro provides longer stent lengths up to 100mm and diameters as small as 3mm – making it an optimal choice for treating a wide range of below-the-knee (BTK) lesions. The introduction of the Xpert Pro Self Expanding Stent System further expands Abbott's BTK and SFA product portfolios.

ASAHI INTECC

Stridesmooth+, Asahi Intecc Co., Ltd.

Smooth navigation to distal vessels with smaller profile microcatheter – Asahi Intecc introduces the next generation of Stide microcatheter, Stridesmooth+. This super-selective microcatheter has a smaller profile and a larger inner diameter, compared to the Stride 2.2Fr microcatheter. This enables easier access to distal vessels even in a very tortuous anatomy and quicker delivery of microspheres or other embolic materials. For more information, please visit our booth #136 on the entrance level.

Contact: Asahi Intecc Co., Ltd. Europe Office
Strawinskylaan 967, WTC Tower D – 9th floor
1077XX Amsterdam, The Netherlands
Phone: +31 20 794 0642 | Fax: +31 20 794 0641
URL: http://www.asahi-intecc.com
Email: aeu@asahi-intecc.com

BIOTRONIK

Passeo-14 infrapopliteal PTA catheter. Developed by experts, for experts.

BIOTRONIK is committed to developing state of the art medical devices for minimally invasive vascular intervention.
The introduction of Passeo-14 represents the next level of this commitment- conceived and developed through consultation with global experts in infrapopliteal angioplasty and utilizing BIOTRONIK's profound technological competence.

Passeo-14's unique design features seek to address weaknesses common to current infrapopliteal PTA catheters:

- Stiffened proximal catheter shaft and hydrophilic balloon coating ensure excellent push transmission and easy lesion crossing.
- Variable, diameter specific, distal shaft length means flexibility is optimized.
- Fast balloon deflation and lengths up to 220mm may reduce procedure times.

Combine these features with a wide portfolio, including dedicated inframalleolar sizes and it's easy to see why Passeo-14 is so eagerly anticipated.

Passeo-14 is the latest addition to BIOTRONIK's comprehensive and unique portfolio.
4F Solutions: Minimal is optimal.

BOSTON SCIENTIFIC

Interlock™-35 Fibered IDC™ Occlusion System

Accuracy, Power and Precision

Boston Scientific is pleased to announce a new addition to its detachable coil family, **Interlock™-35**.

Interlock™-35 has been designed for deployment accuracy; its interlocking design offers physicians control, precision, and retractability. It is fibered along the entire length with highly thrombogenic Dacron fibers and exists in long coil length allowing for fast and effective vessel occlusion.

Interlock™-35 utilizes 5Fr Imager™ II (0.035 and 0.038) catheters. Interlock™-35 comes in a broad matrix - large diameters, long lengths, and three coil shapes:

- 2D: Anchorability results from the helical shape of the coil in constant, consistent contact with the wall of the vessel
- Diamond: Occlusive Power is obtained by tapering the proximal and distal coil diameters, maximizing cross–sectional flow disruption.
- Cube: Three-Dimensional design allows for circumferential wall apposition and packability in visceral aneurysms.

making it the right tool for a variety of procedures.

OffRoad™ Re-entry Catheter System and TruePath™ CTO Device

Familiar tools. Familiar feel.

Boston Scientific is proud to present two new additions to facilitate the treatment of chronic total occlusions, designed to be intuitive, easy to handle, they are based on tools familiar to the interventionalist and offer a choice of either subintimal re-entry or intraluminal crossing of the CTO.

OffRoad™ is an elegant and simple dual-component solution for challenging lesions. Re-entry is intuitive as the 5.4mm articulating positioning balloon, tracks over the existing 0.035" (0.89mm) guidewire and then directs the system, creating a path for the micro-catheter lancet to re-enter the vessel.

TruePath™ is a powerful new solution for intraluminal treatment of chronic total occlusions. Guidewire-like design with a diamond coated rotating tip is nearly half the size of some competitive offerings, to facilitate steering and enhance crossing lesions. Once positioned the self-rotating tip works effortlessly to power across the occlusion.

