IR congress news

CIRSE 2018 – Lisbon
Monday, September 24, 2018

CIRSE is very excited to announce that 2018 marks the 40th anniversary of CVIR, the oldest journal in interventional radiology.

Since its establishment in 1978, the journal has been continuously supporting the growth of interventional radiology by publishing new research in this field.

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CVIR turns 40!

Embolisation for Trauma: New IR Treatment Modalities

Kamil Jabarkhel, CIRSE Office

Transcatheter embolisation techniques play a significant role in today's treatment of traumatic vascular injuries, providing a minimally invasive, life-saving alternative to traditional treatment modalities.
During this Hot Topic Symposium, several experts will discuss the particularities of embolisation, detailing techniques and the best materials to be used in the treatment of trauma patients. The session will be moderated by Prof. de Gregorio and Prof. Stojanovic and will include Dr. Scheurig-Muenkler, Dr. Citone, Dr. Karnabatidis and Dr. Siskin giving lectures on trauma embolisation, based on their specific area of expertise. The session will be comprised of talks on splenic, liver, pelvic fracture and renal embolisation.

Splenic embolisation

Many cases of spleen injury are low-grade and are, as such, managed in a conservative manner. However, higher grade injuries (AAST III-V) or any injury with active bleeding or a post-traumatic vascular pathology face a considerably higher risk of re-bleeding, putting the patient at significant risk. Dr. Scheurig-Muenkler notes that, in such cases, splenic artery embolisation is recommended as an organ preserving treatment strategy. IRs can help by reducing blood perfusion and pressure in the spleen, through proximal occlusion of the splenic artery distally to the dorsal pancreatic artery, using vascular plugs or coils. Additionally, distal embolisation can be considered in cases where the damage to the spleen has caused visible active bleeding or post-traumatic vascular pathology.

Liver embolisation

Despite the fact that the treatment of most cases of low-grade liver trauma is grounded on observation and medical therapy alone, in cases of active arterial bleeding (contrast blush detected at MDCT scan) angioembolisation is the treatment of choice regardless of trauma grade (according to AAST classification).
The technique has also shown efficacy as an adjunctive tool after damage control surgery in case of persistent arterial bleeding seen at MDCT after surgery. When indicated, IRs should perform angioembolisation as soon as possible.
Dr. Citone also points out that distal catheterisation (micro-catheter) is recommended when occluding bleeding vessels, in order to preserve the arterial tree of the liver and reduce possible complications, such as liver necrosis and gall bladder injury. Embolic agents that are most used by IRs in this instance include coils or gel foam particles.

Pelvic fracture embolisation

Most cases of pelvic haemorrhage occur in multi-trauma patients. According to Dr. Karnabatidis, a 3-phase computed tomography angiography is of paramount importance for patients with pelvic haemorrhage, as it will help to not only discover the site of the damage, but also clarify whether it is venous or arterial. If an intervention is decided upon, this form of angiography also helps the IR to decide where to create the incision. Approximately 90% of cases with pelvic haemorrhage are accompanied by venous bleeding and in instances where fractures are present, pelvis stabilisation will be the only treatment needed. Dr. Karnabatidis also emphasises that if embolisation is deemed necessary, careful angiography should be performed to check for possible collateral network of vessels mainly to the intestine, urinary bladder and lower limbs.

Renal embolisation

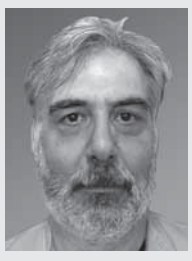
The endovascular treatment of renal trauma can be more complex than many people think. An expert in the field of renal trauma, Dr. Siskin attributes this to the fact that many patients have multiple vessels and a large number of overlapping branches arising from each renal artery which, in turn, can make it difficult to identify the source of arterial bleeding. Consequently, good diagnostic angiography with multiple projections, used in conjunction with cone-beam CT as an adjunctive tool is necessary, in order to accurately locate and treat the affected area. As with other embolisation procedures, Dr. Siskin points out that there are difficult decisions which need to be made during renal embolisation, including the amount of renal parenchyma to be sacrificed. Such considerations will be the focus of this particular talk.

We look forward to seeing you there!

Don't miss it !
Embolisation for trauma
Hot Topic Symposium
Monday, 24 September, 15:15 – 16:00
Auditorium 1

Christian Scheurig-Muenkler
(EBIR)
Augsburg Hospital
Vienna, Austria

Michele Citone
Careggi University Hospital
Florence, Italy



Dimitros Karnabatidis
(EBIR)
University Hospital of Patras
Patras, Greece

Gary P. Siskin
Albany Medical Center
Albany, USA

Don't miss it !
IAT: training and implementation in practice
Expert Round Table
Monday, September 24, 16:15-17:15
Auditorium 8

How to accomplish a 24/7 thrombectomy service

Andrew Clifton

Andrew Clifton
St. George's Hospital
London, UK

Dr. Clifton is a consultant neuroradiologist at St. George's University Hospitals NHS Foundation Trust, specialising in interventional and diagnostic neuroradiology. Dr. Clifton graduated with an MA from Oxford University, before going on to achieve an MBBS in London in 1981. His research interests include the diagnosis and treatment of ruptured and unruptured intracranial aneurysms and vascular malformations. Additionally, he also has a clinical interest in stroke, including extracranial and intracranial stenting. He is also active in the research of stroke, particularly in areas of carotid and vertebral stenting.
Dr. Clifton is an active member of the UK Neurointerventional Group and British Society of Neuroradiologists as well as the Royal College of Radiologists.

A meta-analysis of five major randomised trials (MR CLEAN, ESCAPE, REVASCAT, SWIFT PRIME and EXTEND IA) analysed by the HERMES collaboration [1] showed without doubt that thrombectomy is the standard of care for patients with acute stroke due to embolus/occlusion of the carotid T/M1 segment middle cerebral artery. It is one of the most effective new treatments in stroke medicine with the number needed to treat fewer than 3 for improved functional outcome.

In April 2017, the National Health Service (NHS England) announced that it would commission mechanical thrombectomy, particularly working with England's 24 Neuroscience Centres. The UK/England's challenge will be to deliver this service safely and effectively to provide the additional doctors, nurses, radiographers and other staff to be able to treat the 8,000 or so patients eligible for this treatment in the UK. Currently, the only doctors trained for this treatment in the UK are neuroradiologists, interventional radiologists, and other specialists, such as cardiologists and neurologists may need to be trained to perform this procedure [2,3,4,5].

At St. George's Hospital we started a 24/7 thrombectomy service in July 2016. Our service is combined with a 7/7 service to coil acutely ruptured aneurysms. Services needed include: immediate neurosurgical and neuro-critical support on site; hyperacute stroke unit arrangements to facilitate discussion of all subarachnoid aneurysm cases with a consultant neurosurgeon; MDT review of all SAH cases; anaesthetic support; two angiography suites, which can be staffed as necessary during the daytime to allow for competing cases; and 24-hour access to diagnostic modalities including multi-slice CT and a scanning resource on site to cope with down time and increased demand. One of the main challenges is staff. It is vital to have sufficient staff, with necessary competencies to deliver 24/7 service with staffing as mentioned above. It is very important to have a robust pathway (see flowchart) from the patient or member of public calling the ambulance to the repatriation of the patient at the end of treatment. Co-operation between all staff groups and managers is vital if this process is to be successful. There are two ways to deliver thrombectomy, either 'drip and ship' or 'mother ship' with direct transfer to a specialist centre. Either method may be appropriate depending on geography. One of the challenges of the 'drip and ship' model is the ambulance transfer between a district hospital and the thrombectomy centre [6]. This can cause delays. Another challenge is obtaining the appropriate imaging in the district hospital. Currently, there are too few staff trained and available to do this. Stroke physicians are currently being trained to do this and read the scans accurately. It is important that data is submitted and that regular audits/mortality and morbidity meetings are carried out involving all staff. Measurements of all aspects of the pathway must be made to improve efficiency.

In conclusion, the challenges of setting up a 24/7 service are sufficient staff with necessary competencies to deliver 24/7 service, a smooth ambulance transfer for 'drip and ship' including possible helicopter transfer, appropriate beds and repatriation. Whether the patient is admitted to the thrombectomy centre or a hospital with a stroke unit, the initial investigations using CT and CT angiography must be performed promptly and reviewed by an interventional neuroradiologist or stroke physician. Where appropriate, treatment with IV TPA should be started before critical transfer to the nearest thrombectomy centre.

Thrombectomy flowchart

Potential thrombectomy patient – must be recanalised within 6 hours

- <4.5 hours from onset
- NIHSS >5
- mRS <3 (not very disabled)
- CT brain – no large infarct

Have this information available:

- Patient name
- DOB
- NHS no.
- NIHSS
- Contact tel no.

↓

CT angiogram performed at same time as CT & (if DGH/outside HASU) **IEP (send images) CT and CTA immediately**

↓

If CTA shows occlusion contact on-call stroke consultant at St. George's

↓

Stroke consultant contacts on-call INR to confirm suitability for IAT and confirms with referrer

↓

If at St. George's transfer to angio suite is outside: arrange critical ambulance transfer to: Neuroradiology Dept., 2nd Floor, Atkinson Morley Wing, St. George's Hospital

↓

Medical and nursing handover to thrombectomy team (INR team, anaesthetist, ODA, stroke team)

↓

St. George's stroke nurse to obtain hospital number for patient via HASU ward clerk or ED reception out of hours

↓

Following procedure, patient to be transferred to HASU (or NICU) if clinically appropriate

↓

Bed guarantee for repatriation the following day

Key numbers:

- Switchboard
- Stroke SpR
- HASU Ext.
- Helipad activation

References:
1. Goyal M, Menon BK, van Zwam WH et al. Endovascular thrombectomy after large vessel ischaemic stroke: a meta-analysis of individual patient data from five randomised trials. Lancet. 2016;387:1723-1731.
2. Clifton A. Mechanical Thrombectomy Services can the UK meet the challenge. Pract Neurol. 2017;17:250-251.
3. Gulland A. Stroke plan lacks sufficient Doctors. BMJ 2017;357:1861.
4. White PM et al. Standards for providing safe acute ischaemic stroke thrombectomy services (September 2015). Clin Radiol. 2017;72:175.e1-175.
5. Lenthall R.et al BSNR Training guidance for mechanical thrombectomy. Clin Radiol. 2017;72: 175.e11-175.e18.
6. Evans MRB et al. Revolution in acute ischaemic stroke care: a practical guide to mechanical thrombectomy Pract neurol. 2017;17:252-65.

Targeted electro-immune-therapy: a potential perspective?

Martijn M. Meijerink

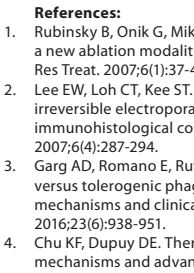
Don't miss it !
Irreversible electroporation
Focus Session
Monday, September 24, 08:30- 09:30
Room 5.A

Irreversible electroporation (IRE) is a new image-guided technique which induces the formation of small defects (nanopores) in the cell membrane by the application of high-voltage electric pulses. Depending on the amplitude and duration of the electric pulses, electroporation of the cell membrane is reversible, after which the cell survives, or irreversible, causing loss of homeostatic properties of the cell and leading to cell death through apoptosis [1, 2]. Due to its primarily non-thermal mechanism of action, IRE leaves the structural integrity of inlaying and adjacent accessory tissue structures, like blood vessels, intact [1]. This allows for the selective ablation of diffusely growing malignancies that surround such structures, as is typically the case for example with locally advanced pancreatic cancer (LAPC), and provides a promising alternative to heat-induced tumour ablation (Fig. 1).

Minimally invasive interventional techniques for in situ tumour destruction are gaining ground clinically. Unlike surgery, the treated malignancy is not removed from the body, but apoptotic or necrotic cell remnants, induced by the ablative technique, remain available to be taken up by phagocytes. During apoptosis, infiltrating antigen-presenting cells (APCs) will become activated and transport tumour fragments to draining lymph nodes where adaptive immune activation can take place [3-5]. In effect, local ablation thus serves to achieve in vivo tumour vaccination. As a result, local therapies can induce a durable and systemic anti-tumour T-cell response that in turn can induce regression in distant, non-treated metastases, a phenomenon known as the abscopal effect (Fig. 2).

We have studied the effects of IRE on systemic immunity in a pilot study of ten patients with locally advanced pancreatic cancer (LAPC) who participated in the PANFIRE-I phase I study, in which the safety of percutaneous IRE for LAPC was investigated (Fig. 1)[6]. Pancreatic carcinoma appears to be moderately immunogenic and to barely induce spontaneous anti-tumour immune responses [7]. Experimental evidence is accumulating to suggest that this may in part be caused by local and systemic immune suppression [8, 9]. The use of IRE in LAPC results in apoptosis and a decrease in tumour load, which may lead to a reduction in tumour-associated immune suppression and the simultaneous release of immunogenic apoptotic tumour fragments (Fig. 2) This could conceivably lead to the generation of anti-tumour immunity. To test this hypothesis, we monitored Tregs and activation of (tumour-specific) effector T-cells in the peripheral blood of the IRE-treated LAPC patients (Scheffer et al. submitted). Our findings are encouraging in that they confirm a transient and moderate decrease in systemic Treg rates (immune suppressors). The post-IRE systemic decrease in Treg rates also coincided with systemic T-cell responses to Wilms tumour 1 (WT-1), which in turn were more prominent in patients with above median overall survival (OS) (Scheffer et al. submitted; Fig. 3). WT-1 has been reported to be expressed in 75% of pancreatic tumours and not at all in healthy pancreatic tissues, confirming its relevance as an immune target antigen. Although caution is warranted due to the small number of studied patients, the seeming relationship between WT-1 responsiveness and above median OS is particularly exciting. It suggests a relationship between (induced) anti-tumour immunity and a measure of protection against outgrowth of local and distant micrometastases.

Harnessing the immune system in combination with local tumour ablation is an approach that may effectively marry local with systemic anticancer efficacy. To optimally leverage the immune response triggered by local tumour ablation techniques like IRE, it is important to attract an immune infiltrate to the primary and metastatic tumour sites and to ensure efficient T-cell priming in the lymph nodes draining the tumour ablation site. IRE has the added advantage over thermal ablation techniques of post-ablative preservation of the blood and lymph vasculature, thus ensuring effective immune infiltration and lymph drainage to and from the tumour ablation site. In conclusion, future exploration of clinical strategies combining IRE with local immune potentiation may ultimately yield a very effective in vivo vaccination approach.



Martijn R. Meijerink
Amsterdam University Medical Center
Amsterdam, The Netherlands

Dr. Meijerink studied medicine at the Catholic University of Leuven in Belgium and has been working in the Department of Radiology and Nuclear Medicine at the Amsterdam University Medical Center (Amsterdam UMC) since 2003, first as a trainee in radiology and later as a staff member. His area of interest is interventional radiology, in particular interventional oncology. In 2010 Dr. Meijerink completed his thesis titled 'Novel dynamic imaging techniques and ablative therapies for metastatic liver disease' and from 2011 became a trainer for the Differentiation and Fellowship Program for IR. He also supervises several PhD students and is the principal investigator of various scientific projects in the field of minimally invasive image-based treatment of cancer.

