

CIRSE 2016 – Barcelona  
Tuesday, September 13, 2016

Following three great days of lectures, workshops and debates, our visit to Barcelona is starting to draw to a close. But don't worry: the Scientific Programme Committee and Local Hosts are already working on CIRSE 2017, which will be held in beautiful Copenhagen from September 16-20!

As the capital of Denmark, Copenhagen offers an ideal backdrop for next year's congress, with excellent accommodation and transport for visitors. Between the scientific programme and Copenhagen's cultural attractions and award-winning restaurants, you're sure to return home with a wealth of knowledge and experiences, and we cordially invite you to join us!

Announcements of the programme will follow soon, but before that, there is another day and a half of IR education awaiting you! The next pages feature Tuesday and Wednesday's session highlights. We hope that you'll attend as many as possible!

## Copenhagen SEPT 16-20

# CIRSE 2017

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## The Josef Roesch Honorary Lecture



The Josef Roesch Honorary Lecture was named in honour of Prof. Josef Rösch, one of the great pioneers of interventional radiology, and one who continued to innovate throughout his long and fruitful career and inspire successive generations with his hard work, inquisitive thinking and dedication to science. We and the IR community were deeply saddened by his passing this year.

His research covered diverse aspects of IR, from super-selective catheterisation techniques, visceral angiography and transjugular liver procedures to coronary angiography, fallopian tube recanalisation and expandable stents. His work helped introduce TIPS to clinical practice.

A prolific writer, Prof. Rösch authored or co-authored 493 scientific papers and book chapters, two books, and 23 scientific exhibits. He contributed to 17 teaching films/videos and CDs and served as co-editor of two books. Although based in North America, he played an active role in encouraging and supporting the IR community in central and Eastern Europe.

## The IR evolution in oncology: tools, treatments, guidelines

Thierry de Baère

Interventional radiology (IR) was born in the late 1960s when Charles Dotter percutaneously dilated a tight arterial stenosis, and Josef Rösch performed selective arterial embolisation. Interventional oncology (IO) started in the 1970s with infusion chemotherapy to various tumours by pioneers such as Sidney Wallace, followed by Lipiodol-TACE in 1983 and percutaneous thermal ablation 20 years ago.

Many tools/techniques were developed and pioneered by IRs, and these techniques spread within oncology practice to be used as treatments of various cancers, with the interventionalist acting most often as a skilful technician performing procedures without knowledge of patient outcomes, because few clinical consultations were provided. Many pivotal studies investigating IO treatments have been conducted with non-IRs as the principal investigator.

More recently, it has been understood in IO that a treatment is not only a skilful, aesthetic, complicated, high-tech and technically challenging procedure, but part of overall patient care with clinical impact beyond the imaging outcomes. We are facing the danger of being seen or classified as either interventionalists (skilful technicians) or radiologists (film readers) with no clinical responsibility. We must neither be focused only on our image findings nor on our "procedures", but rather on meaningful clinical events, including in our practice of clinical continuity of care, multi-disciplinary tumour boards and seeing patients

in consultation before and after treatment. The term "**procedure**" must be replaced with "**treatment**". IO treatments should not be seen as a toolbox of procedures but as genuine treatments.

Over the past years, IR has competed with surgeons for many treatments because we are often substitutes for surgery; we provide a different service that, at least partly, satisfies the same needs, often with lower morbidity, cost and hospital stay. After surgeons denied their efficacy, they later adopted and dispensed our techniques, namely in vascular IR and neuro IR. In other fields, such as IO, where the adoption is more complex, namely due to the versatility in image guidance, which requires a thorough knowledge in imaging, our techniques remained mostly within the IR community and developed rapidly, albeit at a slower pace than expected.

We have tried to make direct comparisons with surgery working on a head-to-head comparison in marketing, called the **red ocean strategy** [1]. IO is different from surgery; IO is a **disruptive force** in medicine because of our ability to reliably achieve the same results as others using entirely different, less invasive approaches [2, 3].

We can offer exceptional weapons against cancer because we are able to access the tumour in many major organs with low invasiveness, and we can thus develop our own market field, making surgical competition

### Don't miss it!

**Josef Roesch Lecture  
Honorary Lecture**  
Tuesday, September 13, 14:30-15:00  
Auditorium 1



**Thierry de Baère**  
Gustave Roussy  
Cancer Centre  
Villejuif, France

Prof. Thierry de Baère earned his degree in medicine from the Université Paris-Sud, after which he completed his residency at the Université de Caen Basse in Normandy, where he worked under Prof. Jacques Theron in oncology. In 1990, he joined the Gustave Roussy Cancer Centre in Villejuif, France where he has remained ever since. Prof. de Baère's research interests include tumour ablation, portal vein embolisation and intra-arterial therapies for liver cancer, and he has contributed over 200 peer-reviewed scientific publications.

irrelevant by changing demand, developing **blue ocean markets** [1]. We have to use the low invasiveness of our treatments as leverage in order to combine them with systemic therapies, as has been demonstrated in the CLOCC trial when combining RFA and chemotherapy versus RFA alone [4].

The future of oncology obviously includes immunotherapy, and, for such treatments, access to the the tumour and its microenvironment

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seems to be of importance. Systemic treatment with immunotherapy is very promising with impressive, long-lasting complete response, but, so far, only in a small percentage of patients. We have to understand immune modulation mechanisms, namely the "triggering" of the immune response through IO treatments such as thermal ablation in order to enhance the abscopal effect (the response of other, or all, tumours through the treatment of one). To make this occur in a reliable way, we have to investigate how to expose tumour debris to sense immune response in nearby tissue and lymph nodes, thus activating T-cells to fight cancer.

Our challenges are to build the evidence for IO and to integrate IO into the overall treatment

of cancer in various therapeutic sequences (induction, combination, or adjuvant) with systemic therapies, because today **cancer cures nearly always require a multidisciplinary approach**. We are facing the challenge of building evidence in a medical environment where overall survival is the primary endpoint and evidence comes from randomised controlled trials but where, in modern times, patients are less accepting of randomisation between very different treatment options.

IO history will be paved by treatments with measurable outcomes, including overall survival but many others as well. **Patient-recorded outcome measures** will of course be a major criteria in the future of cancer care. Our strength is to deliver treatment at a **lower cost**

**and with fewer side effects** than many other competing treatments but we have to be able to demonstrate such benefits through multi-institutional studies. For such multi-institutional studies, quality assurance programmes are needed to decrease operator dependence and variable outcomes among different centres.

While pursuing all of these goals, our role as interventional oncologists means that **we must be part of the oncology societies**, oncology consensus and guideline groups, because nobody knows better than ourselves the benefits and weaknesses of the treatments we deliver.

#### References:

1. Kim W. Chan and Renée Mauborgne. Blue Ocean Strategy: How to Create Uncontested Market Space and Make the Competition Irrelevant. Boston, MA: Harvard Business School, 2005
2. Christensen, Clayton M. The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Boston, MA: Harvard Business School, 1997
3. Hwang J, Christensen CM. Disruptive Innovation in Health Care Delivery: A Framework for Business-Model Innovation. Health Aff 2008; 7: 1329-1335
4. Ruers T, Punt C, Van Coevorden F, Pierie JPN, Bore Rinkes I, Lederman JA, et al. Long term results of the EORTC intergroup randomized CLOCC study (40004) evaluating the benefit of radiofrequency ablation combined with systemic chemotherapy treatment for unresectable colorectal liver metastasis. ASCO 2015

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Don't forget: all congress delegates have one year's access to ESIRonline, and CIRSE Members benefit from unlimited access!