* *OffRoad™ and TruePath™ are pending CE Mark, not available for sale in the European Economic Area (EEA)*

Mustang™ and Coyote™[1] Balloon Dilatation Catheters

Excellence on every dimension

Boston Scientific is proud to announce two new additions to its PTA Balloon family, Mustang™ and Coyote™ Balloon Dilation Catheters

Both balloons are based on Boston Scientific's new NyBax™ Balloon Material, a proprietary co-extrusion of Nylon and Pebax™ polymers engineered to provide high-pressure dilatation in a highly deliverable low-profile balloon.

Mustang™ is a highly deliverable 0.035" (0.89mm) guidewire compatible PTA balloon that offers excellent rated burst pressure (up to 24 ATM/ 2432kPa) and is the only 7x200mm balloon compatible with a 5 F (1.67mm) introducer sheath. Available in 203 sizes, it provides the broadest matrix of any available peripheral balloon.

Coyote™ is an ultra low profile 0.014" (0.36mm)[2] guidewire compatible PTA Balloon that meets the challenges of BTK interventions, with a 0.017"(0.43mm)[2] lesion entry profile and a 0.031" (0.79mm)[2] crossing profile combined with great trackability, pushability and excellent deflation rates, Coyote™ is the PTA Balloon to get you to, through and treating BTK Lesions

[1] *Coyote™ Balloon Dilation Catheter is pending CE mark, not available for sale in the EEA*
[2] *Average measurements taken by Boston Scientific (n=3) on 2x120mm balloons. Data on file. Bench testing may not be representative of clinical performance.*

Advertorial

New Product Launches

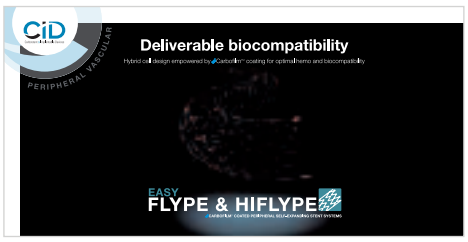
CID VASCULAR

CID (Carbostent and Implantable Device) has recently launched the EASY FLYPE & EASY HIFLYPE self-expandable stent.

With this new products CID introduces, on its Nitinol Stent family, the *i*CarbofilmTM, who allows a further increase in density of pure Carbon while reducing it's overall thickness to <0.3µm. This innovative technology brings an even closer similarity to the diamond structure of pure Carbon and its exceptional bio/haemo compatibility. The new Easy Flype and Easy HiFlype delivery system guarantees:

- **Easy track and reliable lesion crossing.** Provided by the use of flat-wire braiding which optimizes push/flex performance of the catheter shaft, also in cross-over procedures.
- **Smooth device release** thanks to the PTFE coated and braided catheter which minimizes friction between components, increasing flexibility and reducing the risk of kinking.
- **Precise positioning.** The 3:1 gear reduction allows micrometric release and sure anchoring of the stent to the vessel wall.

For more information please visit:
www.cidvascular.com



DELCATH

Our proprietary system for chemosaturation is designed to administer high dose chemotherapy and other therapeutic agents to diseased organs or regions of the body, while controlling the systemic exposure of those agents. Our initial focus is on the treatment of primary and metastatic liver cancers. In 2010, we concluded a Phase III metastatic melanoma study, and recently completed a multi-arm Phase II trial to treat other liver cancers. We received CE Mark approval for the Hepatic CHEMO**SAT**® delivery system in April 2011, and expect to file for FDA approval of our system in the United States by the end of 2011.

EUROCOR

FREEWAY™ 035 PTA drug-eluting balloon

Eurocor, a European Life Sciences Technology Corporation specialized in the research, development and manufacturing of cardiovascular and endovascular products, announces the launch of FREEWAY™ 035, the latest paclitaxel-eluting PTA balloon catheter technology. This new DEB catheter is especially designed to treat atherosclerosis in peripheral arteries e.g. superficial femoral arteries (SFA). Eurocor's DEB technology utilises a 1:1 shellac/paclitaxel coating, which is released when the balloon is expanded. In addition to the FREEWAY™ 035 balloon line **Eurocor** offers a full dedicated product line for below the knee artery treatment, FREEWAY™ 014 for the treatment of patients with Critical Limb Ischemia (CLI).