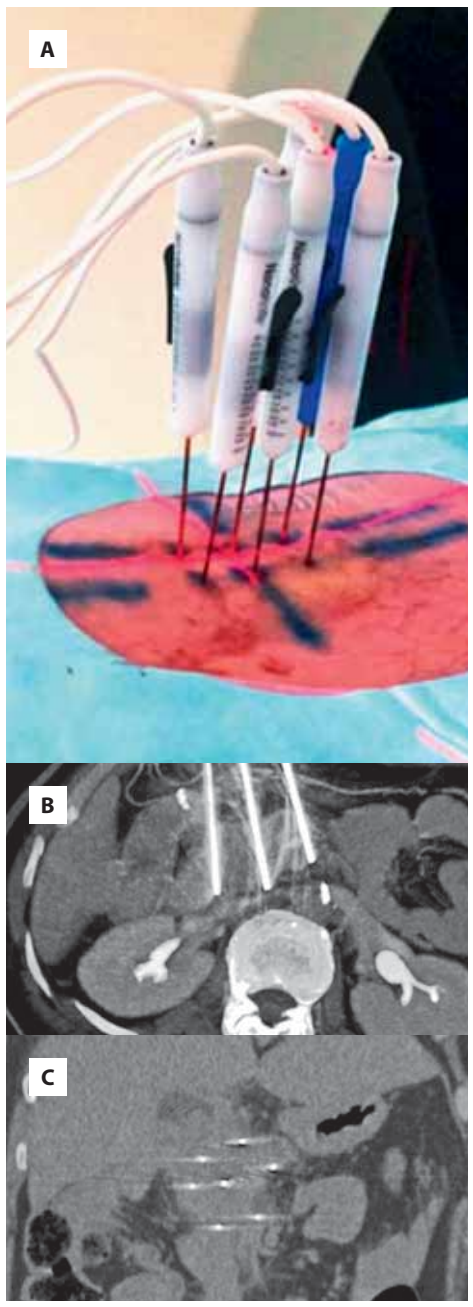


Fig. 1: Pancreatic IRE. Percutaneously inserted needle-electrodes (A), unenhanced CT scans show needle-electrode configuration in axial (b) and coronal (c) plane [6].

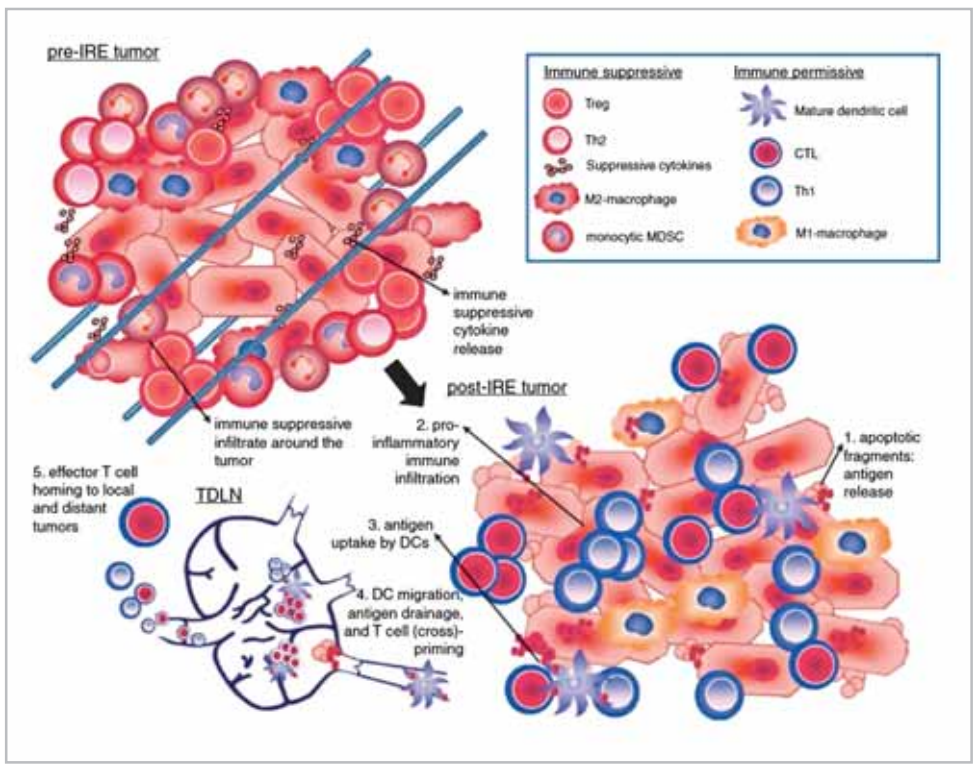


Fig. 2: Anti-tumour immunity induced by IRE. Irreversible electroporation (IRE) may help generate effective anti-tumour immunity. An essentially immune suppressed tumour microenvironment pre-IRE may be converted to an immune permissive environment through the induction of immunogenic tumour cell death leading to decreased immune suppression and an influx of pro-inflammatory immune effector cells. Systemic tumour-specific T-cell immunity may eventually be achieved through (1) the release of immunogenic apoptotic tumour cell remnants caused by IRE; (2) reduction of tumour-associated immune suppression and recruitment of a pro-inflammatory immune infiltrate, including DCs; (3) antigen uptake and activation of infiltrating DCs; (4) subsequent generation of anti-tumour T-cell immunity in the draining lymph nodes resulting either from passive draining of immunogenic apoptotic remnants (subsequently taken up by lymph node resident DCs) or active transport from the tumour site by DCs; and (5) primed killer T-cells homing back to the treated tumour site to eliminate remaining tumour cells or providing systemic protection against outgrowth of distant metastases. The captioned legend shows the various depicted immune suppressive or permissive immune subsets and immune suppressive cytokines [10].

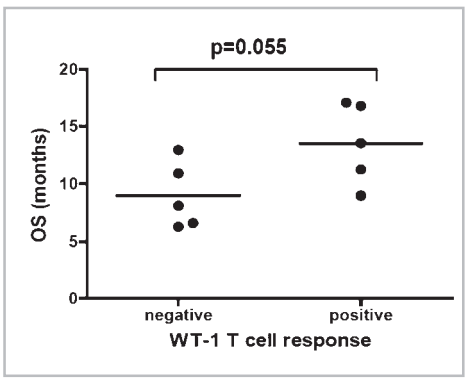


Fig. 3: Induced WT-1 T-cell reactivity in the PANFIRE-trial. A positive WT-1 T-cell response is related to improved overall survival (p=0.055).

References:
1. Rubinsky B, Onik G, Mikus P. Irreversible electroporation: a new ablation modality-clinical implications. Technol Cancer Res Treat. 2007;6(1):37-48.
2. Lee EW, Loh CT, Kee ST. Imaging guided percutaneous irreversible electroporation: ultrasound and immunohistological correlation. Technol Cancer Res Treat. 2007;6(4):287-294.
3. Garg AD, Romano E, Rufo N, Agostinis P. Immunogenic versus tolerogenic phagocytosis during anticancer therapy: mechanisms and clinical translation. Cell Death Differ, 2016;23(6):938-951.
4. Chu KF, Dupuy DE. Thermal ablation of tumours: biological mechanisms and advances in therapy. Nat Rev Cancer. 2014;14(3):199-208.
5. O'Brien MA, Power DG, Clover AJ, Bird B, Soden DM, Forde PF. Local tumour ablative therapies: opportunities for maximising immune engagement and activation. Biochim Biophys Acta. 2014;1846(2):510-523.
6. Scheffer HJ et al. Ablation of Locally Advanced Pancreatic Cancer with Percutaneous Irreversible Electroporation: Results of the Phase I/II PANFIRE Study. Radiology. 2017;282(2):585-597.
7. Lutz ER et al. Immunotherapy converts nonimmunogenic pancreatic tumors into immunogenic foci of immune regulation. Cancer Immunol Res. 2014;2(7):616-631.
8. Sideras K et al. Role of the immune system in pancreatic cancer progression and immune modulating treatment strategies. Cancer Treat Rev. 2014;40(4):513-522.
9. Schnurr M et al. Strategies to relieve immunosuppression in pancreatic cancer. Immunotherapy. 2015;7(4):363-376.
10. Stam AGM, de Gruijl TD. From local to systemic treatment: Leveraging antitumor immunity following irreversible electroporation. In: Meijerink MR, Scheffer HJ, Narayanan G. Irreversible Electroporation in Clinical Practice. Springer; 2018. pp. 249-270.

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IDEAS 2018

What is new in endoleak management?

Jos C. van den Berg

Don't miss it !
Outcome and follow-up for EVAR
Focus Session
Monday, September 24, 10:00 – 11:00
Auditorium 2

This presentation will cover the classification and relevance of endoleaks, when there is a need for the treatment of endoleaks and the different options that are available for treating the different types of endoleaks.

Endovascular aneurysm repair (EVAR) became an established minimally invasive method to treat abdominal aortic aneurysms (AAA) soon after the first implantations in endoleaks were documented in the early 1990s. An endoleak is defined as persistent blood flow in the aneurysm sac outside the stent graft. It was originally categorised into four types by White et al. and subsequently a fifth type was added by Gilling-Smith et al. [1, 2]. Type I endoleaks refer to an inadequate seal in the proximal (type Ia) or distal (type Ib) landing zone. Type II endoleaks are characterised by retrograde flow into the aneurysm sac through collaterals (inferior mesenteric artery and/or lumbar arteries). Type IIa endoleaks refer to endoleaks caused by a single feeder and type IIb to the presence of multiple feeders. Type III endoleaks are leaks, which stem directly from a defect in the stent graft into the aneurysm sac, either caused by separation of modular components (type IIIa) or a fabric tear (type IIIb). Type IV endoleaks are caused by graft porosity. Finally, type V endoleaks are characterised by endotension, causing expansion of the aneurysm sac in the absence of a (demonstrable) extravasation of contrast.

There is an important difference between the different types of endoleaks, both from a pathophysiological point of view as well as from a clinical point of view, that all have implications for surveillance and treatment. Endoleaks range from low-pressure endoleaks (type II and V) to high-pressure endoleaks (type I, III and IV) that mandate intervention to protect from imminent aneurysm-related morbidity and mortality [3].

Type II endoleaks can be safely monitored with a surveillance programme and specific criteria for intervention have been identified. Indications for type II endoleak treatment are aneurysms with an asymptomatic, expanding aneurysm sac >5 mm as seen on follow-up CTA scans; aneurysms that show sy mptomatic aneurysm sac expansion and those patients with an aneurysm rupture.

Type I and III are considered to be "dangerous" endoleaks. The communication between the high-pressure aortic lumen and the perigraft space results in increased sac pressurisation and can lead to sac expansion. Immediate treatment of these endoleaks is advocated because of the increased risk of rupture (8.95 times higher) and lack of spontaneous resolution [4].

Keeping the beforementioned aspects in mind, treatment of endoleaks can be performed in several ways.

Type I endoleaks are the second leading cause for intervention after EVAR and are reported in up to 10% of EVAR cases [5]. Accepted treatment options for a type Ia endoleak include proximal balloon dilation, placement of proximal aortic cuffs (either standard, branched or fenestrated), large-caliber balloon-expandable (non-covered) stents in the aneurysm neck, endo-anchor placement and chimney grafts. The (distal) type Ib endoleaks are typically treated with distal endograft extension. As an alternative, transcatheter embolisation of the 'gutter' can be performed either using Onyx, detachable coils or a combination of both [6]. Surgical correction, without conversion to a surgical graft, can be performed with 'banding' of the proximal neck.

Type II endoleaks are the most frequent and occur in approximately up to 40% of cases after endograft placement. The management of type II endoleaks continues to be a topic of debate and the optimal method of management remains controversial. Embolisation of the inflow and outflow arteries with or without sac embolisation is considered the treatment of choice, although results have been very variable [3]. Access to the type II endoleak nidus can be obtained by the trans-arterial route (superior mesenteric artery and arc of Riolan for an inferior mesenteric artery endoleak; internal iliac artery and iliolumbar artery for lumbar artery endoleaks), the trans-lumbar route, a trans-caval approach and a trans-iliac paraendograft approach [7]. Embolisation can be performed with (detachable) coils and glue-like substances (e.g. Onyx). Prior to conversion to open surgery with explantation of the stent graft, laparoscopic clipping and saccotomy with ligation can be performed.

Type III endoleaks have been described with almost all commercially available devices and the incidence of type III endoleaks is lower with newer devices. The occurrence is reported between 0.9%-2.7% [8]. The treatment of a type IIIa endoleaks can consist of interposition of a modular component or complete relining with a bifurcated graft or an aortomonoiliac device [4]. In cases of a type IIIb endoleaks the following treatment options exist: relining of the stent graft or sealing of the fabric tear itself. Relining may be challenging, especially when the fabric tear is close to the flow divider. Relining can be done with an aortic cuff, an iliac limb or, as in type IIIa endoleaks, with complete relining using a bifurcated or aortomonoiliac graft. The use of an endovascular sealing (EVAS) has been described but is off-label. Sealing of the fabric tear itself can be done with a vascular plug, septal occluder or a pledget can be sutured on the tear (open surgery) [9].

The treatment of type IV and V endoleaks is similar to that of type III endoleaks (relining) [3].

Jos C. van den Berg
Ospedale Regionale di Lugano
Lugano, Switzerland

Jos van den Berg began his work as an IR in 1994 in St. Antonius Hospital in Nieuwegein, The Netherlands, becoming Head of their Department of Radiology in 2001. In 2004 he accepted the post of Head of the Service of Interventional Radiology in the Ospedale Regionale di Lugano, Switzerland. He also acts as an Associate Professor of Radiology at the Medical Faculty of the University of Bern. Dr. van den Berg is a past-president of the Dutch Endovascular Forum, and an active member of the Dutch Society of Radiology, CIRSE, SIR and the Swiss Society of Cardiovascular and Interventional Radiology.

References:
1. White GH, May J, Waugh RC, Chaufour X, Yu W. Type III and type IV endoleak: toward a complete definition of blood flow in the sac after endoluminal AAA repair. J Endovasc Surg. 1998;5(4):305-309.
2. Gilling-Smith G, Brennan J, Harris P, Bakran A, Gould D, McWilliams R. Endotension after endovascular aneurysm repair: definition, classification, and strategies for surveillance and intervention. J Endovasc Surg. 1999;6(4):305-307.
3. Barleben A, Inui T, Owens E, Lane JS, Bandyk DF. Intervention after endovascular aneurysm repair: Endosalvage techniques including perigraft arterial sac embolization and endograft relining. Semin Vasc Surg. 2016;29(1-2):41-49.
4. Maleux G, Poorteman L, Laenen A, et al. Incidence, etiology, and management of type III endoleak after endovascular aortic repair. J Vasc Surg. 2017;66(4):1056-1064.
5. Ameli-Renani S, Morgan RA. Percutaneous interventions following endovascular aneurysm sac sealing: Endoleak embolization and limb-related adverse events. Semin Vasc Surg. 2016;29(3):135-141.
6. Ameli-Renani S, Morgan RA. Secondary interventions after endovascular aneurysm sac sealing: endoleak embolization and limb-related interventions. Semin Vasc Surg. 2016;29(1-2):61-67.
7. Ameli-Renani S, Pavlidis V, Mailli L, Turner P, Morgan RA. Transiliac Paraendograft Embolisation of Type 2 Endoleak: An Alternative Approach for Endoleak Management. Cardiovasc Intervent Radiol. 2016;39(2):279-283.
8. Skibba AA, Evans JR, Greenfield DT, et al. Management of late main-body aortic endograft component uncoupling and type IIIa endoleak encountered with the Endologix Powerlink and AFX platforms. J Vasc Surg. 2015;62(4):868-875.
9. McWilliams RG, Chan TY, Smout J, Torella F, Fisher RK. Endovascular Repair of Type IIIb Endoleak With the Amplatzer Septal Occluder. J Endovasc Ther. 2017;24(2):262-264.

SMART AND SAFE!

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How to make your angio suite smart and safe!

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 information material and opportunities to engage directly with experts in radiation protection. Interventional radiologists are exposed to high levels of radiation in daily practice and therefore face particular health risks. Take a seat in the Radiation Protection Pavilion and learn how to reduce and protect against exposure.

Today's RPP Mini-Talks, which feature short expert presentations, cover a wide range of topics delving further into various aspects of radiation safety.
We hope to see you there!