## Super Endo Tuesday

Michelle Weiss, CIRSE Office

Free Paper sessions are an exciting feature at every CIRSE conference, providing a space for the presentation of original papers on new and influential aspects of cardiovascular and interventional radiology.

This year, an exclusive Free Paper slot called Super Endo Tuesday will take place on Tuesday afternoon, showcasing high-class research and up-to-the-minute trial results which have the highest potential impact on IR and that all interventional radiologists should be aware of going forth in their future practice. The goal of this session is to raise the popularity of new scientific studies among congress-goers and increase the importance of the scientific work in IR.

With a broad range of topics included in the session, there is sure to be something which is of interest to every IR, whether you are just starting out or are already established in your practice.

### What to expect

Out of the roughly 1200 abstracts that were submitted for consideration for CIRSE 2016, six papers were selected to be discussed during this special session. These were chosen based on their importance to daily practice along with their robust scientific set-up or success at completing a randomised controlled trial with long-term follow-up.

### The papers

Opening this session, Stefan Müller-Hülsbeck will present his team's paper on "Twenty-four-month results from the MAJESTIC trial of the Eluvia drug-eluting vascular stent system". The MAJESTIC trial is a prospective, single-arm, multicentre clinical study of patients with chronic lower limb ischaemia and de novo or restenotic lesions in the native superficial femoral artery and/or popliteal artery. MAJESTIC's purpose was to evaluate the performance of the Eluvia drug-eluting vascular stent system in treating the femoropopliteal artery lesions. The long-term follow-up results include primary patency and safety assessments at two years as well as safety monitoring through three years. The 24-month follow-up will be freshly completed for this presentation, so be sure to stop in and hear the results for yourself!

The next study, coming out of Japan, "Zilver PTX post-market surveillance study of

paclitaxel-eluting stents for treating femoropopliteal artery disease in Japan: 3-year results" will be presented by Kimihiko Kichikawa from the Nara Medical University. In this study, 905 patients were enrolled at 95 institutions in Japan, with 1,888 stents placed in 1,086 lesions. The purpose of this multicentre, prospective, post-market surveillance study was to provide further evaluation of the paclitaxel-coated Zilver PTX stent (the first drug-eluting stent approved in Europe, Japan and the United States) in real-world patients.

The following speaker will be Erwin Blessing who will take a closer look at the question "Is DEB effective in diabetic patients". The purpose of this study was to evaluate the consequences of endovascular treatment of the superficial femoral and proximal popliteal arteries on patients with or without diabetes mellitus (DM) enrolled in the IN.PACT SFA trial. The IN.PACT SFA trial randomly assigned patients to treatment with the IN.PACT Admiral drug-coated balloon (DCB) or percutaneous transluminal angioplasty (PTA). 331 patients were enrolled, 143 with DM (89 DCB and 54 PTA) and 188 Non-DM (131 DCB and 57 PTA). Two year outcomes evaluated primary patency, major adverse events and functional outcomes between the two groups and both treatment methods.

One of the papers which is of great interest that will be presented during this session is "10-years' outcomes from the randomized EMMY trial". The EMMY trial is a randomised trial being conducted at the Academic Medical Centre in Amsterdam through the Department of Obstetrics and Gynecology and the Department of Radiology. The EMMY trial seeks to compare the clinical outcome between uterine artery embolisation and hysterectomy by randomly assigning one or the other treatment and following up on results. Between 2002-2004, 177 patients were randomised. The assessed outcomes after 10 years included re-intervention rates, health related quality of life and satisfaction, which were obtained through questionnaires from 131 out of 156 patients. Trials like this, which show long-term results, help to make issues such as UAE more prominent in scientific circles and thus have an effect on the use of this treatment in the future. This data will be presented by Jim Reekers.

Following Reekers' presentation, Konstantinos Katsanos will present his team's paper "Economic analysis of endovascular drug-eluting treatments for femoropopliteal artery disease in the United Kingdom". The purpose

of this study was to estimate the clinical and economic impact of drug-eluting endovascular treatment strategies for femoropopliteal artery disease compared to the current standard of care. The team's study design included a systematic literature search which pooled together target lesion revascularisations (TLR) and then created a model-based per patient cost impact and quasi cost-effectiveness projection over 24 months, based on the pooled TLRs and current reimbursement.

The final presentation "Novel aspiration thrombectomy for intervention of peripheral and visceral arterial occlusions: the PRISM trial results" will be presented by James Benenati from the Noninvasive Vascular Laboratory in Miami, Florida. The PRISM study was a single-arm retrospective multicentre trial, which sought to assess the initial safety and efficacy

### Don't miss it!

Super Endo Tuesday  
Free Paper Session  
Tuesday, September 13, 16:15-17:15  
Room 115

of the Penumbra/Indigo System in cases of confirmed peripheral and visceral arterial occlusions. The Penumbra/Indigo System is a novel aspiration thromboembolectomy device which is being offered as an alternative to current endovascular and surgical interventions. A total of 83 patients were enrolled with the primary endpoints being the evaluation of procedural complications and revascularisation.

### Embrace scientific studies

We hope that many of you will stop by and see what insights you can gain from the wealth of knowledge presented during the Super Endo Tuesday Free Paper session. Remember: Super Endo Tuesday is geared toward everyone, IRs young and old, and is not to be missed. See you there!

### FP 3005 Super Endo Tuesday

Moderators: C.A. Binkert (Winterthur/CH), F. Fanelli (Rome/IT)

