

CIRSE 2016 – Barcelona
Monday, September 12, 2016

Interventional Oncology: the fourth pillar of cancer care

In recent years, the evidence supporting image-guided cancer therapies has grown, as have the range of treatments and applications available. Interventional oncology is increasingly being recognised as a key pillar of cancer care, alongside medical oncology, surgery and radiation oncology. While the annual ECIO meeting offers a dedicated educational forum, the field's importance is such that it continues to be a key part of the CIRSE meeting.

Radioembolisation Evidence on the Rise

Helen Hemblade, CIRSE Office

While radioembolisation has been an available treatment option for several years, new data on treating patients with metastatic colorectal cancer (mCRC) and hepatocellular carcinoma (HCC) is now demonstrating a clearer picture of its clinical effectiveness. Past studies, providing the basis of knowledge on the use of radioembolisation with Y-90 resin microspheres to treat mCRC, have indicated that radioembolisation has a role in chemotherapy-refractory mCRC but also delays liver progression and possibly improves overall survival when added to first-line chemotherapy regimens.

The 2015 SIRFLOX trial greatly enhanced knowledge of the use of radioembolisation with Y-90 resin microspheres (SIR-Spheres) in combination with first-line chemotherapy for patients with liver-dominant mCRC. In SIRFLOX, patients were recruited with non-resectable liver-only or liver-dominant mCRC with no previous chemotherapy for advanced disease. After screening, 530 patients were randomised to receive mFOLFOX chemotherapy (\pm bevacizumab) or mFOLFOX chemotherapy (\pm bevacizumab) and a single session of SIRT with Y-90 resin microspheres. The primary endpoint was progression-free survival (PFS) at any site, and there was no significant difference between the groups (median PFS 10.7 months and 10.2 months in the SIRT group and non-SIRT group, respectively). However, and quite importantly, assessment of PFS in the liver with a competing risks analysis showed that patients whose treatment included SIRT had a 7.9-month improvement in PFS in the liver from 12.6 to 20.5 months and a 31% reduced risk of the tumours in their liver progressing. Similar liver resection rates were observed in

the two arms of the study [1]. Furthermore, the European Society for Medical Oncology (ESMO) included radioembolisation with Y-90 resin microspheres in its 2014 guidelines for patients with liver-limited metastases failing the available chemotherapeutic options, citing that it can prolong the time to tumour progression

Recently, a pilot randomised trial, SIRTACE, suggested that radioembolisation could act as an alternative to TACE for patients with unresectable HCC because a single session of SIRT with Y-90 resin microspheres had a similar impact on objective response rate and quality of life as multiple sessions of TACE [2].

With this wealth of evidence comes the challenge of how radioembolisation can be optimally integrated into oncologic treatment plans.

CIRSE revs up IO research

Over the past few years, CIRSE has established its European-wide research efforts with the creation of two oncology registries. The recently launched CIREL registry will prospectively observe the administration of irinotecan-eluting microspheres, a newly CE-approved transcatheter chemoembolisation (TACE) system for treating patients with colorectal adenocarcinoma with liver-only or liver-dominant metastatic disease. CIREL will be collecting data over an initial period of three years following enrolment of the first patient, planned before the end of 2016.

In 2014, the first-ever CIRSE Registry for SIR-Spheres Therapy (CIRT) was launched under the direction of an interdisciplinary Steering

Committee headed by radioembolisation expert Prof. José Ignacio Bilbao, on the use of radioembolisation with SIR-Spheres for liver tumours. The registry has now enrolled over 200 patients in medical centres with expertise in this procedure and currently extends across six European countries. As CIRT moves forward, even more countries are being lined up for inclusion in this important data collection project. This extensive research project aims to provide robust data to support the use of IR and its cutting-edge therapies, and help identify the patients that radioembolisation can benefit.

Furthermore, through its collaboration with the European Institute of Biomedical Imaging Research (EIBIR) and involvement in the Horizon 2020 funding programme, the CIRSE Research Network encourages interventionalists to come forward with their research project ideas.

A packed programme

Alongside its research efforts, CIRSE is intensifying its educational initiatives in cancer therapy, working closely with practitioners from different disciplines and industry. Interventional oncology is therefore one of the core themes of this year's congress. This morning, four speakers in the Fundamental Course on radioembolisation will cover dosimetry, preparation, special precautions and an overview of recent trials on radioembolisation. Further relevant sessions coming up include Free Paper, Expert Round Table and a range of Hands-on Workshop interventional oncologic techniques.

Don't miss it!

**Radioembolisation
Fundamental Course**
Monday, September 12 08:30-09:30
Room 112

**Today's Fundamental Course
Radioembolisation**
08:30-09:30, Room 112

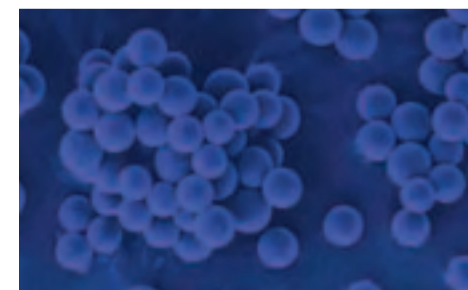
Moderators: C.A. Binkert (Winterthur/CH), J. Ricke (Magdeburg/DE)

Dose calculation for IRs
E.G. Santos Martín (Pittsburgh, PA/US)

Embolisation principles: preparation for radioembolisation
R.J. Lewandowski (Chicago, IL/US)

Patient care: outpatient setup, special precautions
W.S. Rilling (Milwaukee, WI/US)

Overview of recent trials
J.I. Bilbao (Pamplona/ES)



References:

- Gibbs P, Heinemann V, Sharma NK, et al. SIRFLOX: Randomized phase III trial comparing first-line mFOLFOX6 \pm bevacizumab (bev) versus mFOLFOX6 + selective internal radiation therapy (SIRT) \pm bev in patients (pts) with metastatic colorectal cancer (mCRC). J Clin Oncol 2015; 33 (suppl.): A3502
- Kolligs FT, Bilbao JI, Jakobs T, et al. Pilot randomized trial of selective internal radiation therapy vs. chemoembolization in unresectable hepatocellular carcinoma. Liver Int 2015; 35: 1715-21

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CVIR

CardioVascular and Interventional Radiology

Neurointerventions: stroke therapy

Helen Hemblade, CIRSE Office

Thought-provoking new studies in endovascular treatment and advances in imaging for acute ischaemic stroke have subsequently led to fervent discussion about the role of the interventionalist in stroke therapy. Prior to this past year, clinical studies had provided neutral or even negative results on endovascular treatment of acute ischaemic stroke. However, recent results from several studies have proved otherwise. During this year's Hot Topic Symposium – moderated by Prof. Tommy Andersson and Prof. Klaus Hausegger – Prof. Heinrich Mattle, Prof. Tobias Engelhorn and Dr. Patrick Brouwer will discuss current treatment strategies, new evidence and the role of the IR in acute ischaemic stroke therapy.

The turning point

In 2014, the Amsterdam-based MR CLEAN trial demonstrated that patients who were treated with IA intervention within six hours of symptom onset, in addition to usual care, had an increase in functional independence in daily life at three months without an increase in mortality, according to the modified Rankin scale. Intra-arterial treatment consisted of arterial catheterisation with a microcatheter and delivery of a thrombolytic agent, mechanical thrombectomy or both.

The exciting data from MR CLEAN and four other successful 2015 studies (ESCAPE, REVASCAT, SWIFT PRIME and EXTEND IA) were pooled to set up the HERMES collaboration. This meta-analysis showed that for every 100 patients with a large-vessel anterior-circulation ischaemic stroke treated with endovascular thrombectomy, 38 will have a less disabled outcome than with best medical management alone, and 20 more will achieve functional independence, irrespective of geographical or patient characteristics. Results also suggested a strong trend towards endovascular treatment being beneficial for up to even eight hours from symptom onset. Furthermore,

in the recently published two-year CRISP study (CT perfusion to predict response to Recanalization in Ischemic Stroke Project) of 102 ischaemic stroke patients in the USA who had endovascular therapy, researchers found that when CT perfusion imaging is performed, large areas of brain tissue can be safely salvaged up to 18 hours after stroke symptoms begin. According to this study, there was no significant association between time to treatment and good outcomes when the CT perfusion imaging showed salvageable brain tissue.

Current status

In most countries, health authorities have approved the use of tissue plasminogen activator (tPA) for up to 4.5 hours. In the USA, the FDA has approved use for up to 3 hours after stroke onset. However, despite proven clinical efficiency, at least 50% of IV-treated stroke patients remain disabled or die. Clear evidence has accrued showing that urgent recanalisation is crucial in patients with ischaemic stroke caused by an occluded major intracranial artery. However, early recanalisation after IV treatment is seen in less than 10% patients with an occlusion of the internal carotid artery terminus, and the prognosis without revascularisation is generally poor for such patients. Prof. Mattle notes that tPA is not effective enough to dissolve large clots and, for patients with large vessel occlusions, mechanical thrombectomy after tPA, or mechanical thrombectomy alone, is superior to intravenous thrombolysis. On top of winning extra time, this is why intra-arterial treatment is regarded as a potentially important component of the treatment. He outlines however, that he does not believe mechanical thrombectomy could be performed in all stroke victims and that patients with occlusions distal to large vessels will likely always be the target patients for intravenous thrombolysis. Prof. Mattle suggests that the big challenge now is to organise a

stroke network that brings as many suitable patients with large vessel occlusions to stroke centres as fast as possible, while patients who need intravenous thrombolysis can be treated in regional stroke units.

The importance of imaging

The current approach to patient selection for mechanical stroke reperfusion therapies is based on the time from stroke symptom onset and imaging-derived existence of a major vessel occlusion such as the ICA, BA or the proximal MCA. Prof. Engelhorn believes this approach to be reasonable in the first six hours after stroke onset when substantial salvageable tissue probably exists in the majority of patients. However, this neglects the variable collateral physiology that exists between individual patients and probably plays a critical role beyond this time window. Besides the neurological deficit, brain imaging is of major importance. He argues that brain CT imaging – ideally multimodal MRI using perfusion and diffusion imaging and various types of cerebral angiography – should be available non-stop for stroke patients. Prof. Engelhorn furthermore hinted to alternative approaches employing ASPECT score and absolute lesion volumes of the core infarct and the surrounding region of hypo-perfusion as promising developments that still require further validation.

What is the next step?

Aside from the re-organisation of stroke management across healthcare systems, this is the burning question among not only those practising neurointerventions but also general interventionalists. Referencing the MR CLEAN trial, Dr. Brouwer points out that the positive patient outcome is a mere reflection of the fact that these practitioners were trained to perform thrombectomy as part of their normal professional neurointerventional workload. The potentially more important question of

Don't miss it!

**Paradigm shift: acute ischaemic stroke
Hot Topic Symposium**
Monday, September 12, 15:15-16:00
Auditorium 1

who exactly is eligible to perform endovascular neurological procedures thus comes into play: general interventional radiologists with specific training, or only neuro-interventional radiologists? For the general interventional radiologist, it has been doubted whether these skills are transferable for treatment on an organ as unique as the brain. And as such, endovascular treatment requires very careful patient selection.

On the subject of eligibility, Dr. Brouwer laments how it is often forgotten that endovascular treatments are highly specialised and moreover, that knowledge of the end-organ, technical skills and experience are necessary to ensure a safe treatment. This is especially true in the case of intra-arterial ischaemic stroke treatment, which can be considered an operative procedure, and therefore needs a specialist to perform the therapy, in comparison to IV thrombolysis where a nurse can administer the treatment once the stroke specialist has set the indication for IV treatment. He cautions that practitioners who are unskilled and unaware are not only a serious threat to the patient but also to the future of the technique itself.

The thrilling discussion will continue in the Hot Topic Symposium today – don't miss out!

More neurointervention sessions at CIRSE 2016

Basic acute ischaemic stroke intervention Fundamental Course

Tuesday, September 13, 08:30-09:30
Room 115

How to improve acute stroke management: present and future Special Session

Tuesday, September 13, 10:00-11:00
Room 117

ESIR 2016 Course

ESIR 2016 Clinical Procedure Training Mechanical Thrombectomy in Acute Ischaemic Stroke The Hague (NL), December 9-10

During this ESIR Clinical Procedure Training for experienced practitioners, focus will be placed on the logistics of stroke treatment, including available options, therapeutic windows, techniques and managing complications. Attendees will also have the opportunity to familiarise themselves with the most common thrombectomy devices during extensive hands-on workshops.

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Can embolisation alter the course of chronic musculoskeletal conditions?

Yuji Okuno

Osteoarthritis (OA) is the most common degenerative joint disease, and significantly affects patients' quality of life and results in direct and indirect costs ranging from 1-2.5% of the gross national product in Western countries. The most frequent site of OA is the knee, with more than 40% of people older than 70 diagnosed with knee OA.

There are currently no curative or effective disease-modifying treatments for OA. Current therapeutic options are essentially symptomatic, usually temporary and often ineffective, with major joint replacement surgery remaining the most radical treatment in end-stage OA. Joint replacement has a limited durability, carries the risk of complications (a significant driver of current high costs of OA) and is not feasible in a considerable number of patients due to comorbidities and elevated perioperative risk.