Today's RPP Mini-Talks

	Time	Mini-Talk	Speaker
MON SEPT 24	09:30 – 09:45	Radiation dose management in prostatic artery embolisation (Philips)	P. Schott *(Krefeld/DE)*
	09:45 – 10:00	High dose procedures: how to manage dose in renal embolisation	B. Gebauer *(Berlin/DE)*
	11:00 – 11:15	C-arm management and radiation safety in the angiosuite (Mentice)	L. Lönn *(Copenhagen/DK)*
	11:15 – 11:30	High dose procedures: how to manage dose in IAT	T. Struffert *(Erlangen/DE)*
	12:30 – 12:45	Key elements in reducing and limiting radiation dose in EVAR/TEVAR (Siemens Healthineers)	G. Richter *(Stuttgart/DE)*
	12:45 – 13:00	How to optimise dose in stroke treatment	A. Krajina *(Hradec Králové/CZ)*
	13:00 – 13:15	How to choose your equipment	P. Reimer *(Karlsruhe/DE)*
	13:15 – 13:30	Scatter radiation reduction in the interventional suite (Radpad)	E. Radtke *(Kansas City, KS/US)*
	13:30 – 13:45	High dose procedures: how to manage dose in EVAR/TEVAR	A. Chavan *(Oldenburg/DE)*

Welcoming the Malaysian Society of Interventional Radiology (MYSIR) to CIRSE

To celebrate the Malaysian Society of Interventional Radiology (MYSIR) joining CIRSE, we caught up with current President, Dr. Alex Tang, and past President, Dr. Jeyaledchumy Mahadevan, to find out more about MYSIR and the current status of IR in Malaysia.

CIRSE: MYSIR recently became a CIRSE Group Member, how would you like to see these two societies working together?

Tang: MYSIR is a young society and we are making efforts to enhance our presence domestically and internationally. CIRSE is a well-established society with large resources and a clearly defined operational framework, which includes its comprehensive guidelines and standards of practice documents. MYSIR would be grateful to receive assistance from CIRSE in helping it to strengthen and optimise its own operational framework in order to not only help our young IRs and trainees, but also improve the standards and safety of IR treatments in Malaysia. Regular academic support, intersociety collaboration, training workshops and fellowship training for MYSIR's young fellows are also sought after by MYSIR.

CIRSE: In what ways does MYSIR currently collaborate with other IR societies on a regional and/or global level?

Tang: MYSIR is gearing up its regional collaborations. Being a member of the Asia Pacific Society of Cardiovascular and Interventional Radiology (APSCVIR), the society is looking for a more enhanced presence regionally, as well as more academic exchanges with the regional IR communities. MYSIR is also looking forward to a more fruitful participation in regional exercises, namely the APAITO, APCIO and ACTA. The society has also taken the task of organising the upcoming 6th Asia Pacific Conference in Interventional Oncology (APCIO) in Kuala Lumpur, in October 2019 and has made a substantial contribution to many regional events.

CIRSE: There is currently a significant gender gap in IR throughout Europe. Is this also true for Malaysia? If so, how is the gap reflected?

Mahadevan: We addressed this topic during the last ASM and AAFITN 2018 meeting, talking about some of the questions that were included in Prof. Anna Belli's questionnaire. The existing gender gap in IR in Europe is clearly not positive and something must be done to eradicate it, because attracting more women to IR is crucial if we want to achieve a continuous expansion of the subspecialty. On a more positive note, Malaysia differs in this respect as we currently do not have a gender gap among IR practitioners. However, some concerns among women who think about entering IR in Malaysia do exist, and are often very similar to those echoed by their European counterparts, including the impact of radiation on fertility and the work/life balance question.

CIRSE: How does MYSIR inform patients about IR treatments?

Mahadevan: The awareness of IR in Malaysia is still relatively low, not just among the public but also other medical disciplines. MYSIR has been working very hard to change this through actively promoting IR via newspaper articles, the internet and various engagement programmes. We also have other plans to expand the reach and scope of our promotional campaigns, so even more people can discover what IR has to offer in terms of treatment options. Additionally, intersociety meetings are also being conducted to raise awareness of MYSIR and encourage multidisciplinary collaboration.

CIRSE: What can be done to further develop and promote the field of IR in Malaysia?

Tang: IR was established in Malaysia way back in the 80s, largely pioneered by Dr. Abdul Samad Sakijan who was a Professor of Radiology at the National University of Malaysia. He laid a strong groundwork and stimulated the interest among the young fellows in taking up the specialty. Currently, there are multiple academic training centres in radiology and IR locally, promoting and training new practitioners. MYSIR also organises and collaborates with various local institutions in numerous academic exercises and programmes. MYSIR is also looking forward to a more cohesive collaboration with CIRSE, SIO, APSCVIR, APAITO and ACTA in promoting its services and conducting training workshops for the local IRs and trainees.

CIRSE: What are the biggest challenges for IR in Malaysia?

Mahadevan: From my perspective, one of the biggest challenges is the lack of support from other medical specialties which makes multidisciplinary collaboration very hard to achieve. Unfortunately, it also means that medical practitioners from other disciplines often find new innovative treatments offered by IRs hard to accept, which in practice results in a lower patient uptake of such treatments and this really is a shame. The other key challenge is limited funding, which again makes it difficult to actively promote IR in the country.

CIRSE: What are some of the primary areas of research and practice in IR in Malaysia?

Tang: Most IRs in Malaysia practice interventional oncology as their primary service, apart from the general and specific IR procedures. There is some ongoing research locally in IR pertaining to new treatment strategies in large liver cancer, transarterial management of liver metastases, LutonixR Lower Limb Extremity Global (LEG) Registry and the Archimedes Biodegradable Stent Safety and Outcome Study, to name a few.

CIRSE: How do you envision the future of IR in Malaysia and globally?

Tang: MYSIR envisions a positive growth of IR services in Malaysia and globally. Being a minimally invasive subspecialty, IR offers a safer and less invasive alternative treatment solution in many clinical entities. With more awareness and acceptance of the IR technology in the other clinical fields, IR should grow and should become a part of the clinical management work flow. With the upcoming national healthcare scheme, IR will be stronger and its presence should have more impact in the practice of medicine, locally and globally.

Come join us to celebrate the end of another successful Annual Congress!

The CIRSE 2018 Dinner and Farewell Party will take place throughout several venues in the very special Páteo Alfacinha venue, promising an exciting foray into Portuguese architecture and tradition.

Dinner tickets
(cocktail reception, dinner, complimentary drinks, entertainment): EUR 75 each

Party only
(doors open 22:00, includes free drinks and entertainment): EUR 25 each

Don't miss out!
Buy your tickets at the "Hotel | Social Events | City Information" desk, located in the entrance hall of the congress centre.

Join us at the Film interpretation Quiz!

Monday, September 24, 14:30-15:15, Auditorium 1

Coordinators: I.J. McCafferty (Birmingham/UK), O.M. van Delden (Amsterdam/NL)

The Film Interpretation Quiz is one of CIRSE's most popular sessions and consists of two teams who will compete against each other. Since the introduction of this quiz over 10 years ago, it has become a much-loved feature of the congress!

The participating teams will be given cases to diagnose and then asked to suggest treatment. The film panel will then demonstrate the approach an expert would take towards the solution of a diagnostic/therapeutic problem.

Team ONE

Paolo Almeida

Thomas Helmberger

Elika Kashef

Constantinos Sofocleous

VS.

Team TWO

Jean-Pierre Pelage

Yasuari Arai

Franco Orsi

Maria Tsitskari

Paediatric urinary tract intervention

Alex M. Barnacle

Don't miss it !
Paediatric intervention: a primer
Focus Session
Monday, September 24, 08:30-09:30
Auditorium 6

Urinary tract interventions are some of the most commonly requested procedures in children; it is not too unusual for a general interventional radiologist to be asked to place a nephrostomy or perform a renal biopsy on a child. Most of the urinary tract interventions developed in adults are highly transferable to paediatric practice, from simple drain or stent insertions to more complex renal stone interventions, though there are some key pitfalls to be aware of.

Renal biopsy

The indications for renal biopsy in children are very similar to those in adults. In older children and teenagers, biopsy is often well tolerated with simple sedation such as inhaled nitrous oxide and oxygen, which gives both analgesic and anxiolytic effects. Although a longitudinal biopsy trajectory via the lower pole is common in adults, in children a transverse inter-polar approach is often easiest and almost always provides a high yield of glomeruli. In our centre, a member of the histopathology team attends the IR suite to assess the adequacy of the biopsy under a low power microscope; this ensures that all of our procedures deliver adequate sampling. It is important to know that adult transplanted kidneys are often sited intraperitoneally in small children, so that a lateral flank approach to biopsy is vital in order to avoid crossing the peritoneal cavity [1].
The risk of a major complications after renal biopsy in a child is low, the most common complication being haemorrhage requiring transfusion. However, as with adult practice, the literature almost certainly underestimates the incidence of pseudoaneurysms and arteriovenous fistulae, which often present late or not at all. Interestingly, there is an increasing trend towards performing routine biopsies of both native and transplant kidneys in children on an outpatient basis [2].

Nephrostomy insertion

Nephrostomy insertion is often more straight forward in children than adults, as the kidney is superficial and easy to visualise but there are a couple of pitfalls that are vital to recognise. The increased pliability of the abdominal wall and kidney in young children often makes a clean puncture difficult and the presence of a smaller collecting system makes manoeuvre of guidewires and placement of pigtail catheters more difficult. The renal cortex is often thinner, particularly in grossly dilated infant kidneys and this means needles and guidewires are less secure once access is achieved. Inadvertent decompression of a dilated collecting system into the peri-nephric space is a common complication in children and often requires a 24-48 hour wait until the system re-dilates before repeat puncture is safe. Importantly, renal function often recovers far better after drainage than it does in adult renal units and poor function should not be a contraindication to drainage in most cases [3].

Ureteric stenting

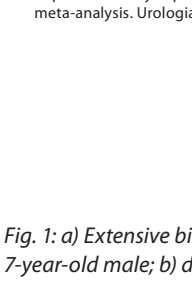
The antegrade approach to ureteric stenting is essentially the same as that in adults but operators should note that upper pole puncture is often not a safe option in children, as the kidney lies high in the abdomen and the upper pole can often only be accessed from above the 11th or even 10th rib. Crossing tight or tortuous upper ureters may require the initial use of an 0.014- or 0.010-inch hydrophilic guidewire. Ureteric strictures can be treated using conventional angioplasty balloons, though cutting balloons can also be considered. Remember that ureters are very short in small children; the use of variable length silicone stents means that the ureteric length does not need to be measured; using this device saves significant time.

Percutaneous nephrolithotomy PCNL

Renal stone disease is uncommon in children but its incidence is increasing. Frustratingly, the diagnosis is often made very late as children present with highly non-specific symptoms and radiologists seem to forget that children can get renal stones, too, so the imaging features are often unrecognised [4]. This means that children often have a very large stone burden and significant compromise in renal function when their disease is finally recognised and relatively urgent intervention is required. Small stones and debris often respond very well to extra-corporeal shock wave lithotripsy (ESWL) but children with multiple, dense stones or with staghorn calculi require a more invasive approach. As in adults, minimally invasive percutaneous nephrolithotomy (PCNL) is the gold standard of care but far too few centres are offering this option to families [5]. Having said that, PCNL is a complex procedure in small children and should only be undertaken in a specialist centre with an experienced team.

The procedure itself is similar to that used in adults and stone-free rates are comparable. Traditionally, track size is usually 24 Fr. though, as with adult PCNL, there is an increasing trend towards micro- and ultra-mini PCNL techniques [6]. The unique challenges of paediatric PCNL include the reduced range of endoscopic instruments available for paediatric use and the greater significance of haemorrhage and hypothermia in small children. The risks mean that operative times should be kept to a minimum and many centres still argue that a larger track, allowing quicker stone retrieval, is still the safest option for children in many cases. Balloon-based single-dilatation systems used in adults are often less useful in children as it can be impossible to get a sufficient proportion of the system into the collecting system to allow stable balloon inflation. Because children's collecting systems are small and the angles are tight, multi-track PCNLs are not uncommon to achieve complete stone clearance. Paediatric renal units tolerate multiple tracks very well but again, this approach requires expertise and experience. There is a trend for tubeless and stentless PCNL in children but this approach depends very much on the underlying aetiology of the child's urolithiasis and the complexity of the PCNL procedure itself; children with a high propensity for stone formation, such as those with cysteinuria and those with scarred collecting systems benefit from well-draining clot-free systems post-operatively and this often requires repeated irrigation via a drain for 2-3 days [7].

We know that all these procedures are both safe and effective in children and that image-guided procedures are the gold standard of care; both urologists and radiologists should be encouraged to offer such minimally invasive options to children and their families.



Alex M. Barnacle
Great Ormond Street Children's Hospital
London, United Kingdom

Dr. Barnacle is a full-time consultant in Paediatric Interventional Radiology at Great Ormond Street Hospital. She has special interests in working with children with complex vascular malformations, orbital malformations and renal stones.
Dr. Barnacle is the lead radiologist for the Vascular Anomalies service at Great Ormond Street Hospital. She is also on the executive board of the Society of Pediatric Interventional Radiology (SPIR) and is the 2017-18 Travelling Professor for the British Society of Interventional Radiology.

References:
1. Vidhun J et al. Safety and risk stratification of percutaneous biopsies of adult-sized renal allografts in infant and older pediatric recipients. Transplantation 2003;76:552-557.
2. Sweeney C et al. Outpatient paediatric renal transplant biopsy: is it safe?. Pediatr Transplant. 2006;10: 159-161.
3. Barnacle A, Roebuck D. Racadio J. Nephro-urology interventions in children. TVIR. 2010;13:229-237.
4. Hiorns MP. Imaging of urinary tract lithiasis: Who, when and why?. Pediatr Radiol. 2008;38:497-500.
5. Zeren S et al. Percutaneous nephrolithotomy in the management of pediatric renal calculi. J Endourol. 2002;16:75-78.
6. Jones P et al. Role of minimally invasive percutaneous nephrolithotomy techniques: micro and ultra-mini PCNL (<15Fr) in the pediatric population: a systematic review. J Endourol. 2017;31:816-824.
7. Nouralizadeh A et al. Tubeless versus standard percutaneous nephrolithotomy in pediatric patients: a systemic review and meta-analysis. Urologia. 2018;85:3-9.

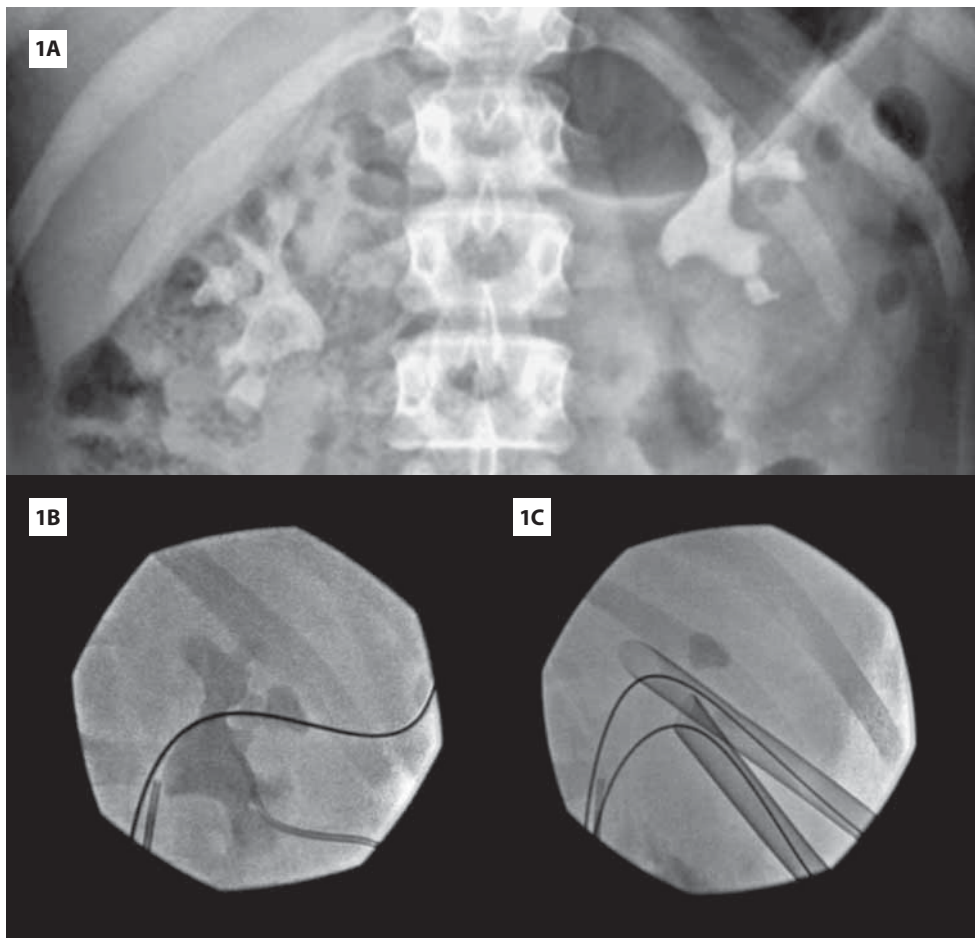


Fig. 1: a) Extensive bilateral staghorn calculi in a 7-year-old male; b) dual calyceal access required to clear the stone burden; c) most of the stones were cleared via the two 24 Fr. tracks. The residual upper pole stone was cleared with ESWL.