Early clinical experiences suggest that the technique reduces rates of restenosis in patients undergoing angioplasty in femoropopliteal arteries and arteries below-the knee, with no additional adverse events. Three randomized prospective clinical trials initiated for FREEWAY™ drug-eluting balloon have already entered into their critical phase.

EV3

DURABILITY 200: More Clinical Evidence for 200mm Stents in the SFA

Drs. Bosiers, Deloose and Peeters implanted 200mm Protégé™ EverFlex™ stents (ev3 Inc., Plymouth, USA) in TASC C-D femoropopliteal lesions over 150mm long in 100 Rutherford 2-5 patients. Primary endpoint was primary patency at 12 months by DUS (PSVR < 2.4). Per patient 1.6 200mm Protégé™ EverFlex™ stents were implanted. Mean lesion length was 242mm (160-450mm). At 12 months: primary patency was 64.8%, freedom from TLR was 68.2%, ABI and Rutherford class improved significantly ($p < .0001$), stent fracture rate was 6.0% per patient with only one loss of primary patency. The authors concluded: "The **DURABILITY 200** results show an acceptable primary patency rate in TASC C and D lesions, the findings warrant further investigation. The release of more SFA stent data will increase our understanding of the effect of stent design".
Published online in June 2011 in the Journal of Vascular Surgery.
For more information, visit the ev3 – Covidien booth at CIRSE.
Indications, contraindications, warnings and instructions for use can be found in the product labeling supplied with each device.

MEDRAD

Cotavance® Product Announcement for CIRSE

The Cotavance® drug eluting balloon, developed by MEDRAD, INC., a global interventional business of Bayer HealthCare, is the first and only peripheral drug eluting balloon with Paccocath® Technology, a proprietary drug matrix applied to the balloon of an angioplasty catheter for the treatment of narrowed blood vessels associated with PAD.

Paccocath technology is the most studied, proven, and published DEB technology. Positive long-term clinical results from the THUNDER and FEMPAC studies show that interventional procedures using Paccocath technology keep vessels open wider over time compared to standard angioplasty and published reports of other current standard-of-care therapies. Patients treated with Cotavance DEB experience durable outcomes characterized by lower restenosis rates and improved quality of life.

MERIT MEDICAL

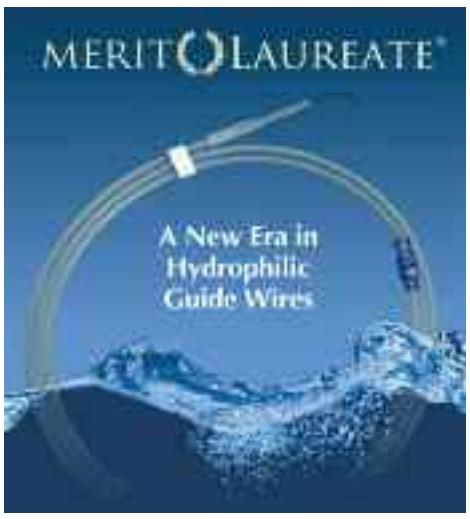
Laureate Hydrophilic Guide Wire

Finally, a hydrophilic guide wire with TRUE one-to-one torque and lasting lubricity! Merit Medical proudly introduces the Merit Laureate® Hydrophilic Guide wire.

Clear clinical benefits:
- Exceptional one- to- one torque ratio
- Rapid vessel selection
- Enhanced lesion cross-ability
- Longer lasting lubricity

Join us at booth #128 for a hands-on comparative demonstration of this exciting new hydrophilic guide wire!

A New Era in Hydrophilic Guide Wires



MEDTRONIC

Medtronic presents the new Kyphon® Xpede™ Bone Cement. This cement is indicated for the treatment of pathological fractures of the vertebral body. It is designed to meet the specific needs of the minimally-invasive Kyphon® Balloon Kyphoplasty procedure, doughing quickly, yet giving the physician sufficient time for careful, surgical introduction and controlled delivery.

Kyphon® Xpede™ Bone Cement is more than twice as quick to dough compared to Kyphon® HV-R® Bone Cement, giving the physician the ability to help more patients faster. Kyphon® Xpede™ Bone Cement enables easier intra-operative planning and helps physicians gain time in their procedures. Plus, Kyphon® Xpede™ Bone Cement provides all of the great handling characteristics our customers have grown to expect from Medtronic, the inventor of balloon kyphoplasty.