Several lines of evidence indicate that inflammatory process plays a critical role in the development of OA and is a vicious circle. Inflammatory mediators are released by synovium and adipose tissue and cause cartilage loss and osteophytosis, which lead to increased mechanical stress to surrounding tissues and, in turn, cause further inflammation [1].

Angiogenesis is believed to contribute to the origin of inflammation, and especially to its continuance. Some researchers have demonstrated that pharmacological inhibition of angiogenesis could lead to improvement of inflammation and pain behaviour through an animal experimental model [2]. In addition, studies have shown that angiogenesis may contribute to chronic pain by enabling growth of new unmyelinated sensory nerves along the neovessels [3]. In fact, histopathological studies have demonstrated the existence of abnormal neovessels with accompanying nerve fibres in tissues from various painful conditions including osteoarthritis.

With the advent of new technology and skills in the field of interventional radiology, embolisation of small abnormal neovessels has become feasible, and appears to be a potential target to treat chronic pain and inflammation in musculoskeletal conditions.

We have previously reported the results of transarterial embolotherapy in patients with refractory tendinopathy and enthesopathy [4], frozen shoulder [5] and mild to moderate knee osteoarthritis [6]. We named this embolisation treatment TAME (transcatheter arterial micro-embolisation), because it uses a small amount of small-sized embolic particles. We have continued to perform this treatment on more

patients and have assessed long-term clinical results and safety profile.

This treatment is based on the hypothesis that in OA and other chronic painful conditions, abnormal neovessels have a central role in the start and continuation of inflammation and pain. Neovessels act as a pipeline of inflammatory cells, which in turn stimulate the development of new abnormal neovessels. These abnormal neovessels are surrounded along their path by sensory nerve fibres that are strongly suspected of being a major actor in the start of pain and are stimulated by the abnormal increase of blood flow.

The goal of TAME is not to achieve permanent infarction, but to reduce the amount of abnormal neovessels and normalise the blood flow. The reduction of neovessels by TAME is expected to reduce inflammation and also the stimulation of accompanying sensory nerves, thus resulting in pain reduction in patients with knee OA.

We used two types of embolic materials: imipenem/cilastatin sodium (IPM/CS) which is a transient embolic agent, and calibrated microspheres Embozene 75 µm.

IPM/CS is a crystalline compound, approved as an antibiotic, slightly soluble in water, and when suspended in contrast agent, forms 10 to 70 µm particles that exert a transient embolic effect [7]. Regarding Embozene 75 µm microspheres, 0.15 ml of the solution was diluted with 2 ml of contrast agent and injected in 0.2 ml increments until blood flow stagnated.

In our previous report of early experience [6], TAME appears to be a feasible and effective pain treatment for patients with mild to moderate knee OA. The study included 14 patients with mild to moderate OA, resistant to conservative pain treatment, and found significant pain relief following embolisation, with validated Western Ontario and McMaster Universities Arthritis Index (WOMAC) pain scores decreasing from 12.2 ± 1.9 before treatment to 3.3 ± 2.1 at one month after the procedure, 1.7 ± 2.2 at four months post-embolisation.

Between 2012 and March 2016, 75 patients with knee OA were treated. No serious adverse event was noted. Minor complications, such as transient cutaneous colour change (only seen in cases treated by Embozene) and moderate subcutaneous haemorrhage at the puncture site, were observed and resolved without any treatment.

The severity of OA in these 75 patients was classified according to radiographic Kellgren

and Lawrence (KL) grade. 33 out of 38 (88%) patients with KL grade 1-2 OA (early stage of OA) showed good clinical response, answering "very much improved" or "much improved" on patient global impression of change questionnaires at four months after treatment. 16 out of 29 (55%) patients with KL grade 3 OA (moderate OA) showed good clinical response, but out of 8 patients with KL 4 grade (end stage OA), none showed good response. Patients with bone marrow necrosis depicted on MRI before treatment also showed poor results. Thus, we suggest that these patients should not be eligible for TAME.

We continued clinical assessment up to 3-4 years in 20 patients with KL 1-2 OA who were treated between 2012-2013, and sustained improvement was seen at final follow-up. On MRI follow-up of these 20 patients at 2 years after TAME, none showed bone marrow necrosis, obvious cartilage loss compared to baseline or aggressive degenerative changes. Interestingly, MRI signs of synovitis improved significantly at final follow-up compared to baseline.

We have applied the TAME procedure to other chronic painful conditions, such as frozen shoulder and overuse injuries, including tendinopathy and enthesopathy. So far, we have treated 98 cases of tendinopathy and enthesopathy and 125 cases of musculoskeletal shoulder pain, including frozen shoulder. We think that these conditions are good indications of TAME as well as knee osteoarthritis.

According to our experience, this innovative interventional radiology pain treatment seems promising and offers a new effective option for pain control. Its efficacy and safety should be studied in high quality, large scale trials with control groups.

The TAME procedure remains more invasive than other routinely used minimally invasive treatments for pain management, and should be performed by a trained interventional radiologist. The limitations of our current studies include a limited number of patients and no control group. To date, our work represents a solid proof of concept and a sound basis for further studies.



Fig. 1: Angiography of normal and osteoarthritis knees pre- vs. post-embolisation
In a normal knee without OA (a), a normal angiographic appearance of the left descending genicular artery is visible without neovessels. In a 61-year-old patient with knee OA (b), selective angiography of the descending genicular artery before embolisation shows abnormal neovessels (black arrow) adjacent to the medial condyle, which are eliminated after embolisation (c).
MC=medial femoral condyle, LC=lateral femoral condyle

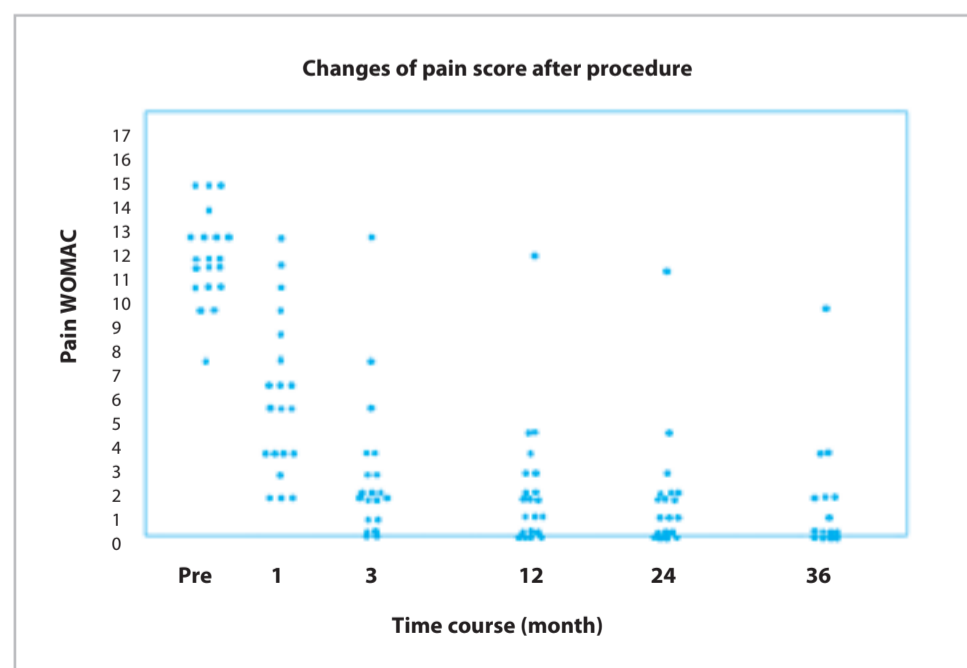


Fig. 2: Trend of WOMAC Pain score in 20 patients with KL grade 1 or 2 knee OA treated with TAME
A strong reduction of pain is shown in the first months after treatment, which is maintained at long-term follow-up till 36 months post-embolisation.

Don't miss it!

Musculoskeletal embolisation

Special Session

Monday, September 12, 08:30-09:30

Room 117



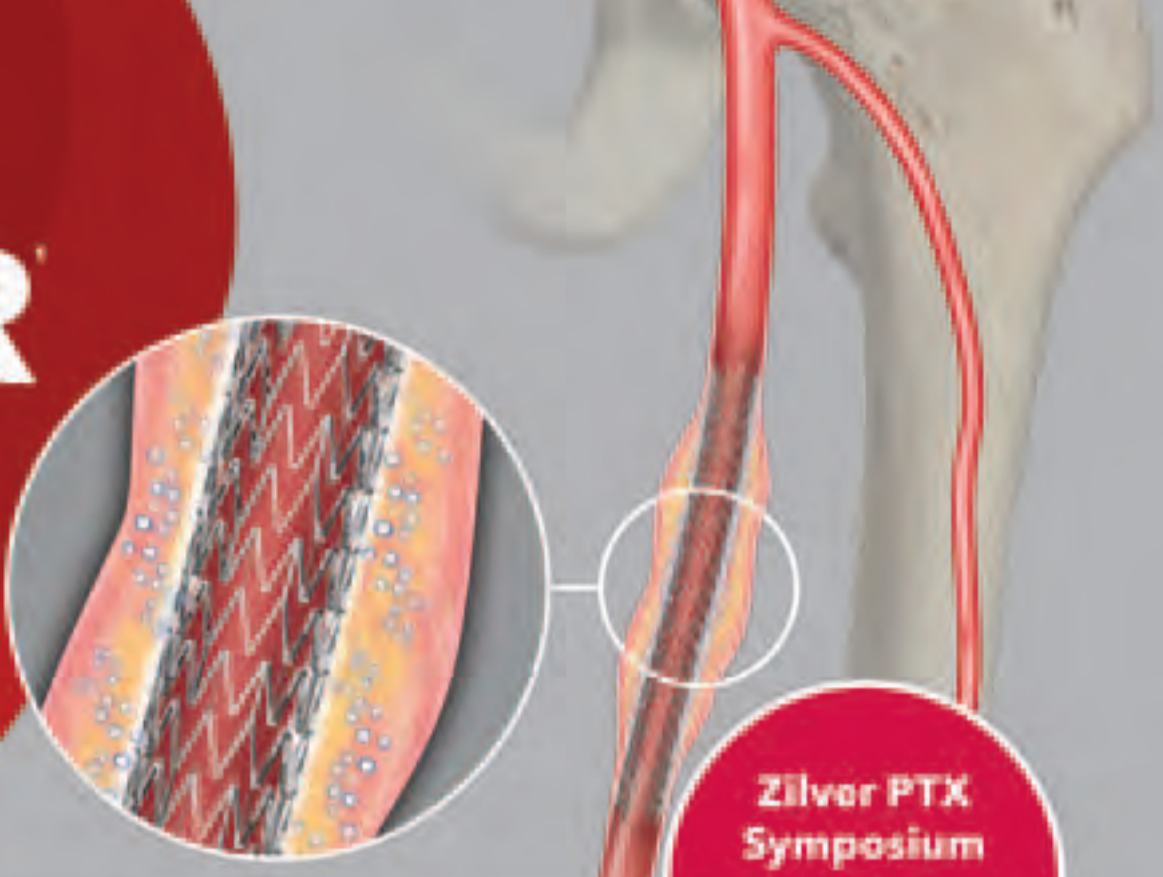
Yuji Okuno
Edogawa Hospital
Tokyo, Japan

Dr. Okuno is Director of the Musculoskeletal Intervention Center at Edogawa Hospital in Tokyo. He has published multiple works on musculoskeletal topics, particularly regarding the subject of transcatheter arterial embolisation. These have been featured in various journals, including the Journal of Vascular and Interventional Radiology, Cardiovascular and Interventional Radiology, and the Journal of Shoulder and Elbow Surgery.

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Zilver PTX[®] Symposium
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Pick up complimentary flags at the door and use them to cast your vote in the multiple choice questions. The Quizmasters will present the audience with three possible answers to each case – those choosing incorrectly are out of the game! The last few contestants left standing will be invited onstage for an exciting head-to-head finale.

Those eliminated at the very beginning will get a second chance to put their skills to the test!

Can you beat our Quizmasters? And more importantly – can you beat your friends and colleagues? Find out how good you really are!

Join us today at 14:30 in Auditorium 1!

Quizmasters:
Ian McCafferty (Birmingham/UK)
Anthony Watkinson (Exeter/UK)



Direct SFA Access

Florian Wolf

Ensuring a safe and stable arterial access is the absolute prerequisite for every arterial intervention. For decades, the common femoral artery was almost the only arterial access point used by interventional radiologists. Nearly every vessel in the human body can be reached from this common access site.

To reach the contralateral leg vessels, a cross-over access is the preferred method, since it is also easy to achieve in obese patients, and the C-arm is away from the puncture site, which enables easy and low-radiation work. Nevertheless, there are some disadvantages to using a cross-over access:

1. The sheath cross-over must be done via the aortic bifurcation, which can be difficult in steep bifurcations or in patients with heavy calcifications.
2. Instruments with long shafts and long wires must be used, which makes the intervention more complex for the physician and his/her assistants, and also leads to a longer intervention time, and, as a consequence, a higher radiation dose for the patient and the physician and his/her team.
3. The pushability, but especially the steerability, of the instruments might be not sufficient. Especially in complex interventions, for example, with long-standing subintimal recanalisation of the SFA, an excellent pushability and an exact steering of the wire is crucial for successful procedures. Lower-leg vessel recanalisations can be done using an antegrade access almost exclusively – using a cross-over access in these patients is successful only in rare cases.