Fig. 2: Training a paediatric urology team to do PCNLs in Sri Lanka.

Don't miss it !
Infrapopliteal endovascular masterclass
Focus Session
Monday, September 24, 10:00-11:00
Auditorium 6

Update on randomised trials with drug-coated balloons and drug-eluting stents

Alessandro Cannavale, EBIR

Alessandro Cannavale
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Dr. Cannavale is consultant vascular and interventional radiologist at Policlinico Umberto I, University of Rome, Italy. He has been awarded the CIRSE Fellowship Grant in 2014, which he completed at Cambridge University Hospitals, Cambridge, and this was followed by a second fellowship in IR at University Hospital Southampton, UK. Dr. Cannavale is an EBIR-holder since March 2017 and has worked as a Consultant at the Vascular Centre at East Kent Hospital University NHS Foundation Trust and at the IR Unit of the Queen Elizabeth University Hospital, in Glasgow, United Kingdom. His main interest is in endovascular/hybrid interventions in critical limb ischaemia as well as non-invasive vascular imaging and risk management in IR. He is author and co-author of several investigative papers and reviews in peer-reviewed journals, with special focus on drug-eluting stents and drug-coated balloons in the peripheral vasculature.

The infrapopliteal area is one of the most resistant to treatment, as restenosis of lesions in this territory is high, ranging from 42% to 69% in the first 12 months after angioplasty alone. We certainly face an environment that is completely different from others as aorto-iliac or femoropopliteal segments. The main difference is related to the multiple factors that have a role in infrapopliteal disease, including patient selection, foot care, concurrent vein disease, diabetes, calcifications, medical therapy and follow-up.

All these factors may lead to very different results across randomised controlled trials, real-world registries and investigative studies. Holding onto the recent favourable results in other vascular districts, drug-eluting stents and drug-coated balloons have paved their way through the harsh infrapopliteal environment. However equivocal results from RCTs have mined the clinical application of these devices.

Clinical endpoints such as the target lesion revascularisation (TLR), clinical improvement of Rutherford class (wound healing/pain relief), amputation rate and overall survival, represent the main outcomes analysed in studies and trials. TLR is particularly important as a prognostic value in CLI patients because early failure of endovascular recanalisation was found to predict limb loss and poor prognosis and repeat interventions with multiple contrast exposures are harmful in these sick patients with frequent life-threatening comorbidities.

If we look at patient selection in RCTs, we most commonly face male, diabetic patients with hyperlipemia and hypertension (>50% of selected patients). With regards to the clinical stage of patients, Rutherford class 4 and 5 are the most reported, although some RCTs also selected patients with Rutherford class 2 and 3 (BIOLUX P-II, YUKON-BTK, ACHILLES) and some RCTs also included Rutherford class 6 (major tissue loss; DEBATE-BTK, 18.3%; IN.PACT Deep 1.7%). Transcutaneous capillary pressure of oxygen (TcPO2) was only used in the In.PACT DEEP trial and the new WIfI (wound, ischaemia and foot infection) system was not considered in any trial.

Another crucial point to consider is the lesion's characteristics: In general, RCTs on drug-eluting stents selected patients with lesions about 40 mm or less. On the other hand, in RCTs on DCB much longer lesions were treated measuring about 110 mm (mean length). Severe calcifications are variably present across DCB and DES RCTs. After the initial encouraging results from earlier trials (DEBELLUM, DEBATE BTK), the IN.PACT DEEP trial (Study of IN.PACT Amphirion® Drug Eluting Balloon vs. Standard PTA for the Treatment of Below the Knee Critical Limb Ischemia), failed to demonstrate the superiority of drug-coated balloons (DCB) over plain angioplasty (PTA). Unfortunately, this well-designed study showed no significant differences between the two groups in 6-month clinically-driven target lesion revascularisation (CD-TLR) or angiographic late lumen loss. There were also more complications in the DCB arm and a trend toward more major amputations (8.8% vs. 3.6%; p = 0.080) and lower amputation-free survival (81.1% vs. 89.2%; p =0.057).

Accordingly, the IDEAS trial confirmed the lack of a mid-term advantage of DCB over DES in the treatment of long infrapopliteal lesions (mean lesion length: 137.5 mm): DCB did not perform better in terms of Rutherford class, binary restenosis or TLR (i.e. 6-month TLR 7.7% vs. 13.6%; p=0.65).

Despite these adverse results, several considerations should be made on the specific DCB platform (i.e. IN.PACT Amphirion has non-uniform drug-coating), study power, endpoints and multidisciplinary wound/foot care.

For these reasons, the impact of DCB on clinical and angiographic improvement still remains controversial, hence DCB are not yet recommended to be used as an alternative to PTA in the BTK arteries, as there is no satisfactory supporting evidence. Further trials on DCB in the below-the-knee arteries are ongoing and the results are highly anticipated.

On the other hand, clinical effectiveness of DES has been tested in several trials and long-term studies.

In fact, infragenicular-limus DES seems to have stronger evidence on clinical effectiveness than DEB. Most recent trials and studies reported enthusiastic limb salvage rates (i.e. SES 98.7% at 1 year (YUKON) also sustained at 3 years and low TLR rates of 8.7% (DESTINY) and 13.8% (YUKON). Longer term results (4-year follow-up) from the PADI trial, demonstrated amputation- and event-free survival rates were significantly higher in the DES arm than in the PTA-BMS arm (31.8% vs. 20.4%, P = 0.043; and 26.2% vs. 15.3%, P=0.041 respectively). Only the PES-BTK-70 trial explored the paclitaxel-eluting stents Stentys (coronary), finding satisfactory results with freedom from TLR of 79.1% at 1 year and limb salvage of 98.5%.

According to the most recent metanalyses, the risk of target lesion revascularisation (TLR; odds ratio [OR] = 0.38, 95% confidence interval [CI]: 0.23-0.63, P < .01), restenosis rate (OR = 0.30, 95% CI: 0.18-0.50, P < .01), and amputation rate (OR = 0.49, 95% CI: 0.29-0.83, P < .01) were significantly decreased in the DES group vs. PTA/BMS. TLR rates in relation to lesion length are reported in chart 1 and 2 for DCB and DES RCTs respectively.

Otherwise, DCB did not show a significant difference in risk of restenosis rate (i.e. OR = 0.49, 95% CI: 0.11-2.14, P = .35), amputation rate (i.e. OR = 1.32, 95% CI: 0.51-3.40, P = .57) and overall survival (OR = 1.40, 95% CI: 0.72-2.71, P = 0.32) vs PTA group.

Conclusion

There is level 1 evidence for DES (4 RCTs and 4 metanalyses) on the superior effectiveness of DES in the treatment of short lesions (< 45 mm) in below-the-knee arteries in patients with critical limb ischaemia. These results in particular support primary or bail-out use of DES.

DCBs are promising but, as they were tested against longer calcified lesions and results from different RCTs were equivocal, further evidence is strongly needed. The main characteristics of RCTs are summarised in Table 1 and 2. To date the results from RCTs still support plain balloon angioplasty as a workhorse technique and bail-out or spot stenting using DES.

References:
1. Fanelli F, Cannavale A. Drug coated balloons below-the-knee: just too early?. J Cardiovasc Surg (Torino). 2016;57(1):18-22.
2. Cassese S, Ndrepepa G, Liistro F, Fanelli F, Kufner S, Ott I, Laugwitz KL, Schunkert H, Kastrati A, Fusaro M. Drug-Coated Balloons for Revascularization of Infrapopliteal Arteries: A Meta-Analysis of Randomized Trials. JACC CardiovascInterv. 2016;9(10):1072-80.
3. Fanelli F, Cannavale A. Drug-coated balloons and drug-eluting stents: clinical effectiveness revisited. J Cardiovasc Surg (Torino). 2014;55(5):625-30.
4. Katsanos K, Kitrou P, Spiliopoulos S, Diamantopoulos A, Karnabatidis D. Comparative Effectiveness of Plain Balloon Angioplasty, Bare Metal Stents, Drug-Coated Balloons, and Drug-Eluting Stents for the Treatment of Infrapopliteal Artery Disease: Systematic Review and Bayesian Network Meta-analysis of Randomized Controlled Trials. J Endovasc Ther. 2016;23(6):851-863.

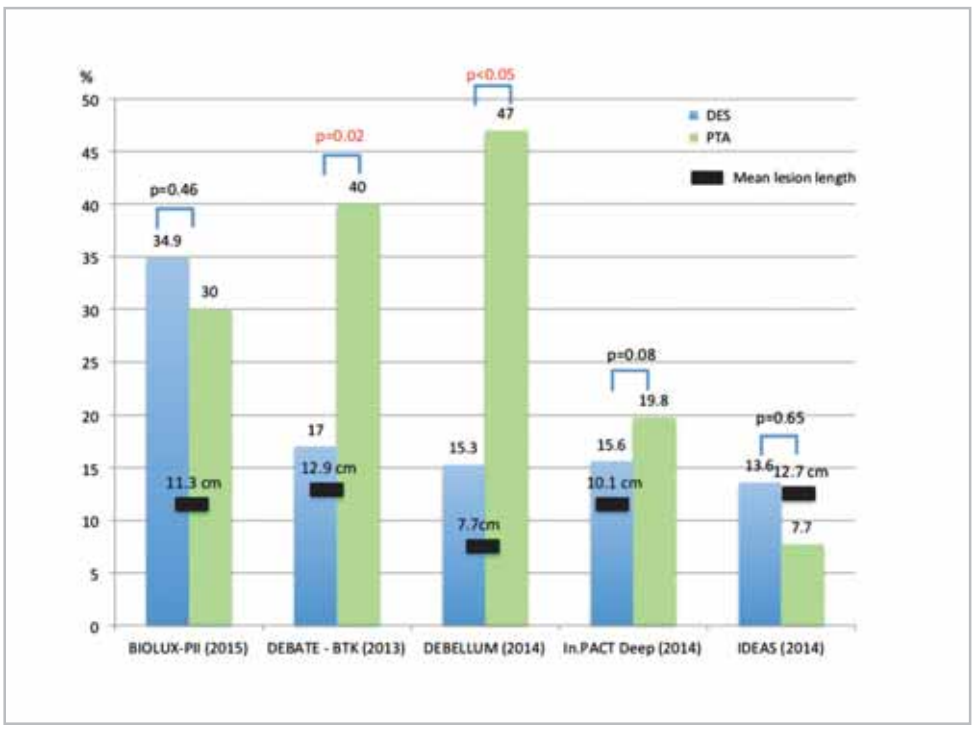


Chart 1: Column graph shows TLR rates and lesion length in current RCTs on DCB.

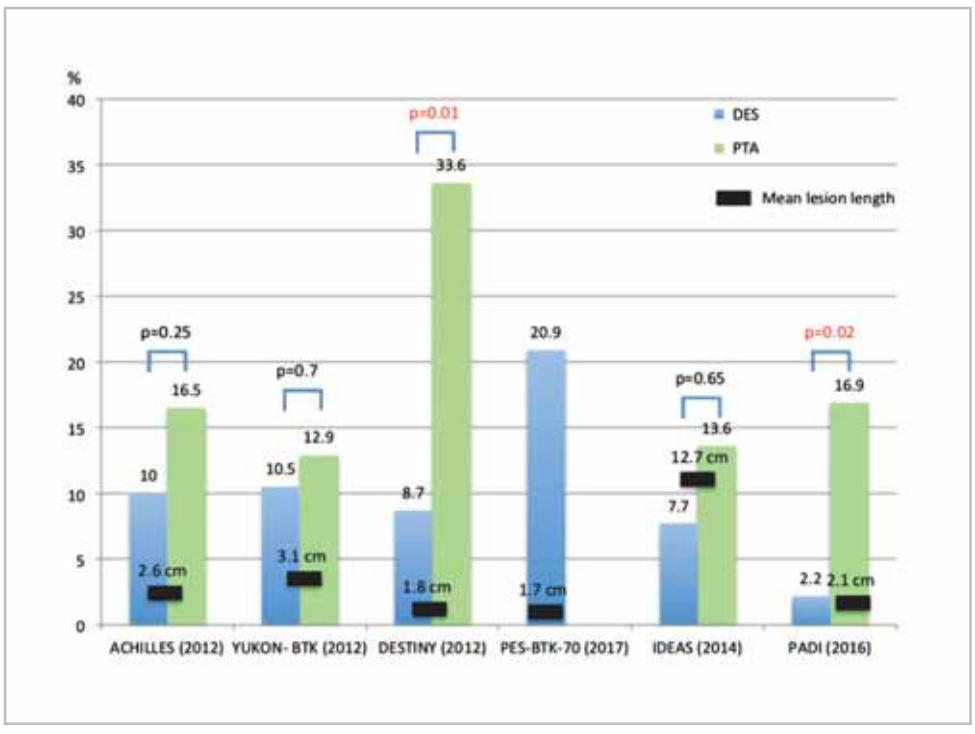


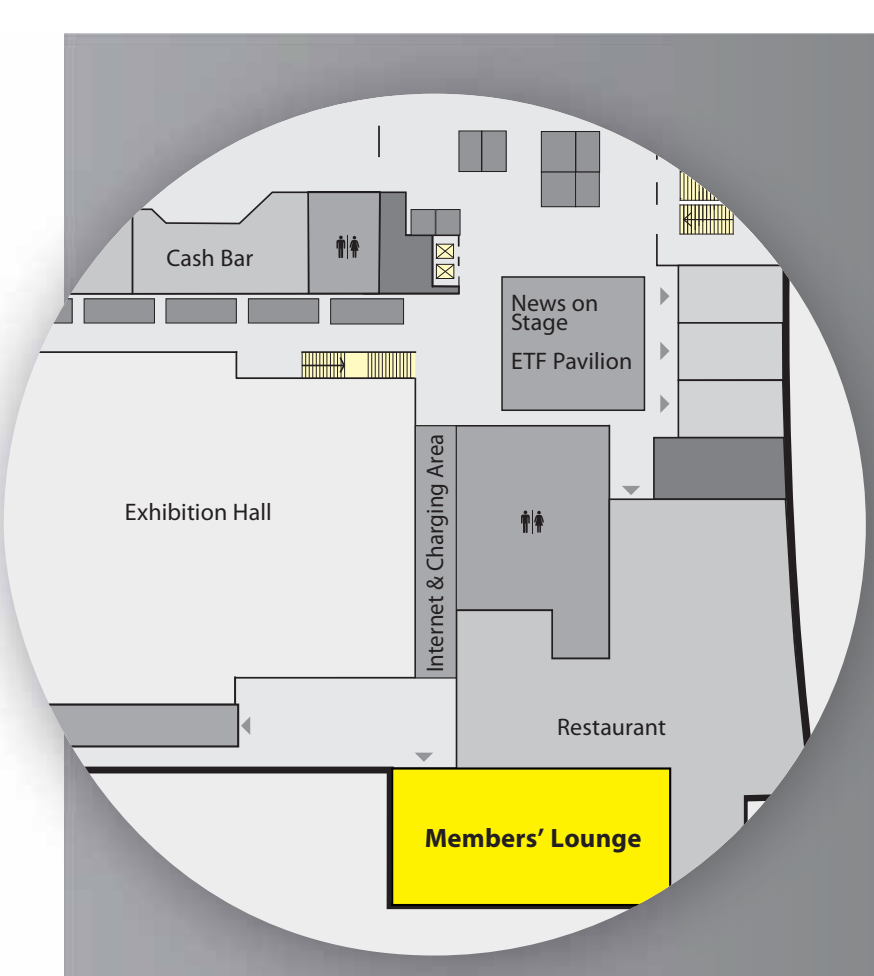
Chart 2: Column graph shows TLR rates and lesion length in current RCTs on DES.