Advertorial

New Product Launches

OPTIMED

sinus-SuperFlex-635

Our best 6F stent system ever. The unique micro-mesh design for excellent vessel wall coverage in combination with elaborate electropolishing into the farthest corners makes this nitinol stent truly unique in comparison existing stent on the market. The smooth finish of the stent surface with perfectly rounded corners reduces reactions and irritations of the intima and rendering the structure extreme durable. sinus-SuperFlex-635 guarantees both optimal vessel adaptation and maximal flexibility without compromising radial force. The stent ends with closed-cell design and radiopaque markers ensure excellent visibility facilitating vessel wall fixation. Its well proven 6F application system, with 1:1 rotational control allowing pin-point placement, is tapered to an .035i guide wire, and is ideally suitable for cross-over technique.

NyloTrack-35

The new semi-compliant PTA-balloon catheter offering 5F sheath compatibility. The low profile tip design, the radiopaque markers and the durable nylon balloon enable a safe and easy use for the interventionalist.

All parts, from tip to hub, are perfectly matched together and achieve the highest scores in inflation-deflation times, rated burst pressure, rotational control and kink resistance.
Tapered to an .035i guide wire the balloon catheter offers excellent torque control and passage through extreme, calcified stenoses or occlusions. The re-wrapping feature of the balloon facilitates re-entry of the catheter and multiple inflations. The NyloTrack-35 sets new standards in balloon dilatation.

PHILIPS

Philips to launch a new application for Sonalleve MR-HIFU therapy platform during CIRSE 2011

At CIRSE 2011, Philips is introducing a new therapy application for its Sonalleve MR-HIFU* therapy platform, specifically for the palliative pain treatment of bone metastases. The Sonalleve MR-HIFU therapy platform was first launched to offer a non-invasive alternative to traditional surgical treatments for uterine fibroids. It combines magnetic resonance (MR) imaging with high-intensity focused ultrasound (HIFU) therapy. This treatment technique minimizes patient discomfort.

Many cancer patients develop metastases in the bones at the latter stages of their disease, which can cause severe pain. Sonalleve MR-HIFU is now introducing a palliative pain treatment of bone metastases, and offers a non-invasive alternative to traditional treatments. Broader coverage and easier patient workflow solutions have also been added to the MR-HIFU platform. See a demonstration at Philips booth, 111.

* *Not available for sale in North America*

SIMBIONIX

The new EVAR software module on the PROcedure Rehearsal Studio allows clinicians to create a patient specific 3D anatomical model based on a patient's CT for the purpose of simulating, analyzing and evaluating preoperative endovascular abdominal aortic aneurysm repair for surgical treatment options. The generated 3D model is loaded onto the Simbionix ANGIO Mentor to allow physicians to practice using a stent graft system including aortography, precise deployment of the bifurcated and contralateral leg stent graftcomponents, deployment of iliac and aortic extensions and touch-up ballooning.

Simbionix is the world's leading provider of simulation, training and education solutions for medical professionals and the healthcare industry. With its full array of MIS simulators, PROcedure Rehearsal Studio, MentorLearn Simulator Training Management, and online Simposia Clinical Practice Communities, the company is committed to advancing clinical preformance and optimizing procedural outcomes through education and collaboration.

TERUMO

Misago® now available in 4 new sizes

Terumo has now expanded the range of its Misago RX 0.035" self-expanding stent to include the following new sizes: 6x120mm, 6x150mm, 7x120mm, 7x150mm. The Misago unique rapid exchange delivery mechanism provides precise stent deployment even in longer stents. The reliable long-term safety and efficacy of the MIsago stent, which have been proven in current clinical studies, are now available in sizes to treat extra-long lesions.

Terumo launches Senri®, a new low profile balloon catheter

Terumo is proud to announce the launch of Senri, a 0.018" RX low profile PTA balloon catheter. The new product is available in 3 to 8mm balloon diameters intended to cover the entire lower limb area. This product is r ecommended as a daily workhorse due to its balanced overall performance and reliable Japanese quality. Senri has pushability comparable with OTW systems due to its hybrid shaft structure. Once your try this new product, it will likely become one of your essentials.