- 3005.1 Twenty-four-month results from the MAJESTIC trial of the Eluvia drug-eluting vascular stent system  
*S. Müller-Hülsbeck<sup>1</sup>, K.F. Keirse<sup>2</sup>, T. Zeller<sup>3</sup>, H. Schroe<sup>4</sup>, J. Diaz-Cartelle<sup>5</sup>;  
<sup>1</sup>Flensburg/DE, <sup>2</sup>Tienen/BE, <sup>3</sup>Bad Krozingen/DE, <sup>4</sup>Genk/BE, <sup>5</sup>Marlborough, MA/US*
- 3005.2 Zilver PTX post-market surveillance study of paclitaxel-eluting stents for treating femoropopliteal artery disease in Japan: 3-year results  
*K. Kichikawa<sup>1</sup>, H. Yoko<sup>2</sup>, T. Ohki<sup>3</sup>, M. Nakamura<sup>3</sup>, K. Komori<sup>4</sup>, S. Nanto<sup>5</sup>, A.E. Lottes<sup>6</sup>, M.D. Dake<sup>7</sup>;  
<sup>1</sup>Nara/JP, <sup>2</sup>Fukuoka/JP, <sup>3</sup>Tokyo/JP, <sup>4</sup>Nagoya/JP, <sup>5</sup>Osaka/JP, <sup>6</sup>West Lafayette, IN/US, <sup>7</sup>Stanford, CA/US*
- 3005.3 Is DCB effective in diabetic patients  
*P. Krishnan<sup>1</sup>, D. Scheinert<sup>2</sup>, J.R. Laird<sup>3</sup>, M. Brodmann<sup>4</sup>, G. Tepe<sup>5</sup>, T. Zeller<sup>6</sup>, C. Metzger<sup>7</sup>,  
P. Schneider<sup>8</sup>, A. Micari<sup>9</sup>, D.J. Cohen<sup>10</sup>, M.R. Jaff<sup>11</sup>;  
<sup>1</sup>New York, NY/US, <sup>2</sup>Leipzig/DE, <sup>3</sup>Sacramento, CA/US, <sup>4</sup>Graz/AT, <sup>5</sup>Rosenheim/DE,  
<sup>6</sup>Bad Krozingen/DE, <sup>7</sup>Kingsport, TN/US, <sup>8</sup>Honolulu, HI/US, <sup>9</sup>Cotignola/IT, <sup>10</sup>Kansas City, MO/US,  
<sup>11</sup>Boston, MA/US  
presented by E. Blessing (Heidelberg/DE)*
- 3005.4 10-years' outcomes from the randomized EMMY trial  
*A.M. de Bruijn, W.J.K. Hehenkamp, W.M. Ankum, J.A. Reekers; Amsterdam/NL*
- 3005.5 Economic analysis of endovascular drug-eluting treatments for femoropopliteal artery disease in the United Kingdom  
*K.N. Katsanos<sup>1</sup>, B.P. Geisler<sup>2</sup>, A.M. Garner<sup>2</sup>, H. Zayed<sup>1</sup>, T.J. Cleveland<sup>3</sup>, J.B. Pietzsch<sup>2</sup>;  
<sup>1</sup>London/GB, <sup>2</sup>Menlo Park, CA/US, <sup>3</sup>Sheffield/GB*
- 3005.6 Novel aspiration thrombectomy for intervention of peripheral and visceral arterial occlusions: the PRISM trial results  
*J.F. Benenati<sup>1</sup>, G.L. Adams<sup>2</sup>, R.R. Saxon<sup>3</sup>, L.E. Sewall<sup>4</sup>, C. Teigen<sup>5</sup>;  
<sup>1</sup>Miami, FL/US, <sup>2</sup>Raleigh, NC/US, <sup>3</sup>Oceanside, CA/US, <sup>4</sup>La Grange, IL/US, <sup>5</sup>Fargo, ND/US*

Come join us at the

**CIRSE 2016 Dinner & Farewell Party!**

Tuesday, 19:30, Can Travi Nou

Tickets available at the "Hotels | Social Events | City Information" desk in the entrance hall.

CIRSE supports compliance with ethical standards. Therefore, CIRSE emphasises that the present offer (made by KUONI Congress Destination Management) is directed to participants of CIRSE 2016 and recommends that the participants who want to accept the present offer shall bear any and all costs in this context themselves.

Kindly note that entrance to the CIRSE 2016 Party is NOT included in the CIRSE 2016 registration fee!



Cardiovascular and Interventional Radiological Society of Europe

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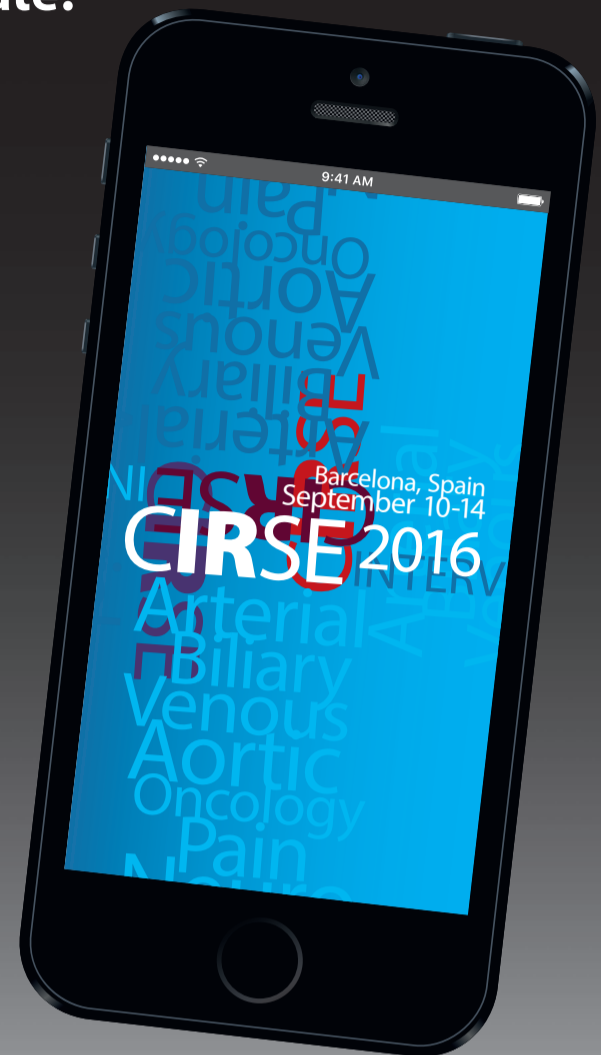
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## Don't miss the Morbidity & Mortality Conference tomorrow at 11:30 in Room 117



The Morbidity & Mortality Conference is an important part of each CIRSE Congress, analysing interventional radiology cases which have led to complications or deaths that could have been avoided. This provides a valuable learning experience for attendees, who can benefit from the experience of their colleagues, allowing them to avoid the same pitfalls.

Once presented with a case, audience members will be asked to vote on their preferred course of action – allowing you to see how you might have fared when faced with that difficult decision.

**Don't miss this golden opportunity to learn from someone else's mistakes!**

## How to improve patient selection for mechanical thrombectomy or IV thrombolysis: collateral flow and tandem lesions

Christian Paul Stracke

In patients with large vessel occlusion, mechanical thrombectomy (MT) with stent retrievers has shown superiority to intravenous lysis in recent clinical trials (MR CLEAN, Escape, Extend IA, Swift Prime and Revascat) [1-5]. An important factor for the success of the MT studies was the diagnostic imaging protocol. All studies were based on structural CT imaging as well CT angiography. Inclusion criteria were different between the studies, but all studies demanded major vessel occlusion proven by imaging. This sounds like what one would expect, of course, but, especially in the IMS III trial [6], the rate of CT angiography-proven vessel occlusion was only 33%. Therefore, the need for precise diagnostic imaging is evident. CT with CT angiography and additional CT perfusion, including assessment of ASPECT score, has proven its prognostic value and is hereby the most useful tool for image-based patient selection.

Traditional prognostic factors for stroke treatment include time from symptom onset, patient age, comorbidities and the occlusion pattern, but recent MT trials have enforced a paradigm shift. Surprisingly, high patient age seems not to justify exclusion from mechanical thrombectomy. In MR CLEAN, the odds ratio for endovascular treatment in patients above 80 years of age was higher than in patients below 80 years of age (3.24 vs. 1.6). The different studies included patients within a time window up to 8 hours after symptom onset. This means that thrombectomy can achieve a good outcome for the patient beyond the "classic" 3-4.5 hours of symptom onset.

In view of these overwhelming results of mechanical thrombectomy, the procedure has made its way into broad clinical application and treatment guidelines. In the German neurologic guidelines, treatment with thrombectomy is recommended within the first 6 hours after symptom onset and can be considered even after this period. Also, in patients with signs of infarction and an ASPECT score < 5, thrombectomy should not systematically be excluded.