Study	Rutherford class	Stent used	Lesion length (mm)	Severe calcifications	Medical therapy	Outcome at 12 months
ACHILLES	3 to 5	Cypher Select (sirolimus)	26.9 ± 20.9	15%	Dual antiplatelet for 6 mos	SES had significantly greater freedom from death, TLR bypass, amputation, and Rutherford class >4
YUKON BTK	2 to 5	Polymer free-sirolimus eluting stent	31±9	N/R	Dual antiplatelet for 6 mos	SES had significantly better event-free survival, amputation rates, and changes in Rutherford-Becker class
DESTINY^	4 (39%) 5(61%)	Xience V (everolimus)	18.9 ± 10.0 (5-40)	77%	Dual antiplatelet for 12 mos at least	Reduce need of re-intervention in DES (freedom from TLR 91% vs 66%)
PES-BTK-70	4 (52.9%) 5 (47.1%)	Stentys (paclitaxel)	17.2±8.5 (4.0–58.5)	N/R	Dual antiplatelet for 12 mos at least	TLR: 79.1% Limb salvage: 98.5%
IDEAS*	4 and 5	• Resolute (zotarolimus) • Chypher (sirolimus) • Promus (everolimus)	127 ±46.5 mm	50%	Dual antiplatelet for 6 mos	TLR and amputation similar Lower BR for DES
PADI	4 to 6	Taxus (paclitaxel)	21.1±19.3	N/R (TASC D) 93.9%	100 mg of carbasalate calcium daily indefinitely and Clopidogrel 75 mg/daily ≥ 6 months	Vessel restenosis, major amputation, or CLI-related death worse in PTA vs DES (up to 5y follow-up)

*Table 1: Resuming the main features and outcomes of RCTs comparing DES to PTA ±bail out BMS. *IDEAS compared DES vs DCB. ^DESTINY trial compared DES vs BMS.*

Study	Rutherford class	DCB used	Lesion length (mm)	Severe calcifications	Medical therapy	Outcome at 12 months
DEBATE BTK	4 to 6	IN.PACT Amphirion (paclitaxel)	129±83	25%	• Aspirin 100 mg lifelong • Clopidogrel 75mg/day for 4 weeks	Drug-eluting balloons compared with PTA strikingly reduce 1-year restenosis, target lesion revascularization, and target vessel occlusion
BIOLUX-PII	2 to 5	Passeo-18 Lux (paclitaxel)	113.1±88.1	26.5%	Dual antiplatelet for 1 month	DCB results (amputation, TLR) comparable to PTA+BMS
DEBELLUM	3 to 5	IN.PACT Amphirion (paclitaxel)	77±18	N/R	• Aspirin 100 mg lifelong • Clopidogrel 75mg/day for 4 weeks	Significant reduced LLL, restenosis and TLR in DCB vs PTA group
In.PACT Deep	4 to 6	IN.PACT Amphirion (paclitaxel)	101.5±91.0	13.7%	N/R	DCB comparable to PTA
IDEAS*	4 and 5	IN.PACT Amphirion (paclitaxel)	127 ±46.5 mm	50%	Dual antiplatelet for 6 mos	TLR and amputation similar Lower BR for DES

Table 2: Resuming the main features and outcomes of RCTs comparing DCB versus PTA ±bail out BMS.



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CIRSE

Quality Assurance – the Calling Card of IR

CVIR

Ciara Madden, CIRSE Office

A landmark quality assurance paper published in 2017 is helping the IR community to move towards a uniform framework for complication reporting.

As interventional radiologists continue to move towards a more explicitly clinical role within their hospitals, the focus of their research is also starting to shift. While it remains as important as ever to ensure that innovative or updated procedures are safe and effective, a more nuanced approach to patient management has crept in – a move most certainly for the better.

CIRSE has been supporting this shift, with the congresses of the last decade featuring increasing numbers of sessions incorporating clinical practice, multidisciplinary decision-making, and complication management and avoidance. A dedicated mini-congress, the International Congress on Complications in IR (ICCIR) is held every two years, and provides an open forum for the frank discussion of cases that didn't go as expected.

As part of this movement, a CIRSE quality assurance document was published in *CardioVascular and Interventional Radiology* in the summer of 2017: 'CIRSE Quality Assurance Document and Standards for Classification of Complications: The CIRSE Classification System'. Written by Dr. Dimitrios Filippiadis and other CIRSE colleagues from across mainland Europe, this Standards of Practice document serves as a classification system of medical complications, combining outcome and severity of sequela.

Up until now, there has never been a uniform method for reporting complications within Europe, and this paper thus bridges a big gap in IR literature. It addresses definition and grading, and will be vastly helpful in both improving patient outcomes at a local level as well as providing a robust European data framework.

Outcomes for the diverse spectrum of IR procedures are necessary not only for enhanced care of the individual patient; accurate figures are also crucial for hospitals, insurance companies and government agencies – anybody which is committed to implementing a high-quality health care policy. The information is also hugely valuable for devising reimbursement strategies and cost-effective treatment paradigms. Thus, having uniform data from across a large region will be of major benefit in widening patient access to minimally invasive therapies.

The importance of this paper is plain to see: despite being published midway through the year, the paper made CVIR's 2017 listing for all-time Top 5 Downloads, with an astonishing 1,738 downloads by the end of the year. The paper itself states: "The ultimate challenge will be the adoption of this system by practitioners in different countries and health economies within the European Union and beyond." However, the huge interest already shown would indicate that the IR community, at any rate, are fully behind this decisive move towards quality assurance.

CIRSE Members enjoy a complimentary subscription to CVIR, and can access the full paper at www.cvironline.org

Publishing with CVIR Endovascular: The Author Experience

CVIR ENDOVASCULAR

CVIR Endovascular is a newly launched open access journal, set up to cater for the rising number of endovascular papers and research. *CVIR Endovascular* entered the medical journal scene in September 2017 in response to the previous lack of publication possibilities for researchers, which was a clear barrier to further development of this field. The journal has been successfully collecting submissions since its introduction, and CIRSE is also very excited to announce that on June 28, the first articles were published online. We spoke with authors who have recently published with *CVIR Endovascular* to find out their experiences.

Terry Hong Kuan Kok
(EBIR)
Northern Hospital
Melbourne, Australia

Article type: Original Article

Authors: Terry Hong Kuan Kok, Thomas Rodt, Fabrizio Fanelli, Mohamad Hamady, Stefan Müller-Hülsbeck, Miguel Casares Santiago, Florian Wolf and Michael J. Lee

Title: Clinical and endovascular practice in interventional radiology: a contemporary European analysis

Dr. Kok is a Consultant Interventional Radiologist at the Northern Hospital in Melbourne, Australia. He trained in internal medicine and radiology in Ireland and completed interventional radiology fellowships at Beaumont Hospital in Dublin, Ireland and Guy's and St Thomas' Hospitals in London, UK. Before moving to Australia, he was a Lecturer in interventional radiology at RCSI and Beaumont Hospital, Dublin. He is part of the CIRSE Endovascular Subcommittee and the author and co-author of numerous articles and books

Reference:
Kok HK, Rodt T, Fanelli F, Hamady M et al. Clinical and endovascular practice in interventional radiology: a contemporary European analysis. CVIR Endovascular. 2018; DOI: 10.1186/s42155-018-0010-8 https://cvirendovasc.springeropen.com/articles/10.1186/s42155-018-0010-8.

IR has always been a discipline on the forefront of technological advancement, resulting in the need for sufficient scientific publication possibilities on these advancements. What are your thoughts on IR scientific publishing, particularly for technical notes and other short communications?

Kok: As our speciality matures, the output and quality of scientific research in IR is also growing in tandem. This is good for our specialty as the need for high-level scientific evidence to both support the use of current image-guided therapies and to identify gaps in our knowledge is necessary for continued advancement for both patients and the medical community. Undoubtedly, the demands on established IR journals far outweigh the capacity to publish.

Short communications and technical notes have always been important to IRs, as they provide an avenue to share a new technique or interesting clinical situation with other colleagues and the educational value of such articles should not be underestimated. However, it has been increasingly difficult to submit such pieces to established IR journals due to lack of space and competition from scientific papers. Ten years ago, it would have been relatively easy to submit a case report to a mainstream journal but now, it is very difficult to do so, if not almost impossible.

What has your experience with open access been like, particularly with publishing in *CVIR Endovascular?*

Kok: We were careful early on in the era of open access to publish with reputable journals as there can be a very wide variation in editorial quality between journals. I found the submission experience with *CVIR Endovascular* very professional and transparent, with a good Springer online submission platform and an internationally renowned Editorial Board. These are all hallmarks of a high-quality journal.

Impact factor is still an important scientific parameter in many institutions, although other parameters like citation index are becoming more important. How is this in your institution and what is your opinion about this?

Kok: I think metrics such as impact factor and citation index are important as they provide some (albeit imperfect) measure of the importance and influence of published work. Nevertheless, I do not think that excessive emphasis should be placed on this as it does not necessarily equate to high-quality work or relevance to the specialty. For example, the leading IR journals – *CVIR* and *JVIR* – are "high impact" within the IR circle with a lot of work relevant to daily practice, but the impact factor of each would not be anywhere near the New England Journal of Medicine.

Young scientists find it more and more difficult to get their first papers published. Do you think that *CVIR Endovascular* can play a role in improving the situation?

Kok: Absolutely, I think *CVIR Endovascular* will provide a valuable avenue to those starting out in their research career by providing a path to robust and high-quality output for their work. It will provide some peace of mind to young investigators in that as long as they focus on producing high-quality and scientifically robust work, there will be a journal that will consider their work favourably.

Would you consider submitting your scientific work to *CVIR Endovascular* again and if so, why?

Kok: Certainly, I think *CVIR Endovascular* will grow from strength to strength and I know any submitted work will be subjected to a transparent and rigorous review process from internationally established experts in the field, many of whom are also regular reviewers for *CVIR*. I look forward to the continued success of the journal.

Qusai Aljarrah
King Abdullah
University Hospital
Ar Ramtha, Jordan

Article type: Case Report

Authors: Qusai Aljarrah, Ma'moon Al-Omari, Kawthar Qader, Jozef Oweis and Ahmad Althaher

Title: Successful surgical retrieval of Celt ACD® vascular closure device embolised in the tibioperoneal trunk

Qusai Aljarrah is an Assistant Professor of Vascular Surgery at the Jordan University of Science and Technology and Consultant Vascular and Endovascular surgeon at the King Abdullah University Hospital in Ar Ramtha, Jordan. Dr. Aljarrah completed Vascular and General Surgery fellowships in England and has obtained a Master's in Vascular and Endovascular Surgery from Edinburgh University. He enjoys being engaged in undergraduate teaching and organising peer-group postgraduate training.

Reference:
Aljarrah Q, Al-Omari M, Qader K, Oweis J, Althaher A. Successful surgical retrieval of Celt ACD® vascular closure device embolised in the tibioperoneal trunk. 2018; DOI 10.1186/s42155-018-0013-5, https://cvirendovasc.springeropen.com/articles/10.1186/s42155-018-0013-5.

What are your thoughts on IR scientific publishing, particularly for technical notes and other short communications?

Aljarrah: In the current era of endovascular tools and techniques, published literature must be in line with advanced technology. Currently, the publication of high-quality and reliable research is limited to certain journals. International conferences provide an important platform to invite prominent experts to publish their technical tips and tricks in *CVIR Endovascular*.

Open access is the future of scientific publishing. What has your experience with open access been like, particularly with publishing in *CVIR Endovascular?*

Aljarrah: Open access publications provide a valuable source for daily clinical practice, which is readily available for clinicians especially when dealing with new technologies and techniques in surgical therapy. I have published work in open access journals and am pleased that they are globally accessible at no cost. The publishing process with *CVIR Endovascular* was thorough and resulted in feedback that was helpful and valid.

Impact factor is still an important scientific parameter in many institutions, although other parameters like citation index are becoming more important. How is this in your institution and what is your opinion about this?

Aljarrah: Impact factor provides an insight regarding the quality of published work and therefore provides a reliability index of published data. At our institution our work must be published in Q1 or Q2 journals otherwise the work is not counted for promotional purposes. In my opinion, strict publication criterions are important to guaranteeing high-quality research. However, for case reports the publication criteria should be less strict to allow experts from all over the globe to provide important data regarding rare pathologies and their appropriate management.

Young scientists find it more and more difficult to get their first papers published. Do you think that *CVIR Endovascular* can play a role in improving the situation?

Aljarrah: In my opinion an interactive publication process, similar to that of the *American Journal of Case Reports,* can provide an easier submission, and therefore also publication, pathway. Moreover, the ability to check the status updates on your publication is a good tool and provides reassurance for the authors.

Would you consider submitting your scientific work to *CVIR Endovascular* again and if so, why?

Aljarrah: I would consider submitting work again if *CVIR Endovascular* gains the indexing of its mother journal, *CVIR*. I am sure that *CVIR Endovascular* will gain indexing at Scopus Thomson, PubMed Central and Web of Science (Clarivate Analytics), which will surely improve the recognition of the journal worldwide.

IR has always been a discipline on the forefront of technological advancement, resulting in the need for sufficient scientific publication possibilities on these advancements. What are your thoughts on IR scientific publishing, particularly for technical notes and other short communications?

Grenon and Ramirez: With the rate of innovation and changes in technology, there is certainly a need to continue to exchange information. Brief reports and communications are key to spreading unique ideas, knowledge and experiences. High-quality cohort studies and clinical trials are often inspired by an idea or challenging case. Being able to share these ideas and cases is a very important aspect of providing excellent patient care and sharing clinical philosophies that have the ability to impact patient care worldwide and direct future research.

How did you find the editorial handling experience?

Grenon and Ramirez: Open access is crucial to ensuring that your work is shared adequately with peers, patients, the industry and innovators. We had an excellence experience with *CVIR Endovascular* and the editorial process was flawless.

Impact factor is still an important scientific parameter in many institutions, although other parameters like citation index are becoming more important. How is this in your institution and what is your opinion about this?

Grenon and Ramirez: Impact factor is important in the sense that it is a way to measure the amount of exposure an article is receiving. Within our group, we continue to aim to publish in journals with high impact factors. However, we need to recognise that this is one way of doing it and there are other ways of measuring the impact of an article. We expect such measures to keep evolving as we better understand what is needed to truly impact innovation and science.

Young scientists find it more and more difficult to get their first papers published. Do you think that *CVIR Endovascular* can play a role in improving the situation?

Grenon and Ramirez: Providing journals that are easily accessible and provide a fair and meaningful peer-review process is important, particularly for young scientists who have yet to produce a significant body of work. *CVIR Endovascular* may be able to play a role in this process. In the future, it would be nice to see discounted open access fees or fee waivers specifically for students, trainees and/or young faculty.

Would you consider submitting your scientific work to *CVIR Endovascular* again and if so, why?

Grenon and Ramirez: Yes, we had a positive experience with the submission, review and editorial process. As the journal becomes more established and gains a steady stream of readers it will become an excellent method for communicating ideas in vascular disease and endovascular techniques. The open access format and willingness to publish short communications and case reports will make *CVIR Endovascular* a unique journal with an important role in vascular and endovascular research.