Moreover, in more and more patients, an arterial access using the contralateral common femoral artery is not possible for various reasons, such as obesity, a short time period between groin surgery and the interventional procedure, infection, and other reasons. Different alternative access routes are available, including popliteal or pedal retrograde access, transbrachial or trans-radial access, or a hybrid intervention using a surgical cut-down. All these techniques should also be part of the portfolio of an experienced interventional radiologist; however, they also have some disadvantages and cannot be used in all patients.

Using the superficial femoral artery as an alternative access site is technically relatively easy, and different studies have shown low complications rates compared to the standard common femoral artery access [1-4]. The most

important feature for a direct antegrade access of the superficial femoral artery is the use of ultrasound guidance, which should be easy to achieve, since, in most interventional radiology suites, an ultrasound machine is available. With ultrasound, an optimal puncture site is chosen, and, under ultrasound guidance, local anaesthesia is applied. The ultrasound-guided vessel puncture is performed using a 19 G open needle, and only the anterior vessel wall should be punctured in order to avoid a wall haematoma or a bleeding. The wire can also be advanced without any fluoroscopy, since there is no deep femoral artery, and the wire will automatically glide into the peripheral superficial femoral artery.

Alternatively, a micropuncture set can be used, which was investigated in a recent study [1]. That study showed that the rate of pseudoaneurysm was lower using a micropuncture set



Fig. 1: 78-year-old obese female patient with PADO IV and ulcerations in the left foot due to an occlusion of the distal superficial femoral artery and the popliteal artery as well as high grade stenosis of the posterior and anterior tibial artery. A puncture of the common femoral artery is not possible due to the obesity of the patient. For that reason the SFA is punctured and a 6 Fr. sheath is inserted.

(statistically not significant); however, the rate of haematoma was greater and the access time was higher.

In most cases, a 6 Fr. sheath is sufficient, but, in rare cases, 8 Fr. or even larger sheaths may be necessary. The occlusion of the access site can be performed using a closure device like StarClose Proglide, Exoseal [5], or even Angioseal if the lumen of the vessel is large enough. But even manual compression is safe. In a recent study, there was no significant relationship between the sheath size and the rate of complications, particularly the rate of pseudoaneurysms [2].

Direct access of the superficial femoral artery is a safe alternative to a cross-over access or an antegrade common femoral artery access, and should be part of every interventional radiologist's portfolio.

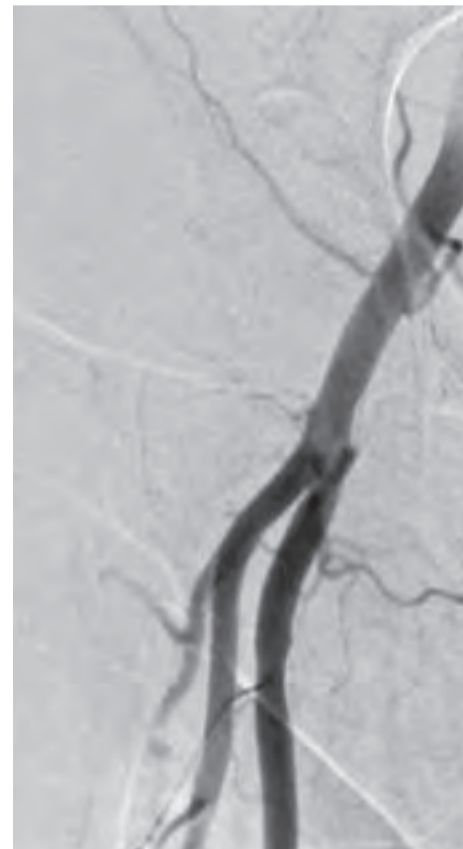


Fig. 2: 65-year-old male patient, history of aortic stent graft implantation with a surgical cut-down in the right groin three days before. CT control and clinical examination showed a high-grade stenosis of the right stent graft leg. PTA and self-expanding stent implantation is performed using a direct access of the right SFA in order to avoid the puncture of the right common femoral artery after surgical cut-down.

Don't miss it!

Alternative arterial access

Special Session

Monday, September 12, 10:00-11:00

Room 112



Florian Wolf
Medical University of Vienna
Vienna, Austria

Assoc. Prof. Dr. Florian Wolf is Vice-Director of the Division of Cardiovascular and Interventional Radiology at the University of Vienna, where he completed his medical education in 2000. He later became a certified radiologist in 2008 and subsequently a holder of the EBIR certification. He is the co-founder of the educational platform Vienna Heart which focuses on teaching post-graduates about cardiac imaging. As well as authoring or co-authoring over 40 publications, Dr. Wolf is on the editorial board of the European Radiology journal. An active member of CIRSE, he served on CIRSE's Clinical Practice App Task Force and was previously on the ESIRonline Editorial Board.

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ESIR 2016 Course

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Enteral feeding – gastrostomy, gastrojejunostomy, jejunostomy
Expert Case Discussion
 Monday, September 12, 10:00-11:00
 Room 115



Hans-Ulrich Laasch
*The Christie NHS
 Foundation Trust
 Manchester, UK*

Since 2005, Dr. Hans-Ulrich Laasch has been Head of Interventional Radiology at the Christie NHS Foundation Trust in Manchester, UK. He led the British multidisciplinary Registry of Oesophageal Stenting and is a faculty member of the British Society of Interventional Radiology (BSIR) and the Society of GI Intervention. Dr. Laasch plays an active role in education, and is a technical advisor for the National Institute of Clinical Excellence (NICE). He has a particular interest in hepatobiliary intervention, GI stents, nutritional support and sedation.

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Per-oral image-guided gastrostomy

Hans-Ulrich Laasch

Traditional radiologically inserted gastrostomy (RIG), which involves direct percutaneous insertion of a feeding tube through the skin into the stomach, is a widely established procedure [1], although there are significant variations in technique [2]. To reduce the risk of displacement, fixation of the stomach (gastropexy) is usually applied. Tubes need to have their retaining mechanism reduced to a size that allows percutaneous insertion and most operators will use tubes with a retaining balloon. These are high-maintenance and need regular replacement with the consequent cost and often considerable patient discomfort.

However, conventional bumper-retained PEG tubes (Fig. 1) can be readily placed under fluoroscopic guidance without using an endoscope. In contrast to balloon-retained tubes, PEG tubes do not require the weekly water-exchange of the balloon and may easily remain in situ for one to two years. Their inner lumen is larger, as there is no need for the inflation channel of the balloon and their insertion does not require gastropexy. Trials have shown bumper tubes to be superior to balloon or loop-retained tubes [3, 4].

In our institution the technique has been termed PIG, reflecting the hybrid nature of PEG and RIG; however, it was first described as "the antegrade technique" by Towbin et al. in 1988 [5]. As the tube passes through mouth and oesophagus, antibiotic prophylaxis (e.g. 1.2g Co-Amoxiclav) needs to be given, as for endoscopic PEG, and there is a small risk of seeding of active surface tumour into the stoma [6]. Except for oro-pharyngeal and oesophageal cancer treated with curative intent, PIG is arguably preferable to RIG. After gastric inflation and percutaneous puncture, a catheter and guidewire are manipulated from the stomach retrogradely up the oesophagus

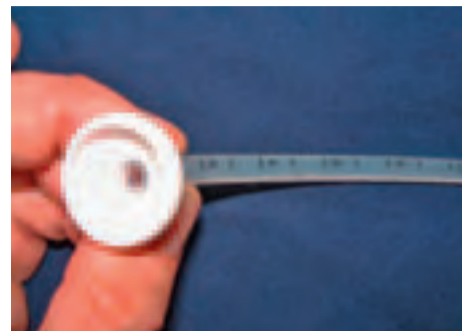


Fig. 1: Two types of traction-removable retaining bumpers; (1a) Mickey, Vygon/Kimberly-Clark



(1b) Corflo, Corpak



Fig. 2: Endoscopic view of a push-PEG bumper.

and out of the mouth. A "push-PEG" is then advanced antegradely down the oesophagus into the stomach out of the skin. The external tube is cut to size and connectors attached. The internal bumper provides excellent fixation and is maintenance free (Fig. 2). The success rate of this technique exceeds 90%, including cases where endoscopy is contraindicated or not possible [7]. PIG is an extremely successful technique for placement of a feeding tube, but is generally underused.

Join Dr. Laasch and Dr. Sousa today at 10:00 to discuss similar cases and how they are best managed!

To give you a taste of what to expect, take the quiz below...

Shown are single CT images from three different patients. All are presenting with slowly worsening abdominal pain. No clinical signs of peritonitis, no systemic sepsis, no peri-stomal leakage.

Questions:

- Which 3 different complications are shown?
- What is the appropriate management, assuming worsening symptoms?
- Which one of the following additional symptoms will each patient describe?
 - Dyspnoea
 - Vomiting
 - Diarrhoea
 - Increasing feeding pressures
 - Gastro-oesophageal reflux



Join us today at 10:00 in Room 115 to debate the answers!

Percutaneous jejunostomy

Maria José Sousa

Percutaneous jejunostomy is the "end of the line" option for providing enteral nutrition to patients suffering from gastrointestinal malignancies associated with gastrointestinal obstruction or neurologic diseases with dysphagia.

Usually, before being referred for jejunostomy, there are first-line options, such as surgical approaches, oesophageal, gastric or duodenal stenting and endoscopic or radiologically inserted gastrostomy.

Nevertheless, some patients are directly referred for radiological percutaneous jejunostomy. The most common request from our nutritionists is to place large-bore feeding tubes (16 Fr. or bigger), so that they can plan an adequate nutritional intake.

We always perform the technique under US and fluoroscopic guidance with intravenous and subcutaneous analgesia.

The mobility of the small bowel, the difficulty to identify the bowel loops and puncture and fixation of the jejunum wall to the anterior abdominal wall make the direct jejunostomy technique very challenging.

To perform jejunostomy (mainly in cases of prior gastrectomy or impossibility of gaining access through the stomach to the jejunum), we may consider five main steps:

Step 1: Identify the target jejunal loop; CT can be used, but real-time ultrasound is our preferred guidance method for identification and guidance of puncture (Fig. 1a, 1b).

Step 2: Puncture the jejunal loop and get access to its lumen with a 17 gauge needle preloaded with a suture anchor. After confirming the correct position of the needle with instillation of saline under ultrasound imaging or iodinated contrast medium for fluoroscopic visualisation, the suture anchor is placed. This step can be repeated placing another suture anchor for secure fixation of the lumen wall (Fig. 2a and 2b).

Step 3: Puncture the jejunum wall with an 18 G needle, between the anchors, confirm its position by distally advancing a 0.035" guidewire. A hydrophilic guidewire can also be useful. Progress distally with an angiographic catheter and exchange the guidewire for a super/ultra-stiff Amplatz wire (Fig. 3a and 3b).

Step 4: Dilate the tract to the desired size (consider 4 points above the feeding tube size if planning on placing a balloon type tube), we usually dilate until 20 or 22 Fr. by placing a peel-away sheath (Fig. 4).

Step 5: Through the peel-away sheath, place the 16 or 18 Fr. balloon retained tube (the most frequently used type). Confirm satisfactory placement by injection of contrast medium (Fig. 5a and 5b).



Fig. 1a: CT image showing a jejunal loop close to the abdominal wall.

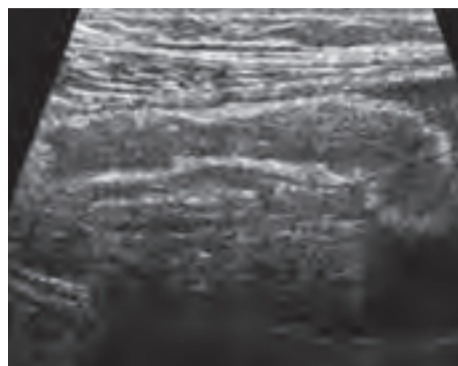


Fig. 1b: Ultrasound images of jejunum.

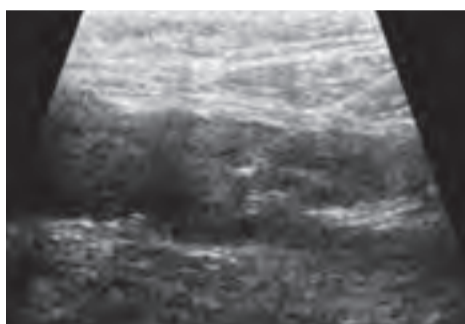


Fig. 2a: Ultrasound guided puncture of jejunum, with visualisation of the needle.



Fig. 2b: Deployment of a suture anchor, after confirming intraluminal position of the needle.



Fig. 3a: Puncture with an 18 G needle.

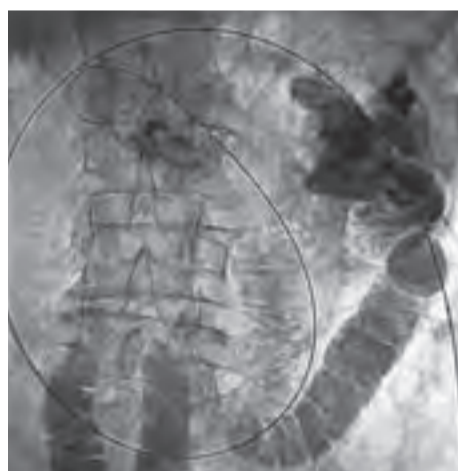


Fig. 3b: Advance a super-stiff guidewire distally for support.