Unfortunately, there are currently a lot of outcome predictors, but no hard exclusion criteria

for mechanical thrombectomy. Since age and time window have lost relevance, the pre-stroke MRS seems to be the only hard criterion to exclude a patient with major vessel occlusion from mechanical thrombectomy.

### Collateral flow

A number of previous studies have shown that good collateral flow is associated with a favourable functional outcome at 90 days [7]. In contrast, a bad collateral profile was associated with a bad functional outcome in the pre-stent-retriever era. [8]. A broadly used score for the assessment of collateral scores was published by Tan [9].

### "Tan" Score

For the assessment of the collateral supply in the MCA territory in case of M1-occlusion based on CT angiography source images.

- 0 absent collateral filling
- 1 < 50% filling of MCA territory
- 2 > 50%, < 100%
- 3 100% filling of MCA territory

In our recent study (Weber et al., submitted for publication), we analysed 87 patients with ICA and/or MCA occlusion with the Tan score. In this group, 14 patients had poor collateral status. Despite high recanalisation rates of 85-92%, the mortality in this group was 85.7%. Two patients (14.3%) had a favourable outcome. These two patients were 48 and 64 years old.

Our work suggests that poor collaterals and a so-called "black hemisphere" on CTA source images should exclude octogenarians or nonagenarians from mechanical thrombectomy.

### Tandem lesions

So far, the studies for mechanical recanalisation did not include patients with tandem lesions, e.g. extracranial carotid occlusion and intracranial thrombus. Simultaneous occlusions of the extracranial internal carotid artery due to arteriosclerosis or dissection combined with an

intracranial major vessel occlusion, e.g. MCA or terminal ICA, is a quite common cause for major stroke. With the distribution of endovascular stroke treatment, more and more of these tandem lesions are treated through an endovascular approach. The treatment of this condition may cause two problems: 1) possible longer procedure times and 2) the higher risk of intracranial haemorrhage after stenting and required anti-aggregation.

Recently, a few series of patients with treated tandem lesions were published: Puri et al. [10] published data of 28 patients treated with good clinical outcome (mRS 0-2) in 56%, and Lescher et al. [11] published data of 39 patients with good clinical outcome in 36%. The reported bleeding rate was 10%.

We recently analysed our data of 146 patients with anterior circulation tandem lesions treated between 2010 and 2015. The treatment was PTA alone in 11% and PTA and stent in 89%, resulting in a TICl 2b or 3 score in 92% of patients. The rate of good clinical outcome was 77%. The mean time from first angiographic run to recanalisation of the intracranial vessels was 21 minutes and not significantly different from procedures with single occlusion. The rate of symptomatic intracranial haemorrhage was 9%. The reported bleeding rates seem to be similar to the large published trials without tandem lesions.

### Conclusion

With endovascular stroke treatment and advances in stroke imaging, patient selection criteria for endovascular and IV thrombolysis treatment is changing. Patient age and time window have lost relevance and now many different situations can be treated successfully.

In, we would exclude patients with an unfavourable pre-stroke MRS and with poor collateral state on CT angiography.

Tandem lesions of the anterior circulation can be treated successfully with similar outcomes and complication rates.

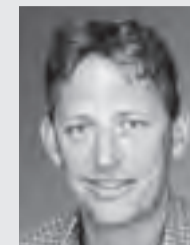
### Don't miss it!

How to improve acute stroke management: present and future

Special Session

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

Room 117



**Christian Paul Stracke**  
Alfried Krupp Hospital  
Essen, Germany

After working as a Lead Physician at Helios Clinic in Siegburg from 2007-2008, Dr. Stracke joined the team at the Alfried Krupp Hospital in Essen, where he is currently a Senior Physician. He specialises in diagnostic radiology and neuroradiology and has published articles in a variety of journals including, *Radiology*, *Journal of Neurointerventional Surgery*, *Journal of Neuroradiology* and the *European Journal of Radiology*. His most recent contribution was a comparison between the use of balloon guide catheters and non-balloon guide catheters for mechanical thrombectomy.

### References:

1. Berkhemer OA, Fransen PS, Beumer D et al. A randomized trial of intraarterial treatment for acute ischemic stroke. *N Engl J Med* 2015; 372:11-20
2. Goyal M, Demchuk AM, Menon BK et al. Randomized assessment of rapid endovascular treatment of ischemic stroke. *N Engl J Med* 2015; 372:1019-1030
3. Campbell BC, Mitchell PJ, Kleinig TJ et al. Endovascular therapy for ischemic stroke with perfusion-imaging selection. *N Engl J Med* 2015; 372:1009-1018
4. Saver JL, Goyal M, Bonafe A et al. Stent-Retriever thrombectomy after intravenous t-PA vs. t-PA alone in stroke. *N Engl J Med* 2015; 372:2285-2295
5. Jovin TG, Chamorro A, Cobo E et al. Thrombectomy within 8 hours after symptom onset in ischemic stroke. *N Engl J Med* 2015; 372:2296-2306
6. Broderick JP, Palesch YY, Demchuk et al. Endovascular therapy after intravenous t-PA versus t-PA alone for stroke. *N Engl J Med* 2013; 368(10):893-903
7. Leng X, Fang H, Leung TW, Mao C, Xu Y, Miao Z, Liu L, Wong KS, Liebeskind DS. Impact of Collateral Status on Successful Revascularization in Endovascular Treatment: A Systematic Review and Meta-Analysis. *Cerebrovasc Dis* 2016; 41:27-34
8. Souza LC, Yoo AJ, Chaudhry ZA, Payabvash S, Kemmling A, Schaefer PW, Hirsch JA, Furie KL, González RG, Nogueira RG, Lev MH. Malignant CTA collateral profile is highly specific for large admission DWI infarct core and poor outcome in acute stroke. *Am J Neuroradiol* 2012; 33:1331-1336
9. Tan IV, Demchuk AM, Hopyan J, Zhang L, Gladstone D, Wong K, Martin M, Symons SP, Fox AJ, Aviv RI. CT angiography clot burden score and collateral score: correlation with clinical and radiologic outcomes in acute middle cerebral artery infarct. *Am J Neuroradiol* 2009; 30:525-531
10. Puri AS, Kühn AL et al. Endovascular treatment of tandem vascular occlusions in acute ischemic stroke. *J Neurointerv Surg* 2015; 7(3):158-63
11. Lescher S, Czeppan K et al. Acute stroke and obstruction of the extracranial carotid artery combined with intracranial tandem occlusion: results of interventional revascularization. *Cardiovasc Intervent Radiol* 2015; 38(2):304-13