Radifocus® Glidewire AdvantageT now available in 0.014" and 0.018" sizes

Terumo is pleased to introduce its newest generation of peripheral guidewires: the Radifocus® Glidewire AdvantageT now available in 0.014" and 0.018" sizes!
Specifically designed for below-the-knee and femoro-popliteal procedures, the Radifocus® Glidewire AdvantageT hybrid technology provides an optimal combination of advantages: Durability: Outstanding anti-kinking performance and shape retention capability thanks to Nitinol core material and M Coat® hydrophilic coating. Crossability: Optimal sliding ability due to 25cm distal portion with M Coat® hydrophilic coating. Maneuverability: Complete control of navigation with the Nitinol shaft and high stiffness. Device support: An extra-stiff proximal core shaft with the unique spiral PTFE coating which provides efficient device support and very smooth sliding even in complex anatomies.

Clinical benefits of the Radifocus® Glidewire AdvantageT 0.014" and 0.018" include: Reduced risk of complications, Shorter procedure time, Decreased fluoroscopy time, Reduced contrast usage.

Radifocus® Glidewire AdvantageT 0.014" and 0.018" are available in 2 different lengths: 180 or 300cm

VIDACARE

Introducing the first radical breakthrough in bone biopsies in over 50 years

OnControl, the first significant advance in bone biopsy technology, gives clinicians the ability to effectively, safely and rapidly obtain superior samples.

A lithium-powered driver advances the needle with speed, ease and precision into the bone or marrow, and a threaded cannula effectively "grabs" the sample. The result is exceptional quality core samples obtained quickly and consistently.

This advanced system gives clinicians an excellent alternative to find and diagnose bone-related disorders, including more options for access.

Visit us at the 2011 CIRSE Conference in Munich at Booth #241, 1st level.

For information and supporting research, please visit www.vidacare.com.

Interventional Quarter – an IR's best friend

2 years ago, the CIRSE congress witnessed the launch of a brand new IR magazine. Interventional Quarter (IQ) has since grown to a readership of 45,000, many of them non-radiologists. We talk to Editor-in-Chief Jim Reekers to find out why the magazine is in such demand.

The IQ Editorial Team: (l-r) Tochi Ugbor, Adam McLean, Nadja Alomar, Robert Bauer and Ciara Madden

Visit the Next Publishing Booth on the 1st floor (booth Nr. 221c) to pick up some complimentary copies.

Look out for the next edition, *IR in Trauma*, coming in autumn 2011.

Why did CIRSE take the initiative to support IQ?

Everybody knows what a surgeon is and what a gynaecologist does – albeit not in great detail, but there is certainly a basic understanding among the general public. But very few have heard of interventional radiologists. And while a patient can ask to be referred to a surgeon, they are not able to ask to be referred to an IR, due to a lack of information.

The same problem exists with medical policy makers, to whom interventional radiologists are often an unknown species. When people are unaware of your work and, indeed, your existence, there is little chance that patients will look to IR for help. This lack of awareness also has repercussions for hospital budgets – why would administrators give money to a department when they don't know what they will use it for, or if that department does not help raise your hospital's profile?

The key to changing this and achieving lasting success is public awareness, and winning the appreciation of those who run the medical administration. IQ is the ideal vehicle with which we can raise our profile, and create that awareness.

How will IQ contribute to the future of IR?

As mentioned before, lack of public awareness is still one of the main obstacles to IR's acceptance and further growth. This can only be overcome with a continuous flow of information which shows the successes and potential of IR as a medical specialty. This information should be available to all those who choose (or who could potentially choose) an IR solution for a medical problem, whether they are patients, insurance companies, administrators or politicians. IQ is an important resource in this awareness campaign, and is currently reaching 20,000 hospital administrators, as well as 25,000 doctors and politicians.

What makes IQ different from a scientific medical journal?

First of all, the IQ layout is completely different. We have tried to make it more like a glossy magazine, which you can leave in a waiting room or on a coffee table. The design is very inviting. The information is written or edited by professional journalists and not directly by doctors, which avoids the difficult medical language that can alienate our patients and administrators.