Marlene Grenon
University of California San Francisco, USA

Joel Ramirez
University of California San Francisco, USA

Article type: Short Communication

Authors: Marlene Grenon and Joel Ramirez

Title: Depression and peripheral artery disease: Why we should care and what we can do

Marlene Grenon is presently an Associate Professor in the Department of Surgery at the University of California San Francisco, a staff surgeon at the VAMC San Francisco and an Adjunct Faculty at the International Space University. She is a member of many professional organisations and has been an invited lecturer at several regional, national and international meetings and conferences. Her current research program encompasses lifestyle modifications for peripheral arterial disease and adaptations to the gravitational mechanical unloading environment.

Joel Ramirez is a M.D. candidate at the University of California San Francisco. During medical school he spent a year conducting full-time research with the UCSF Division of Vascular and Endovascular Surgery under the guidance of Dr. Grenon and is currently applying to integrated vascular surgery residencies. He has authored many publications and has a demonstrated interested in translational research, medical education, and advocacy within surgery.

Reference:
Grenon SM, Ramirez. Depression and Peripheral Artery Disease: Why We Should Care and What We Can Do.
CVIR Endovascular. 2018; DOI: 10.1186/s42155-018-0017-1
https://doi.org/10.1186/s42155-018-0017-1.

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Fighting the Gender Gap in Interventional Radiology: Facts and Fiction Relating to Radiation

Werner Jaschke, Gabriel Bartal, Annalisa Trianni, Anna-Maria Belli

The prevalence of women radiologists has risen in the past decade [1, 2]. However, women are grossly underrepresented in interventional radiology [1], and this may be partly due to fear of radiation exposure, particularly at child-bearing age. There is a lot of literature on potential health effects associated with long-term exposure to low-level radiation, occupational exposure of pregnant and potentially pregnant women and radiation exposure of the conceptus [3-10]. However, practical advice for women who plan a career in interventional radiology or interventional radiologists who train and counsel female residents is rare.

The basis for the control of the occupational exposure of women who are not pregnant is the same as that for men. The additive risk of developing cancer is considered to be very small [3, 10-15]. However, women of child-bearing age may have a heightened concern about the long-term genetic risks or in case of pregnancy the risks of their unborn child related to exposure of low-level radiation. This issue has been extensively discussed in the literature [4, 9, 16, 17]. For example, according to the Report 174 of the National Council of Radiation Protection and Measurements (NCRP), there is little to no evidence among the offspring for an excess of cytogenetic syndromes, single-gene disorders, malformations, stillbirths, neonatal deaths, cancer, or cytogenetic markers that would indicate an increase in heritable genetic mutations in the exposed parents [18]. At present, there is no evidence that exposures to the conceptus below 1 mSv during the whole pregnancy involve an additional risk to the unborn child [18, 19]. Based on this threshold, guidelines were established to minimise risk to patient and conceptus from diagnostic imaging [20, 21, 22]. These guidelines help health-care workers in managing risks for pregnant patients and counselling pregnancy-related issues.

When appropriate steps are taken to establish a safe radiation environment in interventional radiology (IR), the occupational exposure is very low [14, 23]. Current data show that under-apron personal dose equivalent Hp(10)1 measurements are typically of 0.01 mSv per case for the operator; the conceptus dose is generally < 0.005 mSv per case [4]. Thus, the threshold for an increased risk to the conceptus of 1 mSv during pregnancy is not reached. Nevertheless, even if radiation dose to conceptus is lower than the limits, a strategy to reduce them to the lowest possible level has to be applied. Strategies to decrease dose to patients and staff do not differ if a potentially pregnant or pregnant IR is performing the procedure. However, the female IR should wear an apron with an equivalent of 0.5 mm Pb or higher.

Summary

- Considering available risk evaluations, the dose limit for the conceptus of less than 1 mSv during the whole pregnancy is extremely conservative.
- Based on currently available knowledge, this limit is not reached in clinical practice and there is no need for pregnant or potentially pregnant interventional radiologists to be excluded from work on the grounds of radiation exposure.
- By keeping below the occupational dose limits, the risk of developing radiation-induced genetic defects in the offspring is negligible. Thus, women of child-bearing age should not be discouraged from entering the field of IR.
- With appropriate radiation protection measures in place, the risk of developing cancer for the unborn baby and the mother is not increased.
- Robust and appropriate standardised operating procedures must be in place to prevent unintentional overexposures during fluoroscopic-guided interventions (FGI).
- Interventional radiologists should be aware of how to minimise radiation dose and when extra protective measures may be required such as in complex procedures.
- It is the woman's choice, based on the above information and her general health during pregnancy, whether to continue to perform FGIs.

This article was published Open Access in CVIR: Jaschke W et al. Cardiovasc Intervent Radiol. 2018; https://doi.org/10.1007/s00270-018-1968-2

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Footnotes:

1. The human body-related protection quantities, equivalent dose in an organ/tissue and effective dose, are not measurable. To overcome these practical difficulties, the International Commission on Radiation Units and Measurements (ICRU) has introduced a set of operational quantities [24, 25, 26], which can be measured and which are intended to provide a reasonable estimate for the protection quantities. The operational dose quantity used to control Effective Dose is the Personal Dose Equivalent Hp (10). The personal dose equivalent is usually measured with a calibrated personal dosimeter worn on the body.

References:

1. Brotherton SE, Etzel SI. Graduate medical education. JAMA. 2014;312(22):2427–45.
2. Zener R, Lee SY, Visscher KL, Ricketts M, Speer S, Wiseman D. Women in radiology: exploring the gender disparity. J Am Coll Radiol. 2016;13(3):344–50.e1.
3. Parikh JR, Geise RA, Bluth EI, Bender CE, Sze G, Jones AK, et al. Potential radiation-related effects on radiologists. AJR Am J Roentgenol. 2017;208(3):595–602.
4. Dauer LT, Miller DL, Schueler B, Silberzweig J, Balter S, Bartal G, et al. Occupational radiation protection of pregnant or potentially pregnant workers in IR: a joint guideline of the Society of Interventional Radiology and the Cardiovascular and Interventional Radiological Society of Europe. J Vasc Interv Radiol. 2015;26(2):171–81.
5. Damilakis J, Perisinakis K, Theocharopoulos N, Tzedakis A, Manios E, Vardas P, et al. Anticipation of radiation dose to the conceptus from occupational exposure of pregnant staff during fluoroscopically guided electrophysiological procedures. J Cardiovasc Electrophysiol. 2005;16(7):773–80.
6. Hall EJ. Scientific view of low-level radiation risks. Radiographics. 1991;11(3):509–18.
7. Mole RH. Irradiation of the embryo and fetus. Br J Radiol. 1987;60(709):17–31.
8. Lopez-Rendon X, Walgraeve MS, Woussen S, Dedulle A, Zhang G, Bosmans H, et al. Comparing different methods for estimating radiation dose to the conceptus. Eur Radiol. 2017;27(2):851–8.
9. Chu B, Miodownik D, Williamson MJ, Gao Y, St Germain J, Dauer LT. Radiological protection for pregnant women at a large academic medical Cancer Center. Phys Med. 2017;43:186–9.
10. Richardson DB, Cardis E, Daniels RD, Gillies M, O'Hagan JA, Hamra GB, et al. Risk of cancer from occupational exposure to ionising radiation: retrospective cohort study of workers in France, the United Kingdom, and the United States (INWORKS). BMJ. 2015;351:h5359.
11. Harvey HB, Brink JA, Frush DP. Informed consent for radiation risk from CT is unjustified based on the current scientific evidence. Radiology. 2015;275(2):321–5.
12. Rehani MM. Radiation effects and risks: overview and a new risk perception index. Radiat Prot Dosimetry. 2015;165(1–4):79.
13. Radiation UNSCotEoA. Biological mechanisms of radiation actions at low doses: a white paper to guide the Scientific Committee's future programme of work. UNSCEAR White Paper. 2012.
14. Linet MS, Kitahara CM, Ntowe E, Kleinerman RA, Gilbert ES, Naito N, et al. Mortality in U.S. physicians likely to perform fluoroscopy-guided interventional procedures compared with psychiatrists, 1979 to 2008. Radiology. 2017;284(2):482–94.
15. Berrington de Gonzalez A, Ntowe E, Kitahara CM, Gilbert E, Miller DL, Kleinerman RA, et al. Long-term mortality in 43 763 U.S. radiologists compared with 64 990 U.S. psychiatrists. Radiology. 2016;281(3):847–57.
16. Miller DL, Vano E, Bartal G, Balter S, Dixon R, Padovani R, et al. Occupational radiation protection in interventional radiology: a joint guideline of the Cardiovascular and Interventional Radiology Society of Europe and the Society of Interventional Radiology. Cardiovasc Intervent Radiol. 2010;33(2):230–9.
17. Ghatan CE, Fassiotto M, Jacobsen JP, Sze DY, Kothary N. Occupational radiation exposure during pregnancy: a survey of attitudes and practices among interventional radiologists. J Vasc Interv Radiol. 2016;27(7):1013–20.e3.
18. Preconception and prenatal radiation exposure: health effects and protective guidance; Report No. 174, National Council on Radiation Protection and Measurements. 2013.
19. ICRP. Pregnancy and medical radiation. ICRP Publication 84. Ann ICRP. 2000;30(1).
20. Lam DL, Larson DB, Eisenberg JD, Forman HP, Lee CI. Communicating potential radiation-induced cancer risks from medical imaging directly to patients. AJR Am J Roentgenol. 2015;205(5):962–70.
21. ESR. White paper on radiation protection by the European Society of Radiology. Insights Imaging. 2011;2(4):357–62.
22. McCollough CH, Schueler BA, Atwell TD, Braun NN, Regner DM, Brown DL, et al. Radiation exposure and pregnancy: when should we be concerned? Radiographics. 2007;27(4):909–17. https://doi.org/10.1148/rg.274065149 (discussion 17-8).
23. Bartal G, Vano E, Paulo G, Miller DL. Management of patient and staff radiation dose in interventional radiology: current concepts. Cardiovasc Intervent Radiol. 2014;37(2):289–98.
24. Measurements ICRU. Report 39: determination of dose equivalents resulting from external radiation sources, part 1. J Int Comm Radiat Units Meas. 1985; https://doi.org/10.1093/jicru/os20.2.report39.
25. Burlin TE, Bengtsson G, Chilton AB, Drexler G, Harvey JR, Portal G, et al. Report 43: determination of dose equivalents from external radiation sources, Part 2. J Int Comm Radiat Units Meas. 1988; https://doi.org/10.1093/jicru/os22.2.Report43.
26. Portal G, Cross WG, Dietze G, Harvey JR, Schwartz RB. Report 47: measurements of dose equivalents from external photon and electron radiations. J Int Comm Radiat Units Meas. 1992; https://doi.org/10.1093/jicru/os24.2.Report47.

News on Stage

News on Stage will feature displays on the latest results from multi-centric trials, ground-breaking techniques and many more IR hot topics, shown in a dedicated open area. Large-screen presentations given by the authors during dedicated slots around lunch time will give delegates the opportunity to hear from the experts and engage with them and other key opinion leaders in active, lively discussions.

Monday, September 24, 13:15-14:15, News on Stage Area

NoS 2004 Vascular News on Stage

Moderators: F. Fanelli (Florence/IT), J.A Reekers (Amsterdam/NL)

2004.1 The effectiveness of the paclitaxel-coated LuminorR balloon catheter versus an uncoated balloon catheter in superficial femoral and popliteal arteries in preventing vessel restenosis or reocclusion: 12 months results of a randomized-controlled trial
U. Teichgräber; Jena/DE – presented by T. Franiel; Jena/DE

2004.2 Real-world experience with a paclitaxel-coated balloon for the treatment of atherosclerotic infrainguinal arteries. Twenty four-month results of the BIOLUX P-III all comers registry in superficial femoral arteries
C.A. Binkert[1], M. Brodmann[2], T. Zeller[3], L. Spak[4], J.-M. Corpataux[5], J.K. Christensen[6], K.F. Keirse[7], G. Nano[8], H. Schroder[9], G. Tepe[10]; [1]Winterthur/CH, [2]Graz/AT, [3]Bad Krozingen/DE, [4]Kosice/SK, [5]Lausanne/CH, [6]Kolding/DK, [7]Tienen/BE, [8]Rome/IT, [9]Berlin/DE, [10]Rosenheim/DE

2004.3 Experimental animal study of a novel drug-coated balloon using 3.5 µg/mm2 paclitaxel coating on a cellulose-based excipient
P.N. Papadimatos[1], P.M. Kitrou[1], K.N. Katsanos[1], M. Theofanis[1], M. Vaiou[2], F. Anagnostopoulos[1], G. Lampropoulos[1], G. Karpetas[1], P. Kallidonis[1], S. Spiliopoulos[3], A. Moulas[2], D. Karnabatidis[1]; [1]Patras/GR, [2]Larisa/GR, [3]Athens/GR

2004.4 The Lutonix® global drug coated balloon registry real world patients with below the knee disease – interim 12 month outcomes
D. Scheinert; Leipzig/DE

2004.5 PiPeR Technique – an alternative technique for creating arterial-venous fistula during percutaneous deep foot veins arterialization
B. Migliara; Peschiera Del Garda/IT

2004.6 Utility of 2D perfusion angiography to predict wound healing in patients undergoing isolated femoropopliteal endovascular revascularization
N. Troisi, S. Panci, S. Bacchi, D. Incerti, L. Lovecchio, G.L. Dedola, S. Michelagnoli; Florence/IT

STUDENT CORNER

Risha Rose, CIRSE Office

Becoming an IR: Empowering the Future Generation

The European Trainee Forum (ETF), which was formed late in 2015 and is led by Chairperson Dr. Greg Makris, had its first official meeting during ECIO 2016. The main objective of the ETF is to bring the trainees closer together at the early stages of their careers, creating a dynamic community that shares the same values and aspirations. The Forum's other key objective is to develop and support the new generation of IR trainees across Europe. Establishing this network early on is important for improving the quality of IR training in Europe, and raising public awareness of IR. Creating opportunities for collaboration with other European societies and associations is also high on the ETF agenda.

We had a chance to ask ETF Subcommittee Member, Dr. Sara Protto, some questions about her perspectives on becoming an IR.
Read on to find out what she had to say!

CIRSE: What inspired you to choose IR as a career?

Sara: When I began my medical studies, I wasn't sure which specialisation I would choose: surgery, internal medicine, pathology? Ironically, I was confident radiology was not in my future! As a fourth year medical student I considered becoming a cardiologist, but while on Erasmus, I saw some IR colleagues performing some BTK and aorta procedures and almost immediately fell in love with the work! I came back to my hospital, searched the IR department and started to follow their work for my last year as a medical student.

CIRSE: What is the most exciting part of your work day as an IR?

Sara: The most exciting part of my day is probably the fact that every procedure and patient is different, and there is never one single straightforward procedure or routine. This keeps the work interesting and challenging.

CIRSE: Was there anything in your training that you learned the hard way that you wish you had known earlier?

Sara: Rushing is never good, even if it's an emergency situation and you have no time! It is always better to plan in advance as much as possible and to be ready for the unexpected.

CIRSE: Do you have an IR specialisation or find a specific area within IR most interesting?

Sara: I don't have a specific IR specialisation but I really enjoy interventional oncology (IO). I find it really interesting and it is amazing how much this field has been growing in the last few decades, changing the way we approach the oncological patients and revolutionising their treatment.

CIRSE: The gender ratio in IR is currently quite significant; do you have any advice for females entering the discipline?

Sara: Let's stop thinking about doctors as male or female! Let's start thinking of ourselves as professionals working for the good of the patient. Our discipline is not different from any other, which means we all have the ability to do a great job if we really love what we do! Never let boundaries stop you because you are a woman, and more importantly, don't build boundaries up against yourself. Believe in what you can do!

CIRSE: Can you comment on being a working mother in IR and your experiences with regards to the hot topic of myths on radiation risks?

Sara: In Finland, we are not allowed to perform radiation work while pregnant. I know that nine months plus a few months after delivery can feel neverending when you love what you do, but, in the end, this is only a small proportion of the overall lifetime! I returned to work after five months and I felt that the absence didn't affect my work or my career. While I was home, I took advantage of the extra time and finished my doctoral thesis.