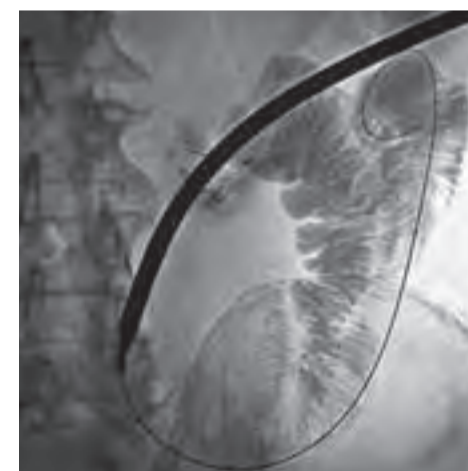


Fig. 4: Dilatation.



Fig. 5a: 22 Fr. peel-away sheath in place.



Fig. 5b: 18 Fr. balloon retained feeding tube in place, injection of dilute contrast medium.

Don't miss it!

Enteral feeding-gastrostomy, gastrojejunostomy, jejunostomy
Expert Case Discussion

Monday, September 12, 10:00-11:00
Room 115



Maria José Sousa
Portuguese Institute
of Oncology
Porto, Portugal

Dr. Sousa is currently the Director of the Portuguese Institute of Oncology's Interventional Radiology Service in Porto. She manages her team in the performance of a wide variety of minimally invasive techniques, including biliary digestive interventions, renal vascular disease interventions, gynaecology and urology interventions, and non-vascular interventions. The service also takes part in multi-focused clinical trials, namely regarding radioembolisation of hepatic tumours with Y-90. Dr. Sousa's recent research as a co-investigator for "Gafchromic XR-QA2 film as a complementary dosimeter for hand-monitoring in CTF-guided biopsies" was featured in the Journal of Applied Clinical Medical Physics.

Radiation Protection Pavilion 2016



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13:15

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Visit the Radiation Protection Pavilion

CIRSE's Radiation Protection Pavilion, located in the exhibition hall, is here for you during the entire Annual Meeting, offering informational material, interactive tools, ophthalmological check-ups, and opportunities to engage directly with experts in RP matters. Today's RPP Mini Talks, which feature short expert presentations, again cover a wide range of topics delving further into various aspects of radiation safety. We hope to see you there!

Prize draw

To help you get started in improving your department's radiation safety, we're giving away some great prizes. Taking part is simple: to be in with a chance of winning, all you have to do is complete the sticker that's been handed out with each copy of Congress News. Visit any of the RP Pavilion exhibitors: they will provide you with the missing part, which you can peel off and add to your sticker; the backing card acts as your "ticket". Simply fill in your name, ID number and email address, and hand it in. Pop the completed sticker on your jacket or congress bag to show that you can "handle the risk"!

Today's RPP Mini-Talks

| | | |
|---------------|--|---|
| 11:00 – 11:15 | Radiation protection culture in an interventional radiology department: new trend or urgent need? | <i>E.P. Efstathopoulos (Athens/GR)</i> |
| 11:15 – 11:30 | IR dose optimization by combining patient and staff dose in context (PHILIPS HEALTHCARE) | <i>A.-M. Karmann-Sailer (Stanford, CA/US)</i> |
| 12:30 – 12:45 | Are our microspheres too hot to handle? (BTG) | <i>H. Hill (GB) / S. McGhee</i> |
| 12:45 – 13:00 | The importance of dosimetry in paediatric interventional cardiology and radiology | <i>A. Ploussi (Athens/GR)</i> |
| 13:00 – 13:15 | Research in radiation protection: a review | <i>D. Vorwerk (Ingolstadt/DE)</i> |
| 13:15 – 13:30 | RPP Prize Draw | <i>W. Jaschke (Innsbruck/AT)</i> |
| 14:00 – 14:15 | Improving the use of radiation through simulation (ESPRIMED) | <i>J. Coulot (Villejuif/FR) C. Van Ngoc Ty (Villejuif/FR)</i> |
| 14:15 – 14:30 | Protection of pregnant or potentially pregnant workers in interventional radiology (Mini refresher course series) | <i>A. Trianni (Udine/IT)</i> |
| 16:00 – 16:15 | New dialysis access angioplasty balloon catheter with direct contrast injection modality significantly reduces personnel radiation exposure | <i>G. Bartal (Kfar Saba/IL)</i> |

How to identify high-risk procedures for patients

Graciano Paulo

Fluoroscopy-guided interventional procedures (FGIP) play an essential role in modern medicine for diagnosing, treating and palliating numerous medical and surgical conditions, as well as being an alternative to more invasive procedures involving the known risks of general anaesthesia and surgery, thus contributing to a more efficient and improved patient experience with better health care outcomes and quality of life.

However, several literature references indicate that some FGIPs are performed by health professionals that do not make the best use of the equipment's technological features, such as a) not using the fluoroscopy timer correctly b) not using the last image hold/save grab feature and c) not setting the pulse rate correctly [1]. There is also a lack of education and training in radiation protection amongst health professionals, and therefore a clear need to implement a life-long learning education programme in radiation protection for all those health professionals involved in referring, prescribing and/or using ionising radiation [2].

There is an evident lack of teamwork and guidelines on how to plan, carry out and review FGIPs, especially when delivering high doses to patients. In general, patients are not being counselled about the radiation risks, prior, during or after the FGIP and normally go home with no information about the dose received and the possibility of skin injuries. FGIP should be always performed considering a three dimensional action approach: pre-procedural, peri-procedural and post-procedural actions. By using this approach and specific methodological actions, it's possible to reduce the potential risks of FGIPs.

During the pre-procedural phase, it is of crucial importance to identify high-risk patients, such as those with some systemic disease (for example, diabetes mellitus or connective tissue

disease) and/or high weight (these patients are at higher risk because their weight will require higher fluoroscopy outputs).

Patients that are expected and clinically justified to undergo high-dose FGIPs should be adequately evaluated prior to the procedure, in order to characterise his/her exposure history, clinical condition, skin damage and other relevant information, allowing the physician to prepare and adapt the best exposure conditions towards an optimised FGIP. One of the most important factors that increases a patient's risk for adverse response is a previous high dose from an earlier treatment [3].

Peri-procedurally, it is of vital importance that there is a good interaction between team members. Teamwork depends on each team member being capable of undertaking their role with professionalism and being able to identify when errors occur and how to recover and correct these errors [4]. This can be done in the following ways: a) anticipate the needs of others; b) adjust to each other's actions and to the changing environment; c) have a common understanding about the whole FGIP procedure.

Radiographers play an important role during the FGIP, not only by continuously monitoring patient dose exposure, but also by choosing the optimal exposure parameters and equipment manipulation to achieve the adequate image quality for the clinical task at the lowest dose for patients and staff.

The post-procedural phase is important, mainly if the procedure has delivered a high cumulative dose (>1 Gy). There should be established guidance on how to give information to the patient regarding the symptoms of deterministic effects of radiation, providing additional information and answering questions. Written information about the procedure

exposure history should be sent to the referring physician, and follow-up should be scheduled if clinically appropriate [5]. The interventionalist should maintain contact with the patient and the family when a tissue effect is expected [6].

The actions taken during the pre-, peri- and post-procedural phases of the FGIP are essential to identify high-risk patients and to adapt the procedure to avoid high-dose exposure to the patient. It is, however, very important to keep in mind that dose limits do not apply to individual patients, as long as the FGIP are clinically justified and the benefits are higher than the risk.

Best practice demands a perfect symbiosis between the medical physicist, the radiographer and the interventionalist, prior, during and after the FGIP. The varieties of fluoroscopy-guided procedures have different imaging requirements which need to be patient- and pathology-oriented. Patients' pathology variability, sometimes under acute and critical health conditions, introduces a stressful atmosphere amongst health professionals. This needs to be controlled as a strategy to increase procedural success.

Radiographers can and should contribute to the harmonisation of radiation protection practice amongst other health professionals carrying out FGIP, ensuring that everyone understands that radiation protection is the responsibility of each individual, and behaves accordingly.

Clearly, the best team will use fluoroscopy minimally. The dose management and radiation protection training should therefore be an integral and essential component of any training. Furthermore, knowledge about high-risk procedures for patients more susceptible to ionising radiation is crucial to minimise the radiation effects, while maximising the benefits of FGIP to the patient.

Don't miss it!

How to handle the radiation risk
Special Session

Monday, September 12, 11:30-12:30
Room 115



Graciano Paulo
IPC-ESTeSC, Coimbra
Health School
Coimbra, Portugal

Prof. Graciano Paulo is Vice-President of ESTeSC Coimbra Health School (Portugal), where he is also coordinator, Professor and Chair of the Medical Imaging and Radiotherapy course. He was President of the European Federation of Radiographers Societies from 2011-2014 and is President of the Portuguese Society of Radiographers from 2001-2008. A great deal of his written research is dedicated to radiation protection for both patients and healthcare professionals. Furthermore, Prof. Paulo is an external advisor of the CIRSE Radiation Protection Subcommittee.

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Today's Featured Papers

will be presented in the Free Paper sessions,
taking place from 16:15-17:15 and from
17:30-18:30

16:15-17:15

FP 2206 Abdominal aorta

Room 133
Monocentric evaluation of home-made versus standard renal fenestrations in endovascular aortic repair for juxtarenal aortic aneurysms
C. Caradu, J. Morin, D. Midy, E. Ducasse;
Bordeaux/FR

FP 2207 Gynaecological intervention

Room 134
Why gynecologists do not perceive any conflict with IR over uterine fibroid treatments
E.J. Keller, M. Crowley-Matoka, J.D. Collins,
H.B. Chrisman, M.P. Milad, R.L. Vogelzang;
Chicago, IL/US

17:30-18:30

FP 2304 Thoracic aorta

Room 117
Endovascular management of chronic symptomatic aortic dissection (CSAD) with the streamliner multilayer flow modulator (SMFM): 12-month outcomes from the global registry
S. Sultan¹, E.P. Kavanagh¹, F. Stefanov¹, M. Sultan¹, A. Elhelali¹, V. London¹, V. Costache², E.B. Diethrich³, N. Hynes¹;
¹Galway/IE, ²Sibiu/RO, ³Phoenix, AZ/US

FP 2305 Embolisation 1

Room 114
Usefulness of conebeam computed tomography and automatic vessel detection software in emergency transarterial embolization
A.M. Ierardi¹, P. Torcia², U.G. Rossi², E. Duka¹, M. Cariati², G. Carrafiello¹; ¹Varese/IT, ²Milan/IT

FP 2306 Oncology: beyond the liver

Room 133
Endovascular denervation of the celiac or hypogastric arteries for management of refractory abdominal cancer pain
B. Damascelli¹, V. Tichà¹, G. Patelli², D. Miotti³, A. Prino⁴, S. Pasqua⁴, A. D'Alessio⁵;
¹Milan/IT, ²Alzano Lombardo/IT, ³Pavia/IT, ⁴Novara/IT, ⁵Osio Sotto/IT

FP 2307 Radiation protection

Room 134
Real-time patient and staff dose monitoring in IR practice
A.M.H. Sailer, L. Paulis, L. Vergoossen,
R. de Graaf, G.W. Schurink, C. van der Leij,
M.W. de Haan, W.H. van Zwam, M. Das,
J.E. Wildberger, C.R. Jeukens; Maastricht/NL

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Saxton IM, Chrysos A, Jones PK, et al. Hydrophobic, expanded polytetrafluoroethylene-lined stent grafts in the treatment of femoropopliteal artery disease: 1-year results of the RE-LINE program Endovascular with Hydrophobic Expanded Surface in the Treatment of Superficial Femoral Artery Obstruction Disease (RE-LINE). *Journal of Vascular & Interventional Radiology* 2015;26(10):1611-17A.

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Visceral ischaemia in a complex case of aortic dissection

Tilo Kölbel, Beatrice Fiorucci

In the Expert Case Discussion session this afternoon, my fellow presenters and I will discuss a selection of issues that arise during thoracic cases. My presentation will cover visceral ischaemia in a complex case of aortic dissection and the positive results after a stenting procedure and b-TEVAR were performed.

The patient, a 61-year-old male, was admitted to a peripheral hospital for abdominal pain and the acute onset of bloody diarrhoea. The patient, whose previous medical history revealed hypertension, had been treated in 2001 with surgical replacement of the aortic arch for the treatment of an acute type A dissection. After this procedure, he underwent a regular clinical and imaging follow-up at another hospital for a residual type B dissection.

Based on the clinical findings and on the previous medical history, an ischaemic colitis was suspected and therefore CTA was performed, which showed a residual type B aortic dissection after previous arch replacement, extending from the left subclavian artery (LSA), which was also dissected at the origin to the left common iliac artery. Thus, the patient was transferred to our institution for further investigations and treatment.

CTA evaluation was performed using a dedicated TeraRecon Aquarius workstation. Occlusion of the inferior mesenteric artery (IMA) and high-grade stenosis of the superior mesenteric artery (SMA) were evident. A dissection flap was visible at the level of SMA, causing a significant flow reduction in the vessel (Fig. 1). The celiac trunk (CT) and the left renal artery rose from the false lumen, while the right renal artery originated from the compressed true lumen. The right iliac axis originated from the true lumen, while the left common iliac artery was dissected to the bifurcation (Fig. 2). In addition, CTA showed a

thoracoabdominal false lumen aneurysm with a maximum of 52 mm in diameter. The major entry tear of the dissection was at the level of the LSA and a smaller entry tear was visible at the level of the CT.