## Posters on Stage

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

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

### Posters on Stage – Interventional oncology

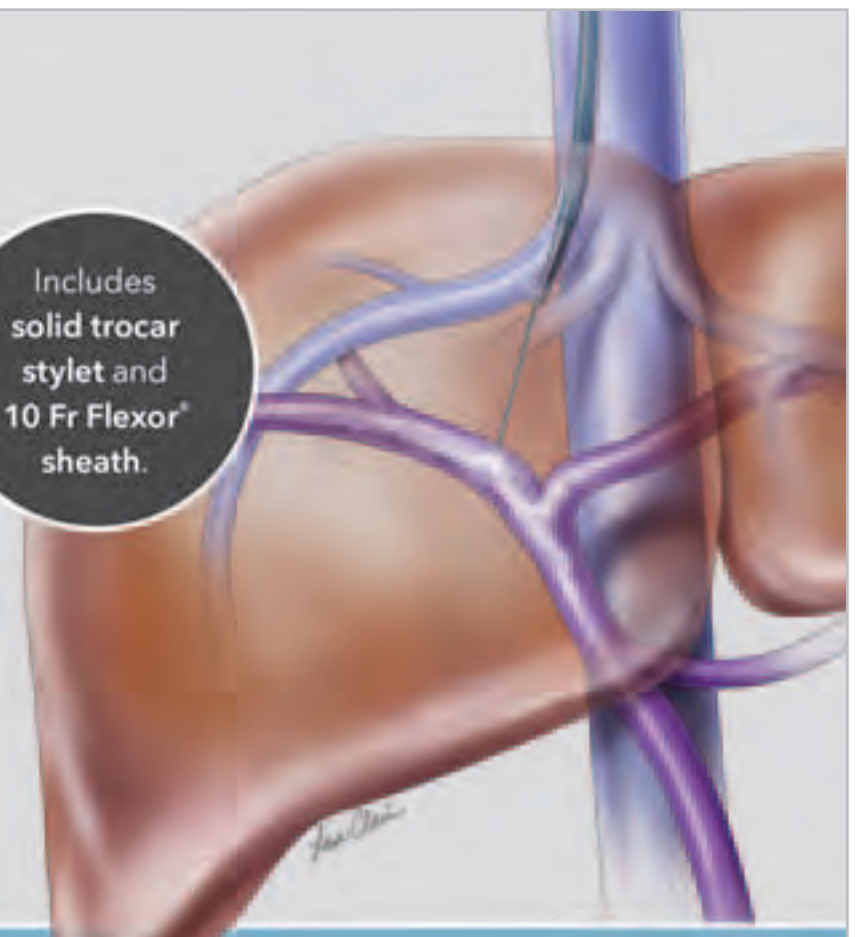
Moderators: M. Burrel (Barcelona/ES), T.K. Helmberger (Munich/DE)

The below-listed posters will be discussed:

- P-337 Embolotherapy for neuroendocrine tumor liver metastases: prognostic factors for hepatic progression-free survival and overall survival  
J.X. Chen (Philadelphia, PA/US)
- P-366 Surgical resection versus radiofrequency ablation plus drug-eluting bead transcatheter arterial chemoembolisation in the treatment of single large hepatocellular carcinoma  
A. Posa (Rome/IT)
- P-344 Impact of different embolic agents for TACE procedures on VEGF levels post-treatment  
P. Wiggermann (Regensburg/DE)
- P-361 Comparison of microwave vs. radiofrequency ablation of HCC when combined with DEB-TACE: progression-free and overall survival analysis  
E. Kim (New York, NY/US)
- P-324 Irreversible electroporation of the liver: is there a threshold for the volume of tissue to be ablated?  
F. Burdío (Barcelona/ES)

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## Thrombolysis for acute DVT

Miloslav Roček

The standard treatment of acute deep venous thrombosis (DVT) is still anti-coagulation. Patients enrolled in aggressive treatment must have symptomatic acute iliofemoral DVT ( $\leq 14$  days) or phlegmasia. Thrombolytic drugs are a very important factor in the treatment of DVT. At present, recombinant tissue plasminogen activator (rt-PA) is probably the most commonly used drug for catheter-directed thrombolysis (CDT).

Interventional thrombolytic techniques of thrombus removal include CDT and the pulse-spray technique (PST). CDT is an image-guided technique involving infusion of thrombolytic agents through a multi-side hole infusion catheter or wire directly placed into a venous thrombus through a remote puncture site [1], usually followed by aspiration and mechanical fragmentation method. The PST increases penetration of the thrombus and reduces the lysis time.

The guidelines on CDT for DVT have been updated to reflect current practice. On the basis of the best evidence currently available, authors advise against routine use of the term "proximal venous thrombosis" in favour of more precise characterisation of thrombi as involving the iliofemoral or femoropopliteal venous segments (Grade 1A). They further suggest the use of early thrombus removal strategies in ambulatory patients with good functional capacity and a first episode of iliofemoral DVT of  $< 14$  days in duration (Grade 2C) and strongly advise these strategies over catheter-directed pharmacologic thrombolysis alone. If resources are available, they recommend the use of thrombus removal strategies in patients with limb-threatening ischaemia due to iliofemoral venous outflow obstruction (Grade 1A). Pharmacomechanical and surgical thrombectomy are suggested as potential options if thrombolytic therapy is contraindicated (Grade 2C) [2].

Compared with standard anticoagulant therapy, CDT is associated with significant reductions in the risks of post-thrombotic syndrome (PTS) (relative risk [RR], 0.19; 95% confidence interval [CI], 0.07–0.48), venous reflux (RR, 0.21; 95% CI, 0.09–0.53), and venous obstruction (RR, 0.35; 95% CI, 0.17–0.34) [3]. These results are consistent with a previous systematic review [4], which included less efficient systemic and loco-regional techniques, demonstrating a significant reduction in PTS (RR, 0.66; 95% CI, 0.47–0.94) with thrombolytic treatment. According to this review, one case of PTS would be prevented for every five patients treated with thrombolytic therapy. The short-term haemodynamic results of one additional randomised clinical trial in which catheter-directed pharmacologic thrombolysis was compared with standard anti-coagulation has been published since the most recent systematic review [5]. Among 103 randomised patients, six-month patency was significantly better in those who received catheter-directed pharmacologic thrombolysis (64% vs. 35.8%;  $p = 0.004$ ), whereas the incidence of femoral vein reflux was similar (60% vs. 66%;  $p = 0.53$ ). The review results were based on 17 controlled trials that randomised a total of 1,103 people with acute DVT (within 21 days of onset of symptoms) to receive thrombolysis or anticoagulant treatment. Complete clot lysis occurred significantly more often in the treatment group at early follow-up (risk ratio [RR], 4.91; 95% CI, 1.66–14.53;  $p = 0.004$ ) and at intermediate follow-up (RR, 2.37; 95% CI, 1.48–3.80;  $p = 0.0004$ ). Significantly less PTS occurred in those receiving thrombolysis (RR, 0.64; 95% CI, 0.52–0.79;  $p < 0.0001$ ). Those receiving thrombolysis had significantly more bleeding complications (RR, 2.23; 95% CI, 1.41–3.52;  $p = 0.0006$ ) [6].

CDT involves intensive care unit monitoring for 24–72 hours [3]. Inferior vena cava filters are rarely necessary. A filter might be placed if

the patient has a true "free floating" thrombus identified in the iliac veins or inferior vena cava. Although CDT may be associated with asymptomatic radiographic evidence of PE [7], Symptomatic PE appears to be a relatively rare complication. This risk is similar to that observed in patients treated with conventional anti-coagulation and does not warrant routine placement of an IVC filter. The most definitive study, the ATTRACT trial (Acute venous thrombosis: thrombus removal with adjunctive catheter-directed thrombolysis) [8], has recently completed patient enrolment. The ATTRACT trial is an NIH-funded study consisting of 692 patients with acute DVT of 2-week duration or less, randomised to conventional anti-coagulation or anti-coagulation plus a catheter-based strategy of thrombus removal. Patients were stratified by location of thrombus, either iliofemoral DVT or femoropopliteal DVT. The primary outcome is PTS at 2 years. The ATTRACT trial will produce the largest dataset to date and will give important information regarding onset and severity of PTS, quality of life, recurrent DVT, cost-benefit analysis, and much more [9]. The study hypothesis targets reduction in PTS of 33% in the lysis group and the risk of bleeding complications can be minimised.