CIRSE: You are an Italian native working in Finland – that's a really interesting combination. Can you tell us how you ended up in Finland? Do you work in Finnish?

Sara: I actually discovered IR while in Finland on Erasmus. I really enjoyed working with my colleagues as well as the actual work environment, so I returned every summer during the holidays to work in the hospital. I also met my husband in Finland, so when choosing where to work, the choice was easy. I use the Finnish language at work and I don't even know if I could write a report in Italian!

CIRSE: Why did you become involved with the ETF?

Sara: I became involved with the ETF because I think it is important to promote IR to young residents and medical students – the Forum gives me this possibility. IR is a great discipline and not enough people are aware of that. It is important that medical students, even if they don't plan to become radiologists, are aware of the existence of IR. They will be the future specialists who, if not IRs themselves, will be working with and referring patients to us.

CIRSE: What is the ETF doing to support IRs in training?

Sara: The ETF has been working to build a network for young IRs throughout Europe. We organise lectures and events at the CIRSE congresses, have an active online Facebook presence where we share cases and articles, and we hope to organise opportunities for exchange and mobility for young IRs in the future.

CIRSE: What advice would you give to medical students throughout Europe who are choosing their medical specialisation?

Sara: During medical school try to learn about as many specialisations as possible. The idea you have in your mind could be really different from the actual everyday job! If you are lucky, you will find the field you love and there will be no doubt on what to do! Speaking practically, set your priorities in life and look for the job that best suits you.

QUESTIONS OF THE DAY

Monday, September 24, 2018

Be in with a chance to win daily prizes by sending your correctly answered questions to **students@cirse.org** by 18:00 tonight!

Answers to the below questions can be found within today's Congress News.

The first three correct responses will win €25 Amazon vouchers. Ready… set… GO!

1. **Fighting the Gender Gap in IR:** Is there a need for pregnant or potentially pregnant interventional radiologists to be excluded from work on the grounds of radiation exposure? **Yes/No**
2. What is the **new image-guided technique** called which induces the formation of small defects in the cell membrane by the application of high-voltage electric pulses?
3. 2018 marks the 40th anniversary of this **biggest journal in interventional radiology:**
4. Urinary tract interventions are some of the most [redacted] procedures in [redacted]; it is not too unusual for a general [redacted] to be asked to place a [redacted] or perform a [redacted] on a [redacted].
5. Name two of the summarised **facts relating to radiation protection** that appears in the article written by W. Jaschke et al.

Today's Student Recommended Sessions!

FC 1701: Upper extremity arterial disease
08:30-09:30, Auditorium 1

IRT 1806: Building an IR career
10:00-11:00, Room 3.A

FIQ 2101: Film Interpretation Quiz
14:30-15:15, Auditorium 1

Students in the Spotlight

We had a chance to speak with some of your peers about their interest in medicine and experiences studying throughout Europe. Meet today's students from Slovenia and Romania.

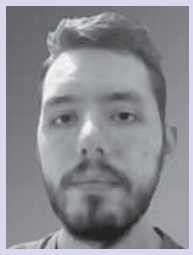
Tajda Srot
Slovenia

CIRSE: Why did you decide to study in Slovenia?

Tajda: I decided to study in Slovenia because, although we are not as well-known or are as financially fortunate as other universities, we do have a great study programme that offers students a lot of theoretical knowledge and practical skills from the third year onwards. I always wanted to study abroad, so to compliment my studies, I went on Erasmus Exchange in Innsbruck, Austria for a year and have also done clinical and research exchanges in Switzerland and Spain. I doubt I would have been able to go abroad as much if I studied in another country.

CIRSE: Tell us something unique that we don't know about Slovenia.

Tajda: Slovenia is shaped like a chicken. It is one of the rare countries that have everything – mountains (higher than 2000m), coast and plains. You can get from the most north-east part (the head of the chicken) where most of the plains are located, to the most south-west, coastal part (leg of the chicken) in three hours. What more can one wish for?



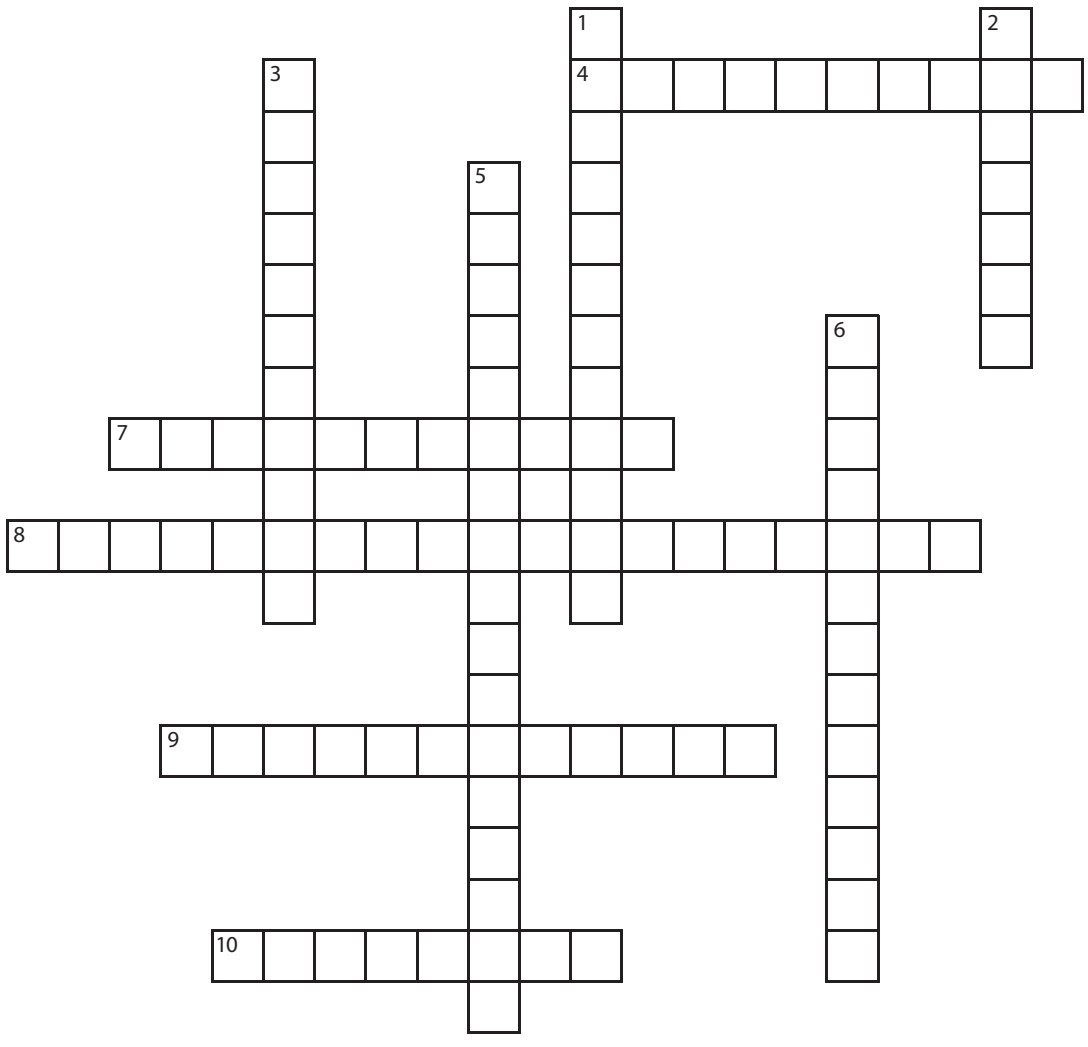
Armin Dan Copoeru
Romania

CIRSE: How did you hear about interventional radiology and the CIRSE Congress?

Armin Dan: The city where I study does not have a specialised IR centre, so undergraduates receive some exposure to IR, as we are taught about several procedures, but generally there is little knowledge about IR as a specialty. I personally found out about IR when I heard about CIRSE and its Student Programme from an older colleague who attended in 2016. He had only good things to say about the congress, so I read up on IR, found it fascinating, and decided to submit my research and attend the congress in 2017, alongside a friend that I convinced to tag along. At first, he was quite reserved when I told him about CIRSE, but he changed his opinion after the first day of the congress!

CIRSE: If you could practice medicine anywhere in the world, where would that be?

Armin Dan: My dream would be to practice in Stockholm, Sweden, at the Karolinska Hospital, because it is one of the most prestigious hospitals in the world. I also admire the Swedish model, both as a society and as a medical system.



Crossword Puzzle

Across

4. Enjoy the view of Lisbon!
7. Technique involving the mechanical dilation of a narrowed or occluded vessel by means of a balloon catheter and a metal stent
8. Birthplace of the Portuguese custard tart
9. High blood pressure
10. A technique that can use microwave, laser, cryo-, radiofrequency, or high-intensity focused ultrasound

Down

1. Anagram: bail emotions
2. Meet, Share, ...
3. A common complication of percutaneous transhepatic lithotripsy
5. Inventor of balloon angioplasty
6. Take part in this Student Programme event tomorrow

Coming up tomorrow!

- **Resources to stay involved in IR**
- **Learn about the new IR Curriculum for Medical Students from Dr. Roberto Cazzato**
- **Meet your peers from Germany and Italy**
- **Last chance to compete in the Questions of the Day challenge**

ECIO 2019

10th EDITION

European Conference on Interventional Oncology

April 8-11
Amsterdam, Netherlands

www.ecio.org

LEADERS IN ONCOLOGIC INTERVENTIONS

Submit your abstracts by October 29 !

CIRSE Cardiovascular and Interventional Radiological Society of Europe

Collaborating Against Cancer Initiative: Dr. Ayuso and Dr. Diaz-Gonzalez

ECIO

As part of a new interview series, we spoke with a number of pairs from around the world who took part in the Collaborating Against Cancer Initiative during ECIO 2018.

Thanks to CIRSE's popular Collaborating Against Cancer Initiative, hundreds of non-radiologist colleagues have received a travel grant and attended ECIO free of charge over the years. This grant option allows the colleague to see the variety of interventional oncology options available and for positive interdisciplinary relationships to be fostered.

We caught up with recipients of the initiative Dr. Carmen Ayuso, ECIO Faculty Member, and her gastroenterologist colleague, Dr. Alvaro Diaz-Gonzalez from the Hospital Clinic of Barcelona in Spain.

CIRSE: How does multidisciplinary teamwork function in your hospital?

Diaz-Gonzalez: It is not only about having a meeting every single week and talking about important issues, it's about having the same philosophy. We don't discuss every single case because we do 80-100 follow-up visits every week and we cannot discuss every single patient but we take time to discuss all the difficult cases.

CIRSE: Can you talk about the treatment pathway in your hospital?

Diaz-Gonzalez: At the first visit we have a complete review of the patient situation, not only the current situation but also the previous history about the liver disease and other comorbidities. Then, after a complete visit we do an ultrasound to make a first diagnosis and treatment plan. We also act as a referral centre. We receive many patients from other hospitals and so we, therefore, usually ask them to bring the images with them. We then review the case, despite the fact that they may have already been diagnosed, because we like to confirm it in order to offer the patient the best treatment option.

CIRSE: Why did you take part in the Collaborating Against Cancer Initiative?

Diaz-Gonzalez: It has allowed someone like me to attend these radiological meetings and to be open-minded. I mean that in the sense of listening to other people's opinions. If we just go to the liver and oncological meetings and IRs just go to their own meetings, we cannot work as effectively in our daily practice. I think that different societies should be working together on an international level towards this effort.

CIRSE: Are there any particular highlights for you at ECIO?

Ayuso: I like to see the sessions on clinical management as well as new technologies being presented – ECIO provides a great platform for this. The conference is an ideal space to see how colleagues are using new techniques and what results they are achieving for patients.

CIRSE: What do you think interventional oncology needs to do to further evolve?

Ayuso: We need to continue working on new therapies and imaging techniques. What we originally thought we knew about liver cancer, for example, has now been broken. We, therefore, have to learn all together how to manage patients under systemic therapies, immunotherapies and anti-angiogenic therapies because there is a role to improve in the clinical scenario. It's a very interesting time for IO.

Diaz-Gonzalez: I'm with Carmen on this. This should be true for all medical fields. We have to see the patient as a whole and know that everything we work on, such as developing a device, is for the sake of the patient and improving their survival time. We have to work together, not for fame or to be to be well known in the scientific field, but for every single patient that is suffering. They are the people who our work is devoted to; this is something that frequently is forgotten in medicine.

Find more about this initiative and our other oncology related projects on ***www.ecio.org***

IR Congress News is published as an additional source of information for all CIRSE 2018 participants. The articles and advertorials in this newspaper reflect the authors' opinions. CIRSE does not accept any responsibility regarding their content.
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Don't miss it !
Spine ablation in metastatic cancer patient
Expert Round Table
Monday, September 24, 16:15-17:15
Auditorium 6

Protective techniques: where and how?

Georgia Tsoumakidou

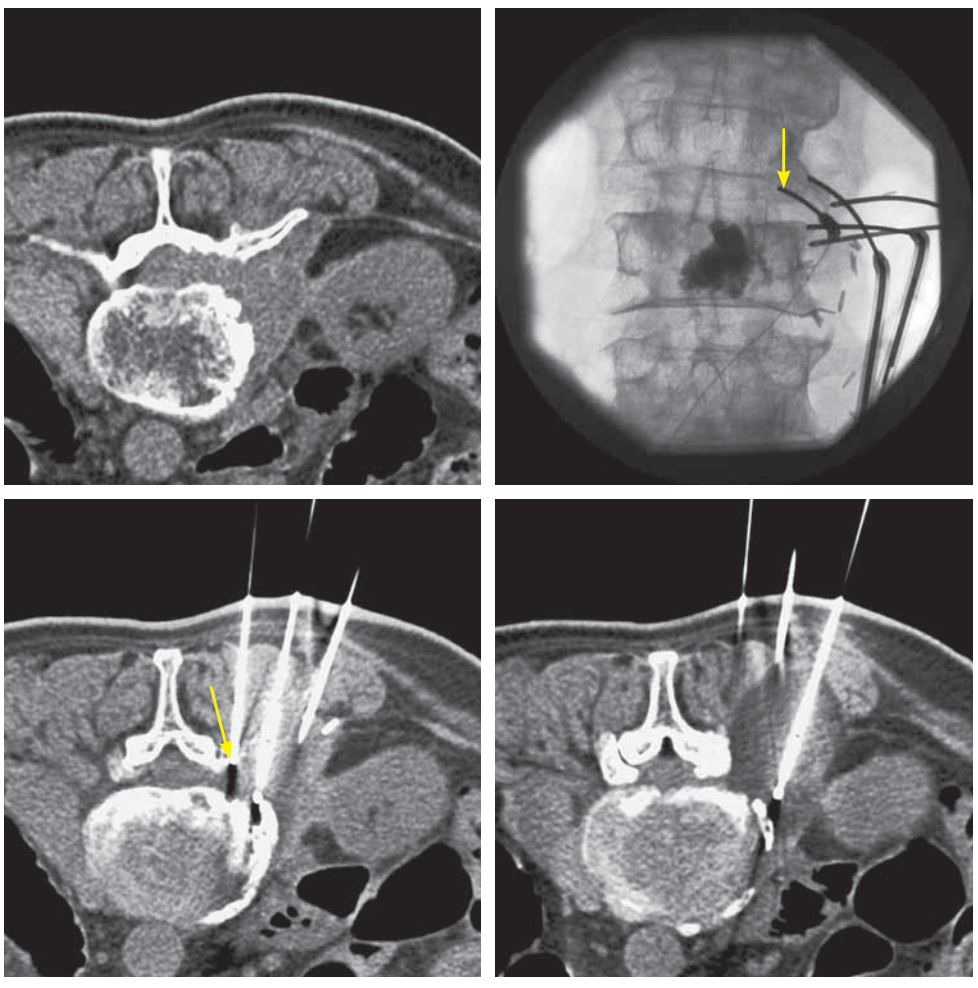
Georgia Tsoumakidou
Lausanne University Hospital
Strasbourg, France

Dr. Tsoumakidou is an interventional radiologist at Lausanne University Hospital, where she also works as a clinical doctor. She graduated from the Athens Medical School in 2003 and completed her residency at the Euaggelismos Hospital in Greece, in 2010. Following this, Dr. Tsoumakidou undertook a two-year fellowship in interventional radiology at Strasbourg University Hospital, where she subsequently worked for five more years as a senior doctor. Her main specialisations are interventional oncology and spinal interventions. She is also a member of the IO Curriculum Task Force at CIRSE.