Neither signs nor symptoms of other ischaemic complications were evident at physical examination and blood tests.

In order to treat the bowel ischaemia, the patient underwent selective angiography with the aim to revascularise the SMA in case of malperfusion.

The procedure was performed in a hybrid operating room under general anaesthesia and full systemic heparinisation with 100 iU/kg heparin-natrium. Percutaneous access at the level of the right mid-common femoral artery (CFA) was used.

True lumen angiography confirmed the presence of an entry tear at the level of the celiac trunk. In addition, reduced perfusion of the left renal artery, which originated from the false lumen, was evident compared to the contralateral side (Fig. 3). Angiography in a lateral projection showed a dissection in the proximal AMS, with an on/off phenomenon and interruption of the flow inside the vessel (Fig. 4). Percutaneous puncture of the left CFA was then performed to access the false lumen. False lumen angiography showed a rapid filling of the celiac trunk and of the left renal artery from the false lumen (Fig. 5).

The SMA was then catheterised from the true lumen, using a Cobra catheter and a hydrophilic guidewire, which was exchanged for an Amplatz guidewire. A 45 cm 6 Fr. Flexor introducer sheath was then advanced to the origin of the vessel. The tight stenosis was treated with the implantation of a 10/40 mm ev3 Protégé stent and post-dilated with a 8/20 mm balloon. Angiography showed a good

final result, with unimpeded flow to the SMA and without evidence of on/off phenomenon (Fig. 6).

A StarClose closure device was used to close the right CFA 6 Fr. access site. The left CFA 5 Fr. access site was closed with 15 minutes of manual compression. A compression dressing was then applied at both groins for 10 hours.

The abdominal symptoms (abdominal pain and bloody diarrhoea) completely disappeared after the stenting procedure.

In order to treat the false lumen aneurysm and to expand the true lumen, the patient underwent left carotid-subclavian bypass and branched thoracic endovascular aneurysm repair (b-TEVAR) with candy plug implantation in the days following the visceral stenting procedure.

Post-operative CTA was performed two weeks after the stenting procedure and showed patency of the treated SMA (Fig. 7). The false lumen was thrombosed proximal to the level of the candy plug, with good position of the thoracic branched graft and evidence of a small type 1A endoleak, which was treated conservatively.

The post-operative course was uneventful, except for a post-implantation syndrome with fever following the b-TEVAR procedure, not associated to any significant laboratory finding. The patient was discharged 14 days after the last procedure and CTA control has been scheduled at 6 months.

Don't miss it!

Thoracic cases
Expert Case Discussion

Monday, September 12, 14:30-15:30
Auditorium 2



Tilo Kölbel
University Heart Center
Hamburg, Germany

Since 2009, Prof. Kölbel has been a Senior Consultant for the vascular medicine department and is the Head of the German Aortic Center, a part of the University Medical Center Hamburg-Eppendorf. He is a Professor of Vascular Surgery at the University of Hamburg since 2011 and a reviewer for numerous journals.



His co-author, Dr. Fiorucci, works in the Vascular Surgery department at the University of Perugia in Italy.

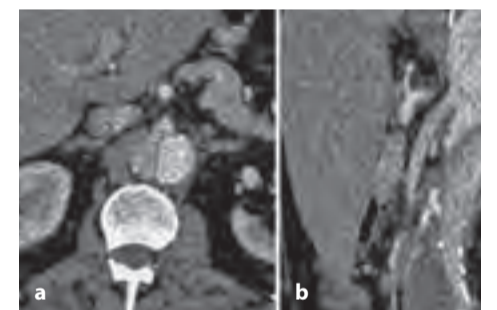


Fig. 1: Pre-operative CTA in an axial (a) and sagittal (b) projection showing a dissection flap at the origin of the SMA, causing a severe flow reduction in the vessel.



Fig. 2: Pre-operative 3D reconstruction showing the type B dissection. False lumen (red) extends from the left subclavian to the left iliac bifurcation. The left renal artery and the celiac trunk originate from the false lumen, while the right renal artery branches from the true lumen (blue). The SMA is dissected at the origin with a significant flow reduction.



Fig. 3: True lumen angiography, showing an entry tear at the level of the CT. Right renal artery branches from the true lumen.



Fig. 4: True lumen angiography in a lateral projection (RAO 64°). The SMA is dissected at the origin with significant flow impairment.



Fig. 5: False lumen angiography. The CT and the left renal artery branch from the false lumen.



Fig. 7: Post-operative CTA, showing patency of the treated SMA.



Fig. 7: Post-operative CTA, showing patency of the treated SMA.

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IDEAS
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Technical challenges in endovascular TAAA procedures

Stéphan Haulon, Jason Wilkins and Mark R. Tyrrell

Thoracoabdominal aneurysms (T-AAA) are aortic aneurysms that involve the thoracic and abdominal segments of the aorta and the visceral branches. The total endovascular repair of thoraco-abdominal aortic aneurysms remains a technique in evolution.

Although the first successful open repair was reported 56 years ago [1], the risk of open treatment remains substantial. In the pre-endovascular era, Crawford's considerable experience showed that operative mortality risk and the risk of paraplegia relates to aneurysm extent, leading to the "Crawford classification" [2]. This classification (now slightly modified [3]) still forms the foundation underpinning the technical approach and risk assessment of TAAA repair. Even in the "lowest risk" subgroup (Crawford type IV T-AAA), the physiological demands of open surgical repair still place considerable stresses on patients. These demands are likely to be beyond the reserve of many, and the recovery time in survivors is long.

Limited by the simple tubes or bifurcated grafts that constituted the first generations of devices available for endovascular aneurysm repair (EVAR), initial attempts to extend the benefits of EVAR to patients with T-AAA took the form of "hybrid solutions", where the visceral vessels were debranched and reperfused using extra-anatomical routes, to be followed by variants of standard EVAR. Although initial reports were greeted with enthusiasm [4, 5, 6], good results have not been universal [7, 8] and the approach does not exploit all of the potential advantages of a "pure" endovascular approach. This unmet need, together with a rapid technological advance, has encouraged the development of more ambitious endovascular solutions to extend the principles and potential benefits of EVAR to the challenging T-AAA patient group.

The ultimate therapeutic goal in the treatment of T-AAA is the same as that in the endovascular treatment of any aortic aneurysm – the exclusion of the aneurysm wall from arterial blood pressure, thereby eliminating the risk of aortic rupture, while preserving distal perfusion. In the special case of the endovascular management of T-AAA, there is the additional

requirement to preserve organ blood flow and function. The latter is achieved by the provision of custom-made branches for extension into the visceral vessel ostia – branched endovascular aneurysm repair (BEVAR). Total endovascular repair of a true aortic aneurysm using a branched device was first described in 2001 [9].

In common with all varieties of EVAR, the technique relies on adequate proximal and distal aortic or iliac sealing zones. Similar to most, it requires the intravascular assembly of several overlapping components, with blood-tight sealing at each overlap. As with the use of fenestrated devices used to proximalise the proximal aortic sealing zone in juxta-renal AAA (fenestrated EVAR – FEVAR), it requires the cannulation of visceral target vessels, and extensions from the main device into each of these using covered bridging stents. Again, there is a requirement for haemostatic seal between the extension stent and the main device, and also between the extension stent and each target vessel.

In the case of FEVAR, much of the proximal seal is provided by apposition of the main device against the wall of the non-diseased visceral-bearing aorta, with secondary sealing between the (balloon-expandable) extension stents and the device (by internal flaring), and between the extension stents and the target vessels. In contrast, in the case of BEVAR, the proximal sealing zone lies proximal to the visceral-bearing aortic segment and there is no visceral vessel level apposition between the main device and the (aneurysmal) aortic wall. In this case, the branches are an integral part of the main device (and their origins are therefore inherently haemostatic), with the seal being required within the branch and then within the target vessel. In practice, some aneurysm anatomies require combined FEVAR/BEVAR solutions and in many instances either solution could be applied – as evidenced by the approaches of Chuter (BEVAR only) [10] and Bicknell (FEVAR only) [11].

It is self-evident that patient, aneurysm anatomy and surgical team selection is paramount. BEVAR requires considerably more complex

device planning, design and manufacture than conventional EVAR. Deployment is more technically demanding and takes longer to complete due to a greater contrast and radiation burden. BEVAR also requires additional sites for arterial access (particularly subclavian/axillary/brachial) and has more potential for type III endoleaks because of the large number of overlapping components. In short, this is a technique that places unusual demands on both the operating/anaesthetic team and the patient. While it is hoped that these demands will prove less arduous than conventional open T-AAA repair, the risks remain appreciable. This is all the more acutely evident because, in most authors' experience, the patient group is even less physiologically resilient (and often older) than patients presenting with AAA in general, and the "turn-down rate" is consequently high.

Device design requires high-quality, arterial phase contrast-enhanced CT imaging and access to software capable of 3D image manipulation. This facilitates the measurement of true cross-sectional aortic and target vessel landing zone diameters, and of the relative true longitudinal and rotational distances between target vessels based on vessel centre-lines.

Successful deployment and aneurysm exclusion require adequate proximal and distal aortic and target vessel sealing zones. Each of these has to be of sufficient length and straightness. For durable patency, the target vessels have to be of a minimum diameter (5 mm). Target vessel cannulation may be problematic, but the limitations concerning relative target vessel origin proximity are less of a problem than is the case with FEVAR. The manipulation and passage of the main BEVAR device (and also TEVAR/EVAR devices proximally and distally), and then the relatively long covered bridging stents, demands operative techniques, wires, catheters, imaging (and anatomy) to achieve reasonably straight routes from the access vessels, through the device branches and on to the target vessel ostia and sealing zones. Aortic tortuosity at the visceral bearing segment may preclude the use of currently available devices.

Don't miss it!

Thoraco-abdominal aortic disease Lecture Session

Monday, September 12, 16:15-17:15
Auditorium 2



Stéphan Haulon
University Hospital
of Lille (CHRU)
Lille, France

Prof. Stéphan Haulon graduated from medical school at the Paris VI University in 1994. He then started a general and vascular surgery residency at the Lille University Hospital (CHRU de Lille) prior to a vascular surgery fellowship in Lille and Cleveland. In 2006 he was appointed Professor in Vascular Surgery. He is currently head of the Aortic Centre at the CHRU Lille. His main interest is in aortic surgery and especially in the endovascular treatment of complex aortic aneurysms such as thoraco-abdominal and arch aneurysms, and dissections.

Dr. Jason Wilkins is the clinical lead for the IR department at King's College Hospital (UK) and Dr. Mark Tyrrell is a consultant vascular surgeon at Guy's and St Thomas' Hospital (UK).

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Posters on Stage

Selected posters and their presenting authors will take centre stage in these sessions. The posters will be displayed and navigated on terminals which are specifically designed for poster discussions in small groups. Come and meet authors of top-rated posters in an informal and open setting, join in lively debates and ask questions!

Today at 13:30-14:15 in the Poster Area

Posters on Stage – Non-vascular interventions

Moderators: K.A. Hausegger (Klagenfurt/AT), O.M. van Delden (Amsterdam/NL)

The below-listed posters will be discussed:

- P-225 Pancreatic duct percutaneous image-guided drainage: what for and how?
M. Mizandari (Tbilisi/GE)
- P-207 Monitoring thermal-induced changes of liver stiffness by real-time point shear wave elastography (pSWE) in ex-vivo bovine liver tissue
F. Calcagni (Pisa/IT)
- P-30 Local biliary temperature and bile duct damage in catheter radiofrequency ablation of ex vivo porcine liver
W. Lu (Beijing/CN)
- P-423 Radiofrequency ablation of benign thyroid nodules: a prospective multicenter study
S.L. Jung (Seoul/KR)
- P-76 Percutaneous CT-guided sympathectomy with radiofrequency for the treatment of palmar hyperhidrosis
J.M. Madrid (Pamplona/ES)

Unmatched Data and Superior TIPS Performance

The GORE® VIATORR® TIPS Endoprosthesis a Proven Innovative Solution for TIPS

The Only CE Marked and FDA Approved Stent-Graft for TIPS offers:

- Unsurpassed patency
- Superior radial strength
- Device flexibility
- Brilliant visibility under fluoroscopy
- Optimal configurations for TIPS applications

TIPS with the GORE® VIATORR® TIPS Endoprosthesis Compared to Endoscopic Band Ligation (EBL)

- In a randomized, controlled clinical trial with TIPS performed within 72 hours after diagnostic endoscopy and a 1-year follow up, results demonstrated an 86% actuarial survival in the early-TIPS group versus 61% in the pharmacotherapy – EBL group ($p < 0.001$). Figure 1.

The 1-year actuarial probability of remaining free of failure to control bleeding and of variceal rebleeding was significantly higher in the early-TIPS group than in the pharmacotherapy – EBL group (97% vs. 50%). Figure 2.