We can summarise as follows: thrombolysis increases the patency of veins and reduces the incidence of PTS following iliofemoral DVT. Recent protocols in the standard practice, lower dose of thrombolytic and reduced concomitant heparin administration should reduce many cases of bleeding complications.

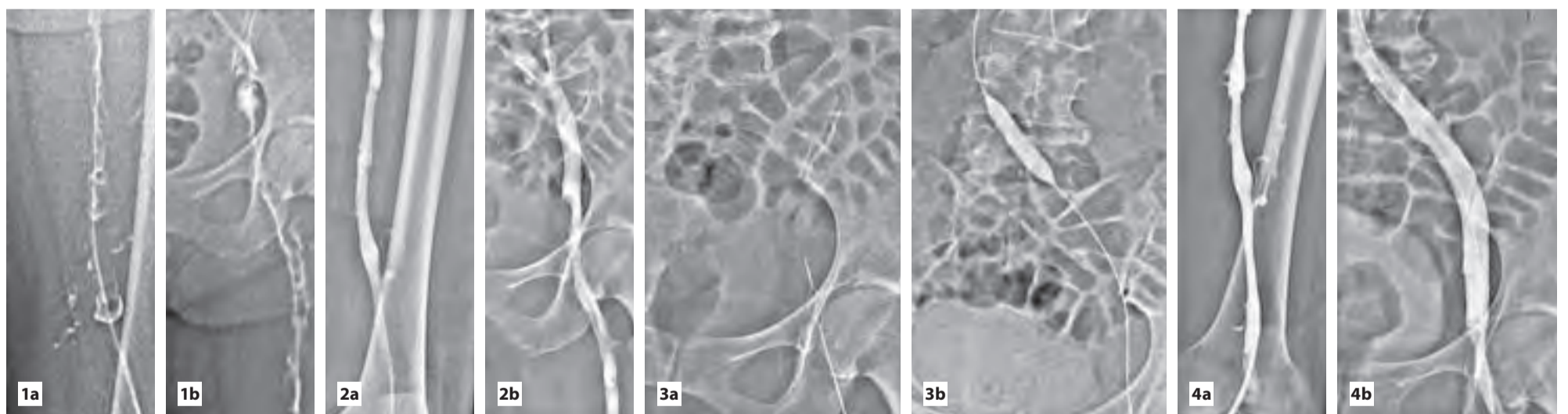
### Don't miss it!

Pharmacomechanical thrombolysis for acute DVT  
Special Session  
Wednesday, September 14, 10:00–11:00  
Room 117



**Miloslav Roček**  
Motol University Hospital  
Prague, Czech Republic

Prof. Miloslav Roček has been Head of the Clinic of Imaging Methods in the Department of Radiology at the University Hospital of Motol since 2007. In 2011 he became a holder of the EBIR certification. He has written 135 publications and his main research interests include endovascular treatment of PE, chronic venous occlusion and vascular access for haemodialysis, and below-the-knee angioplasty. Prof. Roček has been a member of CIRSE since 1996 and in 2000 became a Fellow.



59-year-old woman with two-day history of massive oedema in left lower extremity. Ultrasound revealed an extensive thrombosis of deep veins and pelvic veins. Venography with the popliteal vein approach confirmed extensive DVT (Fig. 1a, b). Follow-up venography after administration of a bolus of 5 mg of rt-PA and overnight infusion (approximately 25 mg rt-PA) showed good patency through the femoral vein (Fig. 2a). The PTD 9 mm was applied for fragmentation and aspiration of any residual trombus from the external iliac (Fig. 2b, Fig. 3a). After dilation and maceration with the balloon catheter 10 x 40 mm, underlying stenosis of the external iliac vein and the common iliac vein were treated with two Wallstents 14 x 60 mm and 16 x 90 mm (Fig. 3a, b). The post-dilatation was done by the balloon catheter 14 x 40 mm. Final venography showed a patent deep venous system and pelvic venous bed (Fig. 4a, b). Colour Doppler US performed three days after the procedure demonstrated good flow in the left femoral and pelvic veins.

#### References:

- Mewissen, M.W., Seabrook, G.R., Meissner, M.H., Cynamon, J., Labropoulos, N., Houghton, S.H. Catheter-directed thrombolysis for lower extremity deep venous thrombosis: report of a national multicenter registry. *Radiology* 1999; 211: 39–49
- Meissner, M.H., Gloviczki, P., Comerota, A.J., Dalsing, M.C., Eklof, B.G., Gillespie, D.L., Lohr, J.M., McLafferty, R.B., Murad, M.H., Padberg, F., Pappas, P., Raffetto, J.D., Wakefield, T.W., Society for Vascular Surgery, American Venous Forum. Early thrombus removal strategies for acute deep venous thrombosis: clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. *J Vasc Surg* 2012; 55: 1449–1462
- Casey, E.T., Murad, M.H., Zumaeta-Garcia, M., Elamin M.B., Shi, Q., Erwin, P.J., Montori, V.M., Gloviczki, P., Meissner, M. Treatment of acute iliofemoral deep vein thrombosis. *J Vasc Surg* 2012; 55: 1463–1473
- Watson, L.I., Armon, M.P. Thrombolysis for acute deep vein thrombosis. *Cochrane Database Syst Rev* 2004; CD002783
- Enden, T., Kløv, N.E., Sandvik, L., Slagsvold, C.E., Ghanima, W., Hafsaal, G., Holme, P.A., Holmen, L.O., Njaastad, A.M., Sandbaek, G., Sandset, P.M. Catheter-directed thrombolysis vs. anticoagulant therapy alone in deep vein thrombosis: results of an open randomized, controlled trial reporting on short-term patency. *J Thromb Haemost* 2009; 7: 1268–1275
- Watson, L., Broderick, C., Armon, M.P. Thrombolysis for acute deep vein thrombosis. *Cochrane Database Syst Rev* 2014; 23: 1
- Kölbl, T., Alhadad, A., Acosta, S., Lindh, M., Ivancev, K., Gottsäter, A. Thrombus embolization into IVC filters during catheter-directed thrombolysis for proximal deep venous thrombosis. *J Endovasc Ther* 2008; 15: 605–613
- Comerota, A.J. Catheter-directed thrombolysis for iliofemoral deep vein thrombosis: helpful or hurtful? *Expert Rev Hematol* 2015; 8: 131–133
- Comerota, A.J. The ATTRACT trial: rationale for early intervention for iliofemoral DVT. *Perspect Vasc Surg Endovasc Ther* 2009; 21: 221–224

## CIRSE meets EAU

Michelle Weiss, CIRSE Office



Each year during the CIRSE Annual Conference, CIRSE invites a prestigious organisation to attend for a special "CIRSE meets..." session and present on topics specific to their country or within their specialty, which are also of interest for interventional radiologists around the globe. This year we are honoured to welcome the European Association of Urology.