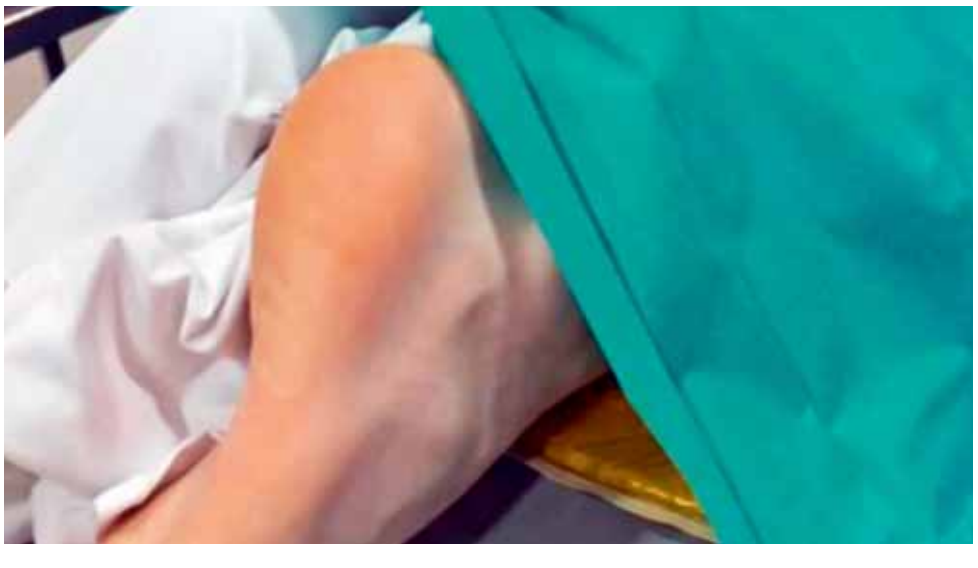
The implementation of interventional thermal ablative techniques for the treatment of benign and malignant musculoskeletal tumours has enabled the use of different protective measures in order to avoid inadvertent major nerve injury. The use of these protective techniques is mandatory when dealing with spinal and pelvic tumours (osteoid osteoma, osteoblastoma, vertebral and paravertebral metastases), where in most cases only a few millimeters separate the tumour to treat and major neural structures (e.g. spinal nerves, medullary cord).

The reported incidence of iatrogenic neural injury during thermal ablation of musculoskeletal tumours vary from 0-25%. The risk can be higher in cases of large tumour volume, curative treatment, aggressive ablation, inadequate visibility (insufficient visualisation of the structures at risk) and poor technique. Pre-existing neural insult (i.e. prior radiotherapy treatment) and direct nerve infiltration also play a role.

Cryoablation of L1-L2 paravertebral metastasis. A thermocouple (please see arrow) is positioned on the foramen in contact with the nerve root for real-time temperature monitoring.



Electrostimulation provides valuable information regarding the integrity of the totality of the examined nerve root.



Cautious pre-procedural planning and intermittent intra-procedural monitoring of the ablation zone can help reduce neural complications. Excellent knowledge of the relevant neuroanatomy based upon the tumour location is a prerequisite. Pre-treatment MRI can provide valuable information regarding the proximity of the nerve/spinal cord and the tumour. Whenever the distance between the ablation zone and the surrounding neural structures is less than 1-1.5 cm, some type of protective technique should be applied. Whenever there is a fear that the radicular and spinal arteries are within the zone of treatment, a pre-treatment angiography (CT or DSA) can provide the necessary information. In cases of spinal canal tumour extension, the use of immediate pre-treatment myelography can visualise the location of the spinal cord and nerve roots.

It has been proven that thermal diffusion during RF ablation is well limited by thick (5 mm) cortical bone, while the surrounding temperature depends directly on the thickness of the cortical bone and the distance from the periosteum. When cortical bone thickness is <1 mm or when the posterior wall is ruptured, thermal ablation of spinal lesions can lead to hazardous consequences for the surrounding neurological structures. Temperatures >45°C or <6°C are neurotoxic to the spinal cord and the nerves. When using cryoablation, one should keep in mind that the ice-ball can extend through the cortical bone.

Though all thermal ablation techniques can be used to treat musculoskeletal tumours, cryoablation has superior monitoring capabilities on multi-modal imaging. This is very important when treating tumours in proximity to vulnerable structures. The ablation zone ice ball is defined on CT as a hypodense area and on MRI as a signal void. Always keep in mind that the surface of the ice ball is 0°C, which can result in neural damage and is not lethal for tumour cells.

Insulation techniques and thermal-electrophysiologic monitoring are mandatory to protect the surrounding neurologic structures during thermal ablation techniques.

Hydro-dissection is one of the most commonly used insulation-displacement techniques. Saline is not suitable for RF ablation (due to its high electrical conductivity) and D/W 5% should be preferred. Gas-dissection creates an excellent insulation blanket by displacing the organs that may be affected away from the ablation zone, with minimal cooling or warming effect. CO_2 should be used, as room air may lead to gas embolism. Foraminal hydrodissection is safer than gas dissection. Similarly, gas epidural dissection should be avoided above the L1-L2 level.

Thermal sensors (thermocouples) are inserted, coaxially through an 18 G spinal needle, in the epidural space (using a sublaminar approach) or the foramen. They can be placed near the neurologic structure in danger and provide crucial real-time temperature feedback. Whenever the indicated temperature is above 40-42°C or below 10°C the ablation should be disrupted. Special care is needed with RF ablation, as the tip of metal-based thermocouple should never be placed too close to the RF electrode (this could result in arcing and electrical conductivity). Always keep in mind that thermocouples give temperature information on a precise location and not the whole treated area. MRI offers the possibility of non-invasive thermal monitoring (MR thermal mapping) and may prove very promising for future use in this field.

Neurological physical examination can be used when treating patients under conscious sedation, in order to evaluate the relevant nerve pathways. Similarly, in cases of patients under general anaesthesia, electrostimulation of the spinal motor nerves roots can provide valuable information. Whenever the motor response decreases or more energy is needed in order to get the same muscle response, impending nerve damage should be feared and ablation should be resumed. Alternatively, neurophysiological monitoring may be performed with somatosensory and motor-evoked potentials. The above-mentioned techniques have shown high sensitivity and specificity for detection of permanent post procedural nerve deficits. Both electrostimulation and neurophysiological monitoring provide valuable information regarding the integrity of the totality of the relevant nerve pathway. However, electrostimulation is easier to apply and does not require the presence of neurology specialists. Always inform the anaesthesiological team for the need of electrostimulation or neurophysiological monitoring before the treatment, as paralytic agents should be avoided during general anaesthesia induction.

To conclude: over the past few years, the treatment of spinal and pelvic tumours with percutaneous thermal ablation techniques has increased and it seems that the proximity of the spinal nerves and spinal cord is no longer a limitation. However, cautious pre-procedural planning and the application of thermal insulation and temperature monitoring techniques is necessary to avoid major complications. Furthermore, electrostimulation and neurophysiological monitoring can make these challenging procedures safer.

The CIRSE Registry for LifePearl Microspheres

CIREL CIRSE Registry for LifePearl Microspheres

Nathalie Kaufmann, CIRSE Office

Clinical evidence is vital to increase our understanding of minimally-invasive procedures and support their development and dissemination as oncological therapies. In its continuous efforts to meet these goals, CIRSE is conducting the CIRSE Registry for LifePearl Microspheres (CIREL), which included its first patient in February 2018. CIREL is a European-wide observational study that gathers data on transarterial chemoembolisation (TACE) using LifePearl Microspheres loaded with irinotecan (LP-IRI) in patients with colorectal cancer with liver metastatic disease (CRLM). The registry observes the real-life use of the device in the context of the patients' entire cancer treatment and collects extensive data regarding safety and toxicity, efficacy and health-related quality of life. CIREL aims to create an extensive body of data on how drug-eluting microspheres are administered for CRLM as part of routine treatment across Europe from which conclusions can be drawn about when TACE may be most effective and which patients may benefit from this treatment the most.

Why CIREL matters

Although the mortality of CRLM with new systemic treatments has decreased in the last 20 years, treating liver metastases of colorectal cancer is still a major challenge, surgical resection and thermal ablation being the only curative options. However, only about 20% of CRC patients that present with liver metastases are eligible for surgical resection. New techniques, such as TACE with small beads delivering the chemotherapeutic drug to the tumour site, have been developed over the past two decades and show promising efficacy in a limited number of clinical studies. However, larger-scale cohorts representing real-life clinical data are still lacking. This is precisely what CIREL aims to address.

CIREL Objectives

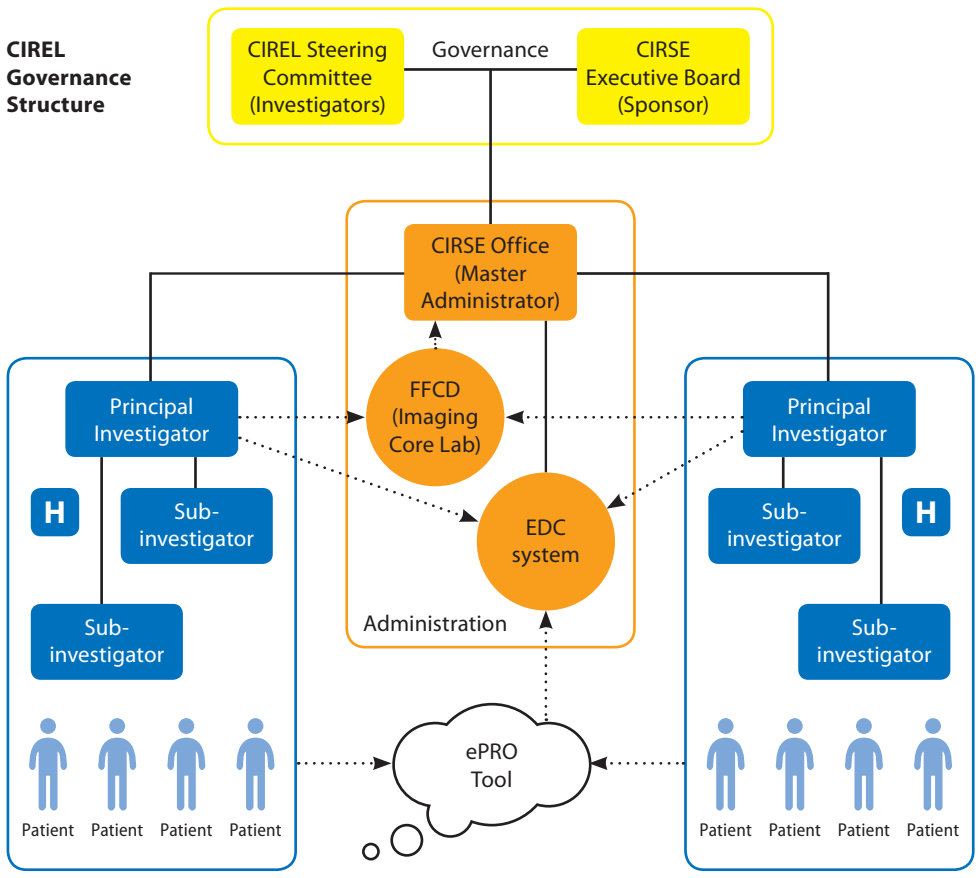
The primary objective of the research project is to improve our understanding of the real-life clinical application of TACE with LP-IRI by prospectively collecting data on treatments and clinical follow-up to ultimately determine at which stage of the cancer treatment TACE is being used and with which intent (e.g. down-staging for surgical or ablative treatment). The secondary objectives of CIREL are to assess the observed treatment outcomes in terms of safety and efficacy as well as to explore predictive response factors.

Outlook

CIREL spans the continent and will enrol up to 500 patients over an initial period of three years and, with a minimum follow-up of 12 months, is projected to end in February 2022. A first exploratory interim analysis will be conducted after collection of 50 full patient datasets.

By collecting real-world data from experienced centres across Europe, the Steering Committee agrees that this registry will create an important dataset that could greatly impact patient selection in TACE. The high level of data quality striven for in CIREL will help indicate when the treatment may be most effective and which patients may benefit from this treatment the most. Interventional radiology is growing fast as a clinical discipline, and CIRSE continuously strives to support its evidence-based approach in every possible way.

CIREL Governance Structure



New CIREL Steering Committee Member, Dr. Roberto Iezzi: Interventional radiology is my pasta!

CIRSE: What are your expectations regarding your first CIREL Steering Committee Meeting?

Iezzi: I am sure it will be a successful meeting, as the Steering Committee is composed of multidisciplinary leading experts. It will be a great opportunity to share experiences, innovative skills and improved methods, comparing varying points of view, with the aim of improving the level of care for patients. It will also be an occasion for fruitful collaborations and friendships.

CIRSE: What is your expectation in terms of patient enrolment in Italy? What is the status of CRLM TACE in Italy?

Iezzi: Many clinicians in Italy have started to use DEB-TACE loaded with Irinotecan (DEBIRI), shifting from conventional TACE, to treat metastatic liver tumours, so I have great expectations for patient enrolment. In Italy, DEBIRI is mainly considered as a palliative option for patients who have preserved liver function and performance status with unresectable chemotherapy-resistant lesions, liver-only or liver-dominant metastases, beyond the second-line treatment.

CIRSE: Which endpoints/data points captured in CIREL are you most interested in?

Iezzi: It is quite obvious that data on safety and efficacy will be what we are principally looking for. However, as DEBIRI is offered as a palliative option for patients with colorectal metastases, I am also interested in impact of the procedure on patients' quality of life: essential knowledge for validating our role in the palliation of cancer patients. Due to technological innovations, new drugs, new techniques, we can obtain disease control for most cancers with an increase in terms of overall survival, highlighting the importance of health-related quality of life as an important endpoint in studies of outcomes in oncology. In my opinion, information provided by cancer patients via quality-of-life measures is also very helpful for clinical decision-making and better patient management.

CIRSE: If you could only pick one Italian dish to take to your IR practice on Mars, what would it be and why?

Iezzi: As an Italian, I am obsessed with pasta. Furthermore, as a pasta addict, with time I have also become a hunter of unique tools to make fresh hand-made pasta. Making pasta is quite similar to the IR procedures: simple ingredients – flour and eggs – can produce amazing results depending on how you mix them and what you do with those two ingredients. You can really have endless amounts of results, depending on how stiff you make the dough, how long you knead it, what shapes you make, what thickness. I have just started to really know about that aspect of it, and the more I learn, the more I want to learn... interventional radiology is my pasta!

Roberto Iezzi
Fondazione Policlinico Universitario A. Gemelli – IRCCS Università Cattolica del Sacro Cuore
Rome, Italy

Member of the CIREL Steering Committee since May 2018

For further information on the CIREL study, please contact:

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+43 1 904 2003 53,
kaufmann@cirse.org, or
visit clinicaltrials.gov

(ID: NCT03086096)
via the QR code

Symposium

AV Symposium: Stenosis in AV Access. Evidence-based Solutions

Date: Monday 24 September
Time: 11:30 - 12:30
Location: Auditorium 1

Agenda

Presentation Title	Speaker
Update on Stenosis in AV Access	Dr. Pedro Ponce *Portugal*
Lutonix® DCB in AV Access. Evidence. Global Registry	Dr. Tobias Steinke *Germany*
Covera® Vascular Covered Stent: Latest data and interesting cases	Dr. Bart Dolmatch *USA*
AV Treatment: An Algorithmic Approach	Dr. Panagiotis Kitrou *Greece*
Endovascular Fistula Creation with the WavelinQ EndoAVF System	Dr. Robert Shahverdyan *Germany*

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