The conclusion was "in patients with Child-Pugh class C disease or class B disease with active bleeding who were admitted for acute variceal bleeding, the early use of TIPS with an e-PTFE-covered stent was associated with significant reductions in the failure to control bleeding, in rebleeding, and in mortality, with no increase in the risk of hepatic encephalopathy".¹

Actuarial Probability of survival According to Treatment Group

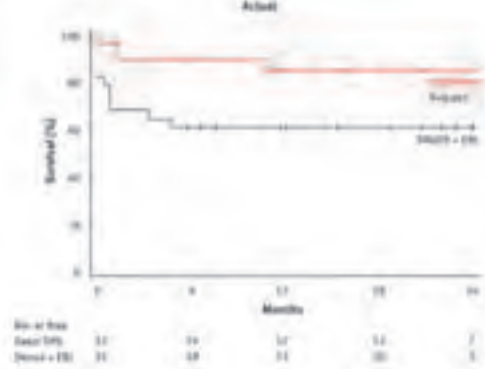


Figure 1

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1. García-Pagán JC, Caca K, Bureau K, et al; Early TIPS (Transjugular Intrahepatic Portosystemic Shunt) Cooperative Study Group. Early use of TIPS in patients with cirrhosis and variceal bleeding. *New England Journal of Medicine* 2010;362(25):2370-2379.

Actuarial Probability of the Primary Composite Endpoint / According to Treatment Group

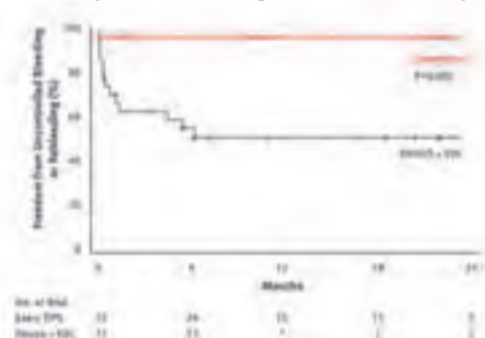


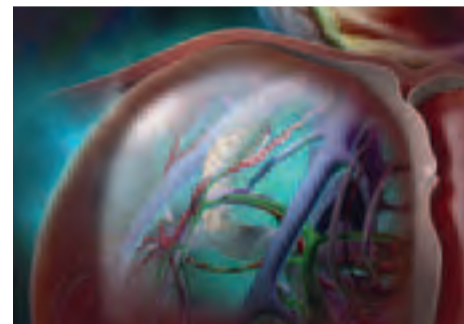
Figure 2

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1. García-Pagán JC, Caca K, Bureau K, et al; Early TIPS (Transjugular Intrahepatic Portosystemic Shunt) Cooperative Study Group. Early use of TIPS in patients with cirrhosis and variceal bleeding. *New England Journal of Medicine* 2010;362(25):2370-2379.

- The results of a surveillance study conducted by Garcia-Pagan et al confirms the results of the earlier RCT in the use of early-TIPS with the GORE® VIATORR® TIPS Endoprosthesis. Complications of portal hypertension during follow-up are similar to the original RCT, with a significantly lower incidence of failure to control bleeding or rebleeding in the early-TIPS arm, less time in hospital, and similar rates of hepatic encephalopathy. High risk is defined as Child-Pugh Class C < 14 or B with active bleeding at endoscopy despite intravenous vasoactive drug treatment. The study concludes that "the application of the early use of PTFE-covered TIPS in patients with cirrhosis and a high-risk variceal bleeding offers results similar to those previously observed in the RCT, supporting its use in clinical practice."²

- The consensus in portal hypertension known as the Baveno VI Guidelines reports: "An early TIPS with PTFE-covered stents within 72 h (ideally <24 h) must be considered in patients bleeding from EV, GOV1 and GOV2 at high risk of treatment failure (e.g. Child-Pugh class C <14 points or Child-Pugh class B with active bleeding) after initial pharmacological and endoscopic therapy (1b;A). Criteria for high risk patients should be refined."³



Conclusion

A large body of published data has demonstrated the clinical advantages of the GORE® VIATORR® TIPS Endoprosthesis in the treatment of patients with variceal bleeding and refractory ascites. Recent publications support an earlier and more extended role of the GORE® VIATORR® TIPS Endoprosthesis in the management of portal hypertension complications, resulting in improvements in survival and the control of bleeding.¹⁻³



Reference:

1. García-Pagán JC, Caca K, Bureau K, et al; Early TIPS (Transjugular Intrahepatic Portosystemic Shunt) Cooperative Study Group. Early use of TIPS in patients with cirrhosis and variceal bleeding. *New England Journal of Medicine* 2010;362(25):2370-2379.
2. García-Pagán JC, Di Pascoli M, Caca K, et al. Use of early-TIPS for high-risk variceal bleeding. Results of a post-RCT surveillance study. *Journal of Hepatology* 2013;58(1):45-50.
3. de Franchis R; Baveno VI Faculty. Expanding consensus in portal hypertension: report of the Baveno VI Consensus Workshop: stratifying risk and individualizing care for portal hypertension. *Journal of Hepatology* 2015;63(3):743-752.

INDICATIONS FOR USE UNDER CE MARK: The GORE VIATORR® TIPS Endoprosthesis is indicated for use in the treatment of portal hypertension and its complications such as: variceal bleeding refractory to, or intolerant of, conventional therapies, inaccessible varices, gastropathy, refractory ascites, and/or hepatic hydrothorax. Refer to Instructions for Use at goremmedical.com for a complete description of all contraindications, warnings, precautions and adverse events.

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Designed to Deliver



Shared decision-making in PAD

Dirk Ubbink

Why SDM?

Nowadays, shared decision-making (SDM) is considered an essential part of high-quality healthcare [1]. The reasons for this are ethical, legal and societal. Ethically, this relates to the adage "primum nil nocere", dating from the time of Hippocrates. Legally, there is now an obligation to adequately inform the patient as a pre-requisite for true, informed consent. And societally, people are becoming better informed about medical possibilities through the internet and social media, leading to a shift towards more self-management of their disorder, as well as a growing awareness among patient advocacy groups and medical societies to emphasise the need for better patient involvement.

In the vascular surgical realm, the intended benefit of an intervention may be accompanied by direct harm or complications from the intervention itself. Thus, care professionals and patients have to weigh the possible benefits against the possible harms of the procedures [2]. For patients suffering from peripheral arterial disease (PAD), several treatment options exist, including medication, supervised exercise, interventional radiology and vascular surgery. The extent to which these options differ in terms of their effects on patient-relevant outcomes like walking distance, limb salvage, quality of life or disease progression is not such that it leads to a clear-cut choice for every patient. Hence, the treatment choice cannot be made only on available evidence as to the superiority of one treatment over another. Each treatment option has its own benefits and harms. Therefore, the patient may, and should be, involved in the decision-making process.

What is SDM?

SDM can be summarised as preference-sensitive care, in which the values and preferences of the patient should be an essential and integrated part of the eventual treatment choice [3, 4]. It should be considered as a principle that potentially applies to all care delivery to individual patients rather than being subordinate to the level of evidence available or to the presence or absence of equipoise [5].

SDM relies on clear, bi-directional communication between healthcare professional and patient. On one side, patients are to be informed about available evidence as to their

disease, the treatment options and the pros and cons of these options. On the other side, professionals should make sure they are informed about the patients' values, goals and preferences. Obviously, the doctor is expert in the medical realm, but the patient is expert in terms of his or her own values, wishes and preferences. Unfortunately, the present situation is that the patient's expertise is often left unattended. This contradicts the definition of evidence-based medicine, which states that our clinical expertise should be guided by the best available evidence as well as the patients' situation and preference [6].

The application of SDM in clinical practice was boosted by the publication of the Salzburg statement in 2011, in which an international group of scientists, clinicians, journalists and journal editors designed and edited a manifesto to draw attention to the importance of the role of the patient when caring for his or her health and disease [7]. This has helped to position patients at the centre of healthcare [1].

How to apply SDM

Elwyn et al. have proposed a step-by-step approach to make sure SDM takes place during the doctor-patient encounter in which the treatment decision is to be made [4]. This approach is illustrated in Figure 1 below.



Fig. 1: The four-step process of shared decision-making during the consultation.

The first step is to indicate that there is a treatment decision to be made together. Secondly, the doctor explains the possible treatment options, each with their benefits and harms. Thirdly, the patient is explicitly invited to express their preference regarding these options and possible outcomes. Finally, this preference is incorporated in the final decision regarding the treatment choice. SDM does not necessarily mean the patient must contribute to the treatment decision-making process but should at least be invited to express their preference and the extent to which they want to be involved in choosing the best treatment option. So it is the process in the first place rather than the final choice that should be shared.

To date, SDM is still poorly implemented in vascular surgery [8]. One of the reasons for this is that the attitude of the professionals involved in caring for patients with PAD has not yet changed from a paternalistic or advisory role to a situation in which expertise is exchanged between care provider and patient to reach a treatment decision together. This process may be supported by facilitating tools, such as patient decision aids and option grids [2].

Decision aids are online tools for patients and their partner or relatives that provide information about the disorder, the treatment options, their pros and cons (based on existing evidence and guidelines) and some questions for the patients to help them decide on their preference. The development and content of such decision aids is generated according to the International Patient Decision Aid Standards instrument (IPDASI) [9]. For the Netherlands, we have nearly completed the development of decision aids for various vascular surgical disorders, i.e. PAD, carotid artery stenosis, abdominal aneurysm and varicosis. Screenshots of the decision aid for PAD patients are shown in Figure 2.

Option grids are one-page summaries of answers to the questions patients frequently ask. These answers are given for each of the treatment options. This tool can be used during the doctor-patient encounter to guide the conversation towards exploring the patient's preferences. An example of an option grid for carotid artery stenosis can be found on www.optiongrid.org. We are also developing such option grids for the vascular disorders mentioned above. The second screenshot in Figure 2 is part of the option grid for PAD.

Effects of SDM

The improvement in quality and safety of care through SDM is supported by publications in leading medical journals in terms of better patient participation [10], satisfaction [11] and compliance [12]. Furthermore, this approach may reduce surgical overtreatment [13] and costs as well [14].

PAD patients in particular are facing diagnostic or treatment decisions in various stages of their disease for which several options exist. Hence, these moments are excellent opportunities to involve them in the decision-making process. This is likely to improve the quality of care we can offer to our PAD patients.

Don't miss it!

The patient's perspective in PAD
Special Session
Tuesday, September 13, 08:30-09:30
Room 112



Dirk T. Ubbink

Academic Medical Center,
University of Amsterdam
Amsterdam, Netherlands

Dr. Ubbink completed his Ph.D. in Surgery and Vascular Surgery at Maastricht University in 1992. He is currently the principal investigator for the Department of Surgery at the Academic Medical Center of the University of Amsterdam and has held various positions there since 1993, including Head of the Vascular Diagnostic Laboratory, Director for Evidence-Based practice and Program Leader and Staff Advisor in the Department of Quality Assurance and Process Innovation. His interests include evidence-based practice, communication of evidence to the patient, shared decision-making and patient-oriented surgical research.

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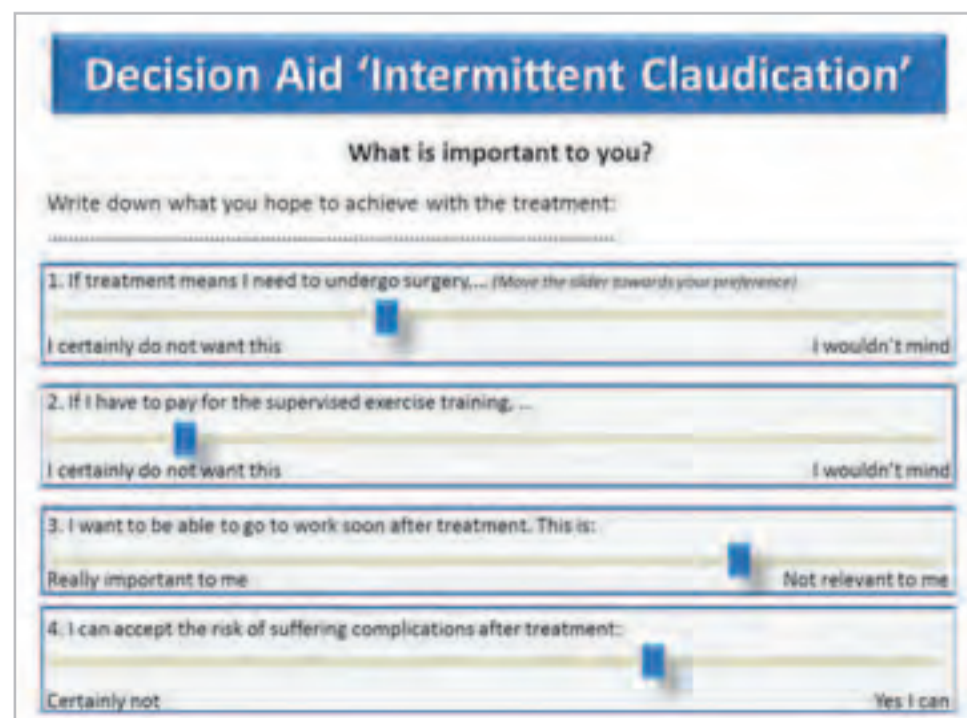
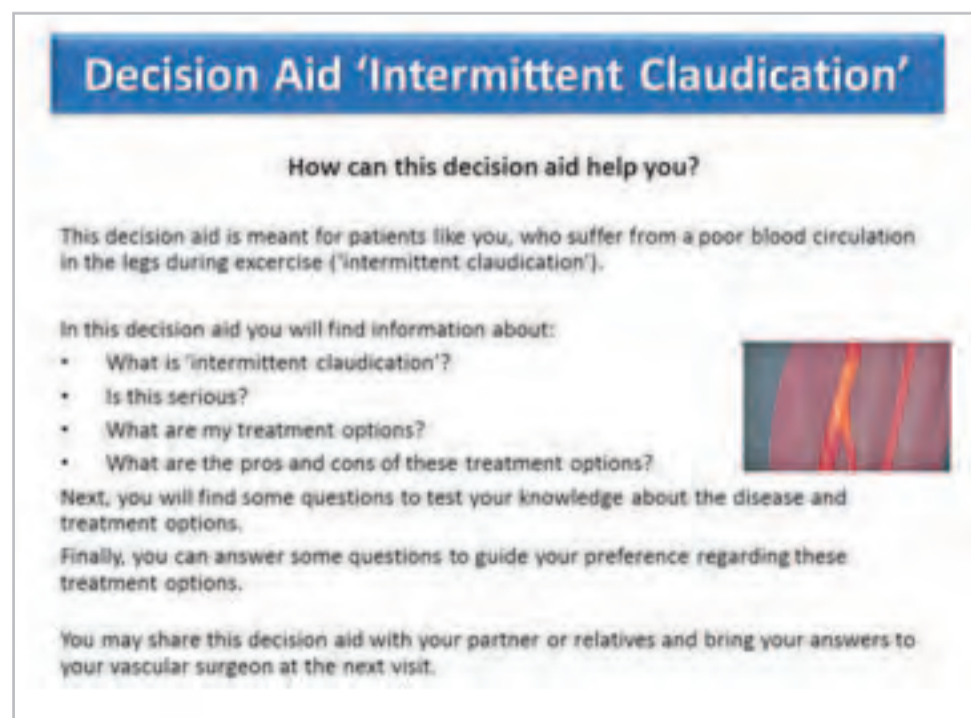


Fig. 2: Screenshots from a decision aid for PAD. The left panel shows information about the decision aid, the right panel some preference-eliciting questions.