All the information is presented in short pieces and covers a great variety of topics, which again makes reading easy for anybody without a medical background. We also, like all glossies, include human interest stories as a carrier of our message. Because of the support we have received from CIRSE, we are able to have no advertisements in the journal and maintain a distance from vested interests, which I think contributes very much to our credibility.

Who receives a copy of IQ?

Through a partnership agreement, IQ is distributed alongside the well-known magazines *Imaging Management* and *E-Hospital*, reaching almost 30,000 readers. All CIRSE members and contacts also receive a complimentary copy, as do CIRSE's industry partners. Additional copies are sent to national healthcare departments and specialist organisations who requested copies for distribution at their own events and congresses. We're happy to provide copies to any patient or medical groups, so please feel free to get in touch if you would like to do so.

Which issue are you most proud of?

That is, of course, always the latest issue, because we are still improving with every edition. Our latest one addresses Women's Health, and contains a great mix of pure medical information and background information. The IQ staff has again done a fantastic job. All congress delegates have received a copy in their congress bags, and if anyone would like additional copies, or has misplaced their own copy, I would urge them to visit the IQ/Next Publishing booth here in Munich. Additionally, if you think a colleague or administrator would like a copy, you can leave their address with the IQ team, who will add them to our distribution list.

What will be the final goal of IQ?

The goal of IQ is the dream of the IR – a world where a visit or referral to an IR would be as normal and commonplace as a visit to a surgeon. A world where medical administrators would find it unthinkable not to have a first class IR service in their hospital. We also aim to have our procedures and work seen by the general population. This can all be achieved by maintaining a continuous flow of easily accessible information to all the stakeholders. We have developed the procedures; now we need to create an awareness of them. I hope that one day, IQ will not be necessary anymore, but this day will probably not come very soon. Until then, we will continue to promote IR, and hope that you will all help us in this quest!

Munich – A City of History and Happiness

Munich – the quintessential German town, its red roofs, old churches and market squares filled with the scent of sausages, the clink of beer mugs, and the laughter of men in lederhosen and women in dirndls. And yet, it is the odd-man-out of German cities, which are safeholds of sleek, polished cars, shiny skyscrapers and big business. Munich feels different. Munich looks different. Munich is… itself.

Geography and history have colluded to give Bavaria, and its capital, Munich, a distinct identity. Nestled in the far south of Germany, at the tail end of the Alps that cleave Europe in two, Bavaria has always found itself to be separate from Germany. Indeed, until 1871, Germany didn't exist – instead, independent Germanic states often vied with each other for power. The huge differences between north and south, in terms of language, culture and even dominant religion, stem in part from this geographical divide – locked behind the Alps, Bavaria developed its own cultural identity, which in our globalised and shrinking world, is still going strong.

Beginning in the Middle

Munich was born in 1158, which is the earliest document reference we have for it. Founded by the Benedictine monks for whom the city is named (München), it was given official city status in 1175. The monks gave Munich more than its name and coat of arms, as their mastery of the art of beer-making has survived, enshrined in the German Purity Laws which ensure the quality of all beers brewed in Germany.

In 1180, the Duchy of Bavaria was given to Otto I Wittelsbach, whose heirs would rule Bavaria until 1918, but in 1255, the duchy was split, with Munich becoming the duchal residence of Northern Bavaria. A major coup for Munich was the crowning of Duke Louis IV as German king in 1314, and as Holy Roman Emperor in 1328. He increased the city's profile and position by granting it the salt monopoly, ensuring a steady and impressive stream of income.

By the late 15th century, the city was using its wealth to fund a Gothic arts revival. The Old Town Hall was expanded, and the Frauenkirche, Munich's largest Gothic church (now a cathedral) was constructed in a mere 20 years.

In 1506, Bavaria was reunited, and Munich was designated the new capital. In the century that followed, Munich became a centre of the German counter-reformation, and of renaissance arts. The famous Hofbräuhaus was built in 1589. The city became an important centre of baroque life, but despite (or perhaps because of) its wealth and status, it had to endure Habsburg occupations in 1704 and 1742.