### EAU Background

Started in 1973, the EAU has been a leading authority within Europe on urological practice, research and education ever since. Optimal urological patient care is the primary motivation of the EAU and over 15,000 members seek to accomplish this mission. Their educational outreach is an important part of the organisation, as they sponsor an annual EAU scientific congress and The European School of Urology, which develops postgraduate teaching and education activities. Additionally, they also provide a significant portion of the funding for the EAU Research Foundation, which performs independent research in the field of urology.

### PAE Background

Since the start of prostatic artery embolisation in 2009, this therapy has been met with substantial success in patients. Studies continue to present the benefits this procedure has for patients suffering from benign prostatic hyperplasia (BPH), and many trials have proved the significant positive changes in patients'

urodynamic characteristics, including the International Prostate Symptom Score (IPSS), the maximal flow rate (Qmax), the International Index of Erectile Dysfunction (IIEF) and prostate volume (PV).

One such fundamental study was Prof. F. Carnevale's 2015 prospective, randomised trial of 30 patients, comparing transurethral resection of the prostate (TURP) with original and PErFecTED PAE. While both TURP and PErFecTED PAE were determined to yield similar symptom improvement, TURP received slightly better urodynamic results, but was also associated with more adverse events than PAE [1].

The ongoing findings of the UK-Registry of Prostate Embolisation (ROPE), which are analysing the efficacy and safety of PAE, also hold promise to present satisfactory results through their data in the upcoming months. As of September 2015, the registry had recruited 187 patients, out of which 128 received PAE with positive effects. The results from the University Hospital Southampton, showed an average decrease of 12 points in IPSS at three-month follow-up of PAE patients [2].

These are just a few of the many studies which have been conducted on PAE and have publicised or anticipate optimistic outcomes. More research in the form of registries or clinical trials is needed to gather further data regarding the specificities and continual progression of this procedure.

### This Year's Session

Primarily focusing on the topic of prostate artery embolisation (PAE), this session will be of particular interest to those who are involved or looking to get involved with this novel technique. While many new studies are showing the benefits of PAE, the topic still remains heavily debated. Although this procedure is unlikely to replace medical surgery anytime soon, many urologists believe that it is a beneficial option for select patients. Because this topic remains controversial, this session seeks to provide a space for those with differing opinions to meet

and share their thoughts as well as learn from the various insights which will be presented.

Overall, it's vital to keep in mind that, for the best results to be achieved, it is essential that multidisciplinary collaboration be embraced between urologists, diagnostic radiologists and interventional radiologists in order to determine the proper patients for this procedure.

**We hope that you will join us for this exciting event!**

**Tuesday, September 13, 11:30-12:30, Room 112**

### CM 2701 CIRSE meets the European Association of Urology

Moderator: E. Brountzos (Athens/GR)

- 2701.1 Explanation of LUTS to interventional radiologists  
S.A. Gravas (Larissa/GR)
- 2701.2 Surgical and medical therapy for benign prostate hyperplasia  
S.A. Gravas (Larissa/GR)
- 2701.3 For which patient is PAE most feasible? (the radiologist's view)  
N. Hacking (Southampton/UK)
- 2701.4 For which patient is PAE most feasible? (the urologist's view)  
A. Stenzl (Tubingen/DE)

#### References:

1. Carnevale F, Iscaife A, Yoshinaga E, Moreira A, Antunes A, Srougi M. Transurethral resection of the prostate (TURP) versus original and PErFecTED prostate artery embolization (PAE) due to benign prostatic hyperplasia (BPH): preliminary results of a single center, prospective, urodynamic-controlled analysis. *Cardiovasc Intervent Radiol* 2016;39(1):44-52
2. Hacking N. (2015, Sept. 29). Current evidence on prostate artery embolisation [Webcast]. CIRSE 2015. Retrieved from [www.esir.org](http://www.esir.org)

Cardiovascular and Interventional Radiological Society of Europe

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## Vertebroplasty and augmentation techniques: a review of comparative studies

Fernando Ruiz Santiago

Augmentation techniques were first introduced at my hospital in 2003 in close collaboration between the musculoskeletal section of the radiology department and the spine section of the orthopaedic department, headed by Dr. Acosta and his team, Dr. Pérez Abela and Dr. Cañadas (Fig. 1). Since then we have treated more than one thousand patients. We recently moved to a new building called "Parque Tecnológico de la Salud", the product of the fusion of the two main hospitals of my city. I hope that this new collaboration strengthens the support to patients suffering from insufficiency or pathologic vertebral fractures.

We started following the teaching of other talented Spanish clinicians, such as Dr. Hani, orthopaedic surgeon from Las Palmas, and Dr. Higuera and Dr. Galovich, from the Jimenez Diaz Trust in Madrid. International literature also helped us to keep abreast of the advances and controversies in percutaneous interventions of the spine.

These techniques can be performed by different medical specialists including radiologists, neurosurgeons and orthopaedic surgeons. They can therefore be performed in either interventional radiology rooms, under CT guidance (Fig. 2), or in surgical operating theatres. Nevertheless, the optimal setting includes the possibility of having two perpendicular X-ray sources, which can be achieved by biplane machines (Fig. 3) or by two fluoroscopy C-arms (Fig. 4).

As everybody knows, Dr. Deramon and Dr. Galibert performed the first vertebroplasty in 1984 to treat a painful haemangioma, which prompted other clinicians to treat other vertebral tumours in the same way. Subsequently, vertebral osteoporotic fractures were treated, and first written about, by Lapras in 1989.

The most widely used modification of vertebroplasty, kyphoplasty, was first reported in 1998 by Mark Reiley. It was developed specifically for use in the osteoporotic vertebra. The basic idea behind this procedure was to raise

the end plate of a fractured vertebral body with an orthopaedic balloon to achieve a more favourable angle of kyphosis before cement augmentation. A reusable hinged-tip curette can also be used to manually create a cavity in fractured vertebrae when the hardness of the vertebral body prevents balloon to create a cavity of appropriate size (Fig. 5).

Recent technological developments, intended to further enhance vertebroplasty and kyphoplasty, have been added to the armamentarium of interventional radiologists. Such developments include peek implant cages, nitinol endovertebral cages, polyetheretherketone implant cages and vertebral body stents. Several publications have dealt with these devices, such as the Kiva system and vesselplasty.

From the first publication until now, more than 2,300 papers have been published in English-language literature and more than 400 in other languages. Nevertheless, the method of augmentation techniques has not been easy. The most frequent articles are cases series, case reports and retrospective case-control studies. We have nonetheless now acquired more than 15 high-quality randomised trials and more than 20 prospective cohort studies with a control group.

Most case reports are related to procedural, mainly pulmonary embolism or nerve root-spinal cord injury, or to technicalities.

There are also numerous articles on basic clinical research in the laboratory setting where they simulate vertebral specimens in different clinical scenarios in order to biomechanically test different tools and materials.

The most important prospective studies have tried to clarify many issues. One of the major ones was the comparison of the effectiveness of vertebroplasty versus kyphoplasty. Most of these studies reported similar effects in clinical improvement of the patients. Although kyphoplasty has been reported to be superior in vertebral height recovery and local ky-

phosis correction, these anatomic features haven't been proved to provide better clinical outcome.