Satellite Symposium  CIRSE 2016

Conventional TACE: unique & undisputable Standard-of-Care for HCC stage B patients


Chairman: Prof. Michael Soulen (University of Pennsylvania, USA)
Monday, September 12th, 2016, 13:00 – 14:00,
CCIB – Centre Convencions Internacional
de Barcelona, Room 117




www.guerbet.com

13:00 – 13:05  **Introduction**


by the Chairman, Prof. Michael Soulen

13:05 – 13:20  **cTACE efficacy & safety based on 30 years
of publications: from the Mechanisms-of-actions
to Randomized Clinical Trials & treatment guidelines**


Prof. Michael Soulen (University of Pennsylvania, USA)

13:20 – 13:35  **An Asian insight into the cTACE technical evolution,
C-arm-CBCT & super-selective micro-catheterization
for a positive impact on the treatment response**

Prof. Keigo Osuga (Osaka University Graduate School of Medicine, Japan)

13:35 – 13:50  **cTACE treatment protocols, regimens & standardization
for an optimal patient care**

Prof. Thierry de Baère (Institut Gustave Roussy, France)

13:50 – 14:00  **Questions & Conclusion**

by the Chairman

Guerbet | 
Contrast for Life

High-intensity focused ultrasound

Franco Orsi

Pancreatic cancer is one of the main "killers" in oncology, with a very poor prognosis, both in patients amenable to resection (6% 5-year survival rate, which has not substantially improved in the last 40 years) and, of course, in more advanced-stage disease. The median survival ranges from 4.5 months for stage IV and 24.1 months for stage I. More than 50% of patients are diagnosed with an advanced stage of pancreatic disease. Radiotherapy and chemotherapy are the primary common therapies for unresectable pancreatic cancer, but they are both only palliative options, limited to relieving symptoms, improving quality of life and prolonging survival.

In recent years, there has been a further trend towards a progressive reduction in the invasiveness of local treatments, aiming to achieve the same result as standard options but with less morbidity and a better quality of life. This has opened up new horizons towards minimally invasive techniques in several different fields of oncology, such as percutaneous treatment of liver and kidney tumours. Recently, following the experience of other oncologic disciplines where they demonstrated high efficacy in achieving local control in several types of malignancies, some studies focused on the application of minimally invasive image-guided ablations in pancreatic cancer. Among the percutaneous minimally invasive thermal ablation techniques, radio-frequency ablation (RFA), cryoablation, laser ablation therapy (LA or LITT), microwave ablation (MWA) and the newer IRE were investigated in pancreatic cancer as local percutaneous treatments and reported as feasible and locally effective but with a very low safety profile, due to the high rate of complications caused by needle insertion. In this scenario, the advent of more and more precise and sophisticated imaging tools led in the '90s to a resurgence of interest in an old "non-invasive" thermo-ablative technique, based on the use of ultrasound energy. High-intensity focused ultrasound (HIFU) is a highly precise medical procedure, which employs externally delivered ultrasound energy to burn and destroy the tumour tissue located deep within the body, selectively and without harming overlying and adjacent structures within the path of the beam.

The unique advantage of the HIFU technique is mainly represented by the absence of the percutaneous approach for delivering the energy at the level of the tumour.

In the last few years, HIFU has been proposed as an option for palliative treatment of pancreatic tumours in the advanced stage. Focused ultrasound has the potential to offer a "non-invasive" ablative technique for palliation in patients with pancreatic cancer. Guided by imaging (usually ultrasound, due to the feature of providing real-time images), a high-intensity acoustic beam is focused to the target. This beam heats and destroys the cancerous tissue without damaging nearby tissues or structures. Multiple pre-clinical and non-randomised clinical series have been published, reporting more than 3,500 patients already treated worldwide with HIFU therapy, with the aim of assessing the safety and efficacy of this procedure. Substantial tumour-related pain reduction was achieved in most cases after HIFU treatment and few significant side effects were observed.

A recent review reported a better rate of pain palliation when HIFU is applied alone than when in association with chemotherapy and/or radiotherapy. This is probably due to the overlapping specific side effects from the concurrent therapies. Moreover, some studies reported an increased effect on survival when chemotherapy is delivered in combination with HIFU. The mechanical destruction of tumour tissue, rather than thermal, is advocated as the main cause of the increased stimulation of the immune system which is reported by some authors and could be the reason behind a better survival rate, even in the advanced stages. An increasing level of CD4, CD8, CD Helper and NK have been reported in advanced pancreatic cancer patients treated with USgHIFU. In our experience at the European Institute of Oncology, some patients with no other "standard" therapeutic options underwent HIFU for pain palliation and the next follow-up revealed tumour shrinking not only at the level of treatment, but also in distant metastases (Fig. 1).

As a potentially non-invasive technique that does not rely on ionising radiation,

focused ultrasound may offer the following benefits:

- Shorter recovery time
- Very high safety profile
- More precise targeting of tumour and metastases, resulting in lower risk for complications
- The procedure can be done repeatedly

However, not all patients will be suitable for focused ultrasound treatment because of some possible technical limitations, such as interposed bowel loops, blocking the pathway of the beam. For that reason a pre-treatment US simulation is mandatory to better define the technical feasibility of the HIFU treatment. In order to reduce the risk of bile duct damage (when the tumour is located close to the main bile duct or when it is already involved), a stent placement is mandatory a couple of weeks before the treatment. Because of the need for a very precise energy delivery, general anaesthesia is required during USgHIFU, in order to better control the respiratory movements of the abdominal organs during the HIFU sonications. There is an increasing interest in using HIFU for treating the

Don't miss it!

Treatment options for pancreatic cancer
Special Session

Tuesday, September 13, 08:30-09:30
Room 117



Franco Orsi
European Institute
of Oncology
Milan, Italy

Prof. Franco Orsi is the Medical Director of the Unit of Interventional Radiology at the European Institute of Oncology and has been Professor of Radiation Oncology at the Milan University since 2000. Prof. Orsi is a founding member and one of the Presidents of newly formed the Italian European Society of Interventional Radiology. He is a CIRSE Fellow and has been involved in a number of projects, including the Clinical Practice Manual. He was also a member of the former Rules Committee.

pancreatic cancer and in order to collect a larger amount of clinical data for supporting its use in a daily practice, an international registry should be activated very soon.

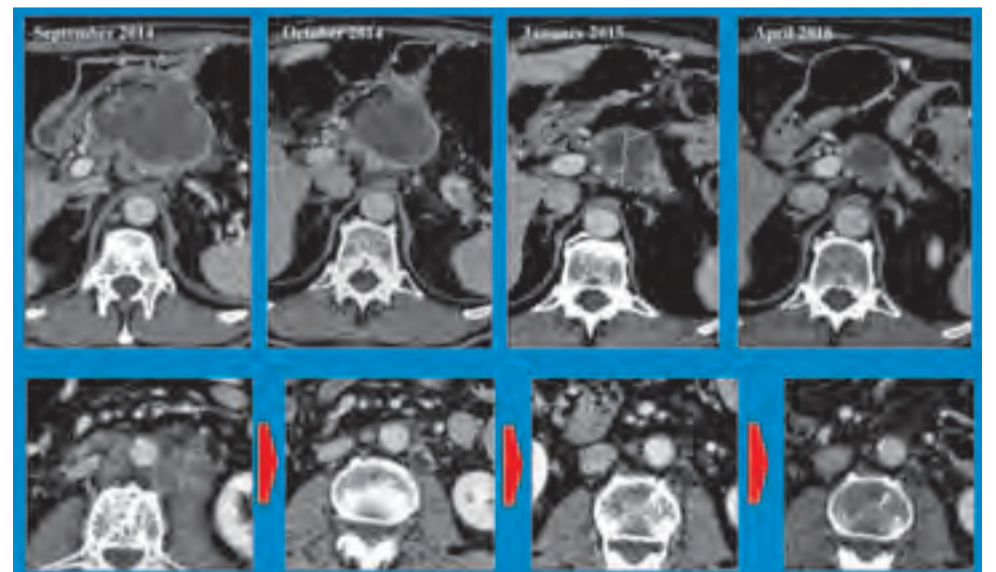


Fig. 1: After two ineffective lines of CHT, on September 2014 this patient underwent USgHIFU for pain palliation. Later images detected shrinkage both of the primary tumour and the metastatic retroperitoneal lymph nodes. This patient is now disease free!

Couldn't make it to ECIO 2016?

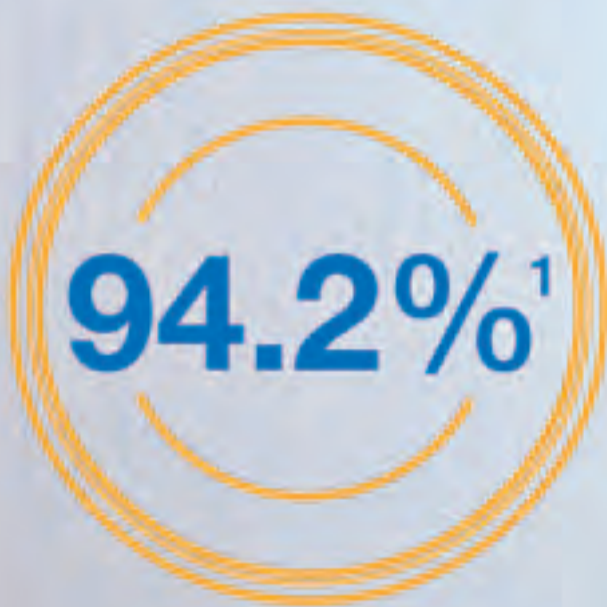


Find out what you missed in the ECIO 2016 Review – a complimentary copy is to be found in your congress bag.

You can also find all presentations on www.esir.org!

UNSHAKEABLE EVIDENCE

Lutonix Global Real-World SFA Registry



Freedom
from TLR at
12 months

89.6%¹
Women

96.6%¹
Diabetics

1. Global Registry data on file. N = 691. At 30 days, treatment with the Lutonix® 035 resulted in a freedom Target Vessel Revascularization (TVR): Major Limb Amputation and Device or Procedure related death at a rate of 99.7% (678/680). For effectiveness, freedom from Target Limb Revascularization (TLR) at 12 months resulted in a rate of 94.2% (599/636). Numbers reported are Kaplan-Meier analyses, not pre-specified.

Please consult product labels and instructions for use relevant to your geography for indications, contraindications, hazards, warnings and precautions.