Weimar Germany and the Bavarian Soviet Republic

Munich did not escape the pains of the First World War. Food shortages and damage from air raids did nothing to assuage the political unrest that followed the end of the war. In November 1918, Ludwig III and his family fled the city, and a new Republic was declared. But peace was not to be bought so easily, and in February 1919, Kurt Eisner, the first republican premier of Bavaria, was murdered. In the vacuum and chaos that followed, the Bavarian Soviet Republic was proclaimed.

Despite its later reputation for right-wing political affiliations, early 20th century Munich had a surprisingly active leftist scene. Lenin had lived there some years before, and sent the new communist authorities a congratulatory telegram. But this, too, was not going to be the solution to the city's troubles, and the short-lived Soviet Republic was overthrown on the 3rd of May 1919.

A gathering storm

With the republican government restored, Munich's romance with leftwing politics seemed over, and the city became a centre for right-wing movements, the most prominent of which was the National Socialism movement led by Adolf Hitler.

Things turned nasty in 1923, when the infant Nazi Party launched their Beer Hall Putsch, attempting to overthrow Weimar Republic. The revolt failed, and Hitler was sent to prison. At the time, the Nazi Party was virtually unknown outside Munich, but by 1933, the Nazis had taken power in Germany. Despite the capital of the new empire being Berlin, they never forgot their Munich origins, and the city was referred to as the "Hauptstadt der Bewegung" (Capital of the Movement). As well as basing various party buildings there, they gave Bavaria the dubious honour of hosting the first concentration camp built by the regime, 16km northwest of Munich at Dachau.

Courage and confrontation

The complex tangle of human history shows us that while adversity can bring out the worst in human nature, it can also bring out the best. In spite of political dangers, there remained resistance to the regime, the most famous of which is the White Rose movement, where a group of students bravely distributed dissenting pamphlets at Munich University. Brother and sister Hans and Sophie Scholl were arrested while on a covert pamphlet-drop, leading to the arrest and execution of the core members.

Munich was also the site of one of the most infamous attempts on Hitler's life. Johann Georg Elser was one of the many who disagreed with the regime's violent aims, but incredible courage led him to do the extraordinary – to try to kill the Führer.

Though a member of both the wood workers' union and the Communist Party, Elser was not particularly active in either. He was a devoted churchgoer who believed in the dignity of man, and saw the Communist Party as being the best defender of workers' interests. He opposed the Nazi regime from the beginning, refusing to perform the salute or to listen to propaganda speeches on the radio.

Fearing that Hitler's policies would lead to war, Elser hatched a plan. On the anniversary of the Beer Hall Putsch, an annual speech was held at the Bürgerbräukeller, and it was always a raucous, rowdy affair. For a month before, Elser hid in the tavern after hours, and hollowed out a pillar behind the speaker's rostrum, into which he placed a bomb. At 21:20 on November the 8th 1939, the bomb exploded as planned – but Hitler had left early to catch a train. Elser was arrested trying to escape to Switzerland, and died in Dachau concentration camp in 1945.

Moving forward

The Second World War saw the city bombed to the ground – its importance to the Nazi machinery made it the target of 71 air raids. Following the war, Bavaria found itself under American occupation, and rebuilding began. In contrast to many German cities, Munich favoured restoration of the old buildings, and the pre-war street grid was maintained. This has helped preserve Munich's character, and tourists especially enjoy the old-world feel of the city. Modern Munich has been continually rated as one of the world's best cities to live in, and despite being the third biggest city in Germany, is affectionately referred to by its residents as *Millionendorf* – village of a million people. With a high standard of living, low crime rate, and its many parks and recreational facilities, it's not hard to understand why.

The Cosmopolitan City with a Heart

Munich's old motto still rings true – it is a beautiful and friendly city, with a character that has grown out of exceptional historical circumstances. While quintessentially German, it remains apart from Germany, content in its own identity. Its pedestrian old town, world-renowned breweries and friendly inhabitants are all waiting to be discovered.

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If you have any questions about this publication, please contact us at madden@cirse.org.

Editors in Chief: *Klaus Hausegger, Thomas Helmberger*
Managing Editor: *Ciara Madden, CIRSE Office*
Graphics/Artwork: *LOOP. ENTERPRISES media / www.loop-enterprises.com*