The other issue was comparison of augmentation techniques with more traditional conservative treatment of vertebral fractures. Most of the works found a superior short-term relief with augmentation techniques, although these differences vanish with time. Controversy was aroused in 2009 by the publication of two clinical trials that questioned the usefulness of vertebroplasty for the treatment of osteoporotic fractures in comparison with conservative treatment. These results were surprising to many clinicians involved in augmentation techniques, who knew from their own experience the good clinical results in their patients, such as returning quickly to normal life with a significant reduction in pain medication. Even in the centres where these studies arise, these findings only led to a minimal reduction on the number of vertebroplasties performed.

Another important issue that has been covered in many kinds of articles is the development of new vertebral fractures in osteoporotic patients treated with augmentation techniques. After the initial warning, it is well known that the major risk for developing a new fracture is the presence and severity of osteoporosis, mainly when other fractures exist at clinical presentation.

Case series generally contribute by reporting the experience of isolated institutions, but this contribution cannot be underestimated. We know that, in the hands of experienced practitioners, most of the augmentations techniques provide good results to our patients, that it can be also combined with minimally invasive surgery, and that we have the opportunity of treating multi-level fractures in only one session (Fig. 6).

Most of the high-quality literature published is related to osteoporotic fractures. Regarding tumour fractures, the majority of the literature consists of case reports and case series. Only

### Don't miss it!

Vertebroplasty: new evidence  
Special Session  
Tuesday, September 13, 10:00-11:00  
Room 115



**Fernando Ruiz Santiago**  
University of Granada  
Granada, Spain

Dr. Fernando Ruiz Santiago is a Professor at University of Granada and is Chairman of the Musculoskeletal Section in the Department of Radiology at the University Hospital Virgen de las Nieves. He has dedicated over 20 years of his career to diagnostic and interventional musculoskeletal radiology with a special focus on the mechanical problems of the spine.

one low-quality randomised clinical trial has been found in 2013 comparing Kiva implant to balloon kyphoplasty. Furthermore, literature regarding the usefulness of augmentation techniques in traumatic non-osteoporotic vertebral fractures is very scarce because other therapeutic options are considered more appropriate.

Currently there is no doubt about the usefulness of augmentation techniques in managing pain related to insufficiency or pathologic fractures and, therefore, they are considered worthwhile. Reporting accurate results is mandatory in order to improve our clinical practice and help people with pain related to vertebral fractures. Accuracy means reporting results in the same universal statistical language and tables, not replacing the numeric values in order that these results can be easily extrapolated to other works. This accuracy then allows reviewers to build meaningful meta-analyses that provide the scientific community with a valuable tool to form treatment recommendations or to provide guidance in the design of future clinical trials.



Fig. 1: Our first vertebroplasty system and our first vertebroplasty case performed by extrapedicular approach.



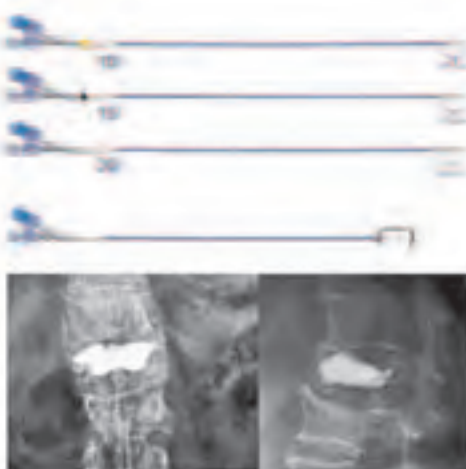
Fig. 2: CT room ready for a vertebroplasty case. Cement injection is performed under fluoroscopy guidance.



Fig. 3: Interventional X-ray room with biplane X-ray source.

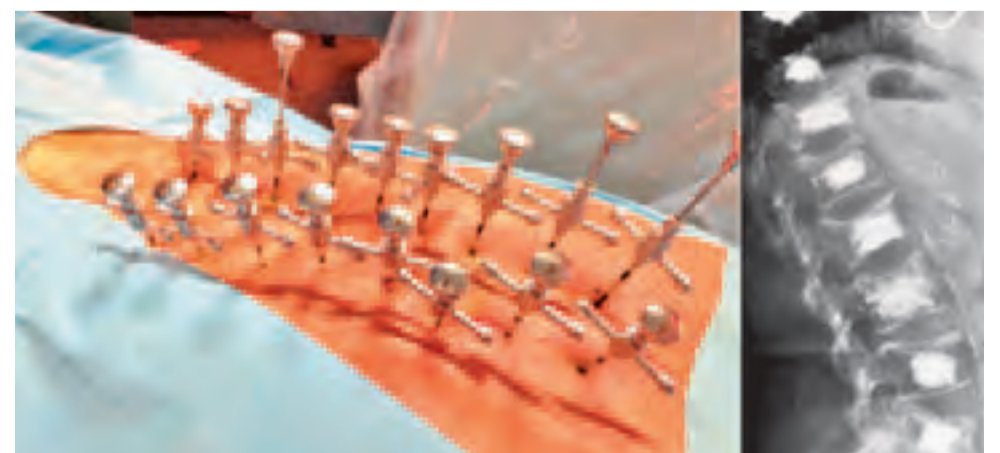


Fig. 4: Two perpendicular mobile C-arm in the operating theatre.



left:  
Fig. 5: Inflatable balloon scheme; our first kyphoplasty case.

right:  
Fig. 6: Multi-level fracture treatment in osteoporotic patient.



**Don't miss it!**

**Paradigm shift: colorectal liver metastases**  
**Hot Topic Symposium**  
 Tuesday, September 13, 15:00-16:00  
 Auditorium 1

**What's happening with colorectal liver metastases?**

Helen Hemblade, CIRSE Office

Of the 1.4 million people diagnosed with colorectal cancer annually, around half will die from liver metastases. As the treatment of colorectal liver metastases (mCRC) remains a subject full of complexities, innovative treatment, strong research and consistent follow-up are vital in managing this disease. Although surgical resection of liver metastases is the treatment of choice, around 75% of patients present with unresectable disease. Ultimately, liver failure remains the cause of death for most of these patients. Interventional oncology plays an increasingly pertinent role in prolonging survival time and quality of life for patients with liver metastases that are unlikely to ever become resectable.

The most recent guidelines compiled by multidisciplinary experts for the European Society of Medical Oncology (ESMO) reflect interventional oncology's important role. These guidelines along with points of discussion, such as treatment for unresectable mCRC, new evidence and what role an interventionalist plays in an oncology board will be covered in the Hot Topic Symposium by Prof. Eric van Cutsem, Prof. Andreas Adam and Prof. Philippe Pereira, followed by a round-table discussion.

**Treatment trends**

There is a need for viable treatment options in order to preserve quality of life, limit tumour growth and control symptoms. This is achieved in part by chemotherapy. However, recent interventional oncology data demonstrate some promising therapies, as well as increased survival time and improved quality of life in unresectable patients. The most commonly used minimally invasive therapies are radioembolisation, transarterial chemoembolisation (TACE) and thermal ablation.

Recently, studies have evaluated the efficacy and safety in the concurrent use of radioembolisation and chemotherapy. SIRFLOX was the largest randomised trial ever conducted that combined an interventional radiology procedure with chemotherapy in