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1434

BARD

Crossword Puzzle

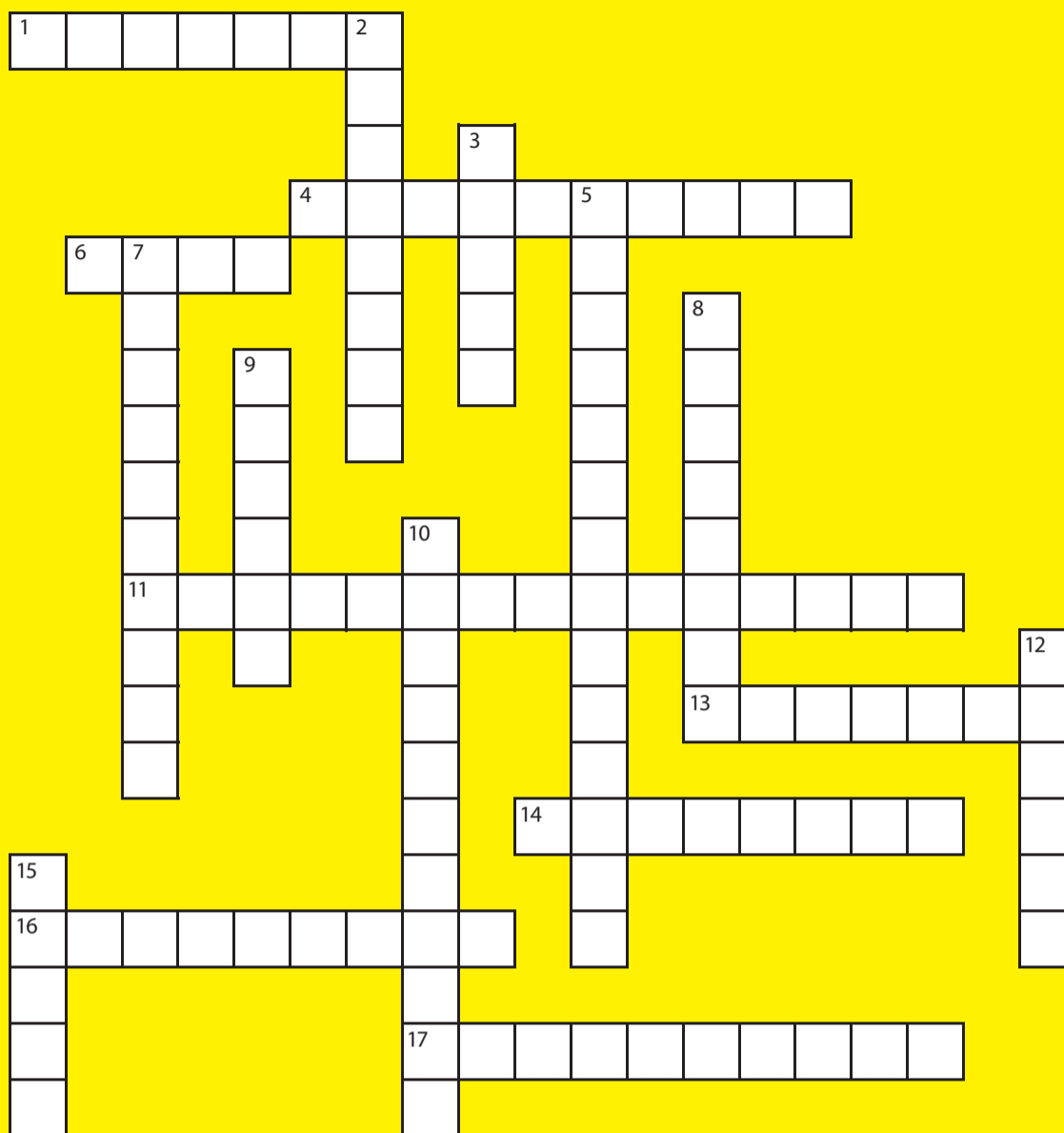
Helen Hemblade, CIRSE Office

Across

- 1. Canidae combustion in mCRC data (7)
- 4. Pressure damage (10)
- 6. Number of roads that make up La Rambla (4)
- 11. Anagram: buried notifiers (7,8)
- 13. Upgraded data on ruptured AAA (7)
- 14. Abnormal anastomosis (8)
- 16. 13% detected in RPP checks at CIRSE 2015 (9)
- 17. Alternative to anti-coagulants in PE prevention (3,7)

Down

- 2. Grid district (8)
- 3. The table of the knights of IR (5)
- 5. Anagram: raincoat aliens (14)
- 7. Aortic haematoma (10)
- 8. Barcelona day of love and literacy (3,5)
- 9. Double element ultrasound (6)
- 10. Sedation (12)
- 12. Son of Zeus / meta-analysis of stroke data (6)
- 15. Flamenco guitar / little hat (5)



Members' Lounge

As a special service to members, CIRSE is offering a Members' Lounge at Barcelona 2016.

All CIRSE members are invited to take a rest, have some complimentary coffee and make use of our wireless internet connection. Lunch will also be provided in this space.

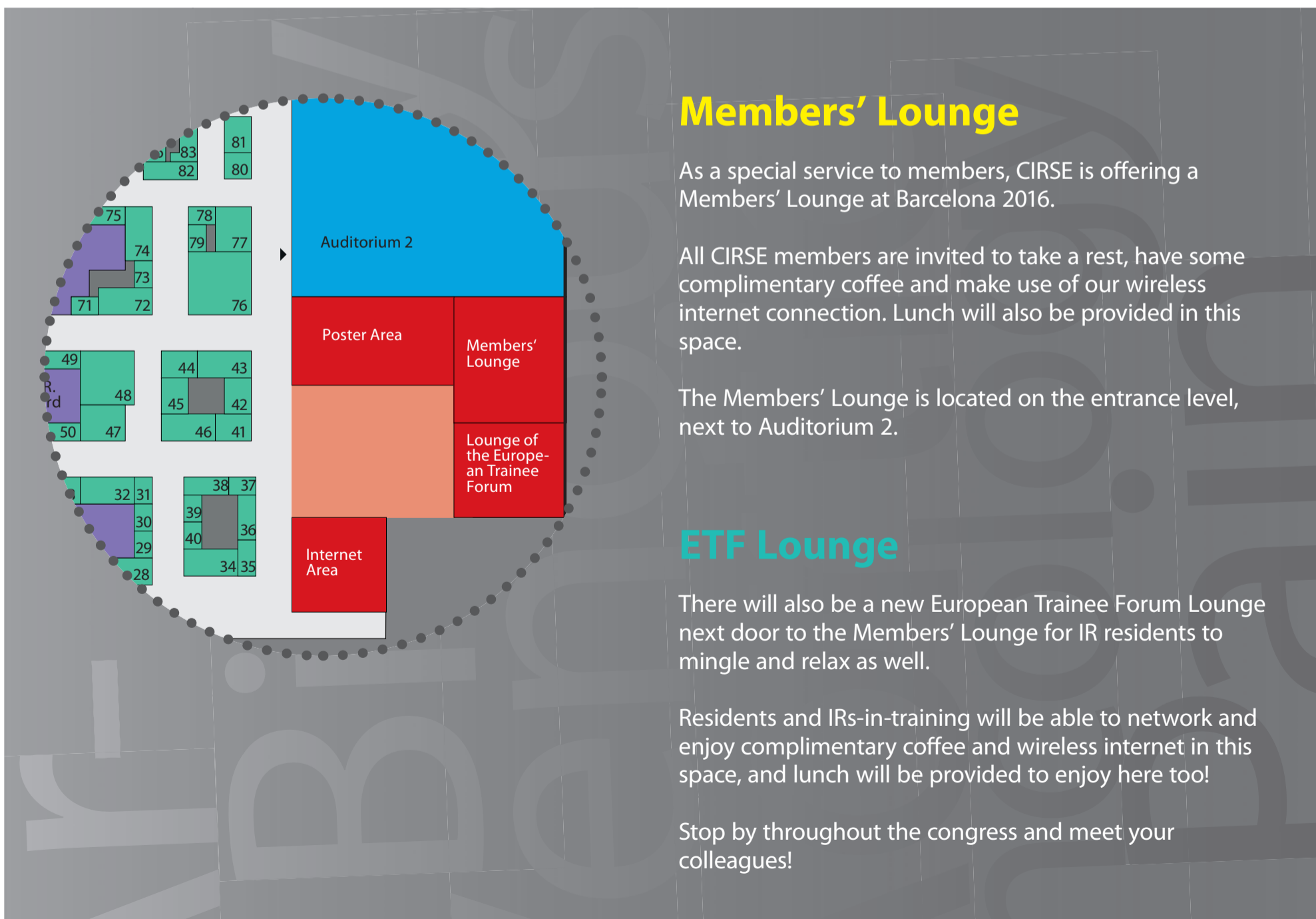
The Members' Lounge is located on the entrance level, next to Auditorium 2.

ETF Lounge

There will also be a new European Trainee Forum Lounge next door to the Members' Lounge for IR residents to mingle and relax as well.

Residents and IRs-in-training will be able to network and enjoy complimentary coffee and wireless internet in this space, and lunch will be provided to enjoy here too!

Stop by throughout the congress and meet your colleagues!



NEW

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Gangi-SoftGuard® combines the well-known technique of a coaxial biopsy needle with an all new spring loaded blunt tip stylet providing extra control and safety during soft tissue biopsy.



AprioMed

Cardiovascular and Interventional Radiological Society of Europe

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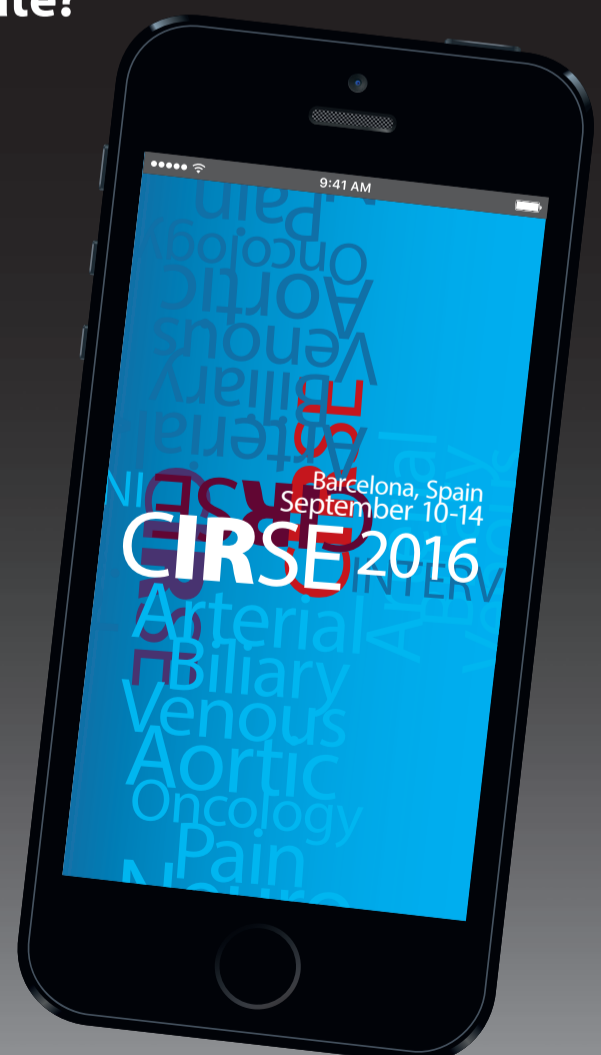
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INNOVATION | EDUCATION | INTERVENTION

ECIO 2017

European Conference
on Interventional Oncology

April 23-26
Bilbao, Spain

www.ecio.org

LEADERS IN ONCOLOGIC INTERVENTIONS



Interventional oncology is evolving rapidly, continually exploring new territories and making exciting progress. Keeping abreast of these changes can be a challenge, but the annual European Conference on Interventional Oncology offers all oncology practitioners a comprehensive forum for education and exchange.

The upcoming congress will be held in Bilbao, Spain, and will once again cover a broad cross-section of clinical topics, ranging from well-established IO therapies, such as local ablation of HCC, to newer clinical areas, such as immunotherapy and genomics. The Scientific Programme Committee, under the leadership of Thomas Helmlinger and Afshin Gangi, have already devised a diverse and stimulating programme.

Revisiting colorectal metastases

Following the warm reception of the extended focus on colorectal liver metastases in 2016, the



2017 programme will once again embrace this important theme, with several sessions examining different aspects of the disease: epidemiology, ESMO guidelines and available therapies; follow-up, quality and efficacy; and the current evidence, including results of the CLOCC and SIRFLOX trials, and discussions of what endpoints should be pursued. A special Multidisciplinary Tumour Board will also explore CRC metastases beyond the guidelines.

An emphasis on evidence

This data-based analysis will be a common strand throughout the congress, with a number of sessions committed to presenting and even questioning the current guidelines and evidence, such as the Best IO papers of 2016, which will see authors of the most influential clinical papers present their work and take questions. Another session will equip delegates with concrete information on how they can support data acquisition within IR.

Clinical involvement

To encourage more IOs to get involved in tumour boards and clinical management, ECIO 2017 will offer a number of useful sessions, including ones on tumour biology, how to get started in IO practice, general patient management, complication management and a morbidity and mortality conference.

And so much more...

The conference will of course be exploring new technologies and clinical applications, such as intra-tumoural viral therapy, intra-arterial immunotherapy, and new drugs for advanced HCC. Clinical fields such as breast, kidney, lung and MSK tumours will be thoroughly examined, while special "how I do it" lectures will guide novices through liver, lung, kidney and bone interventions.

Be sure to join us in Bilbao!

CIRSE

Cardiovascular and Interventional Radiological Society of Europe

IR Congress News is published as an additional source of information for all CIRSE 2016 participants. The articles and advertorials in this newspaper reflect the authors' opinion. CIRSE does not accept any responsibility regarding their content. If you have any questions about this publication, please contact us at madden@cirse.org.

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unique double layer micromesh scaffold.

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■ SYMPOSIUM

Monday 12th September 2016

11:30 - 12:30 | Auditorium 2

Pushing boundaries in the treatment of PAD

Moderator: Prof. A. Cremonesi

Speakers: Prof. A. Cremonesi, Prof. Y. Gouëffic,
Dr. M. Manzi, Dr. A. Fischman

• Will Roadsaver expand the indication for CAS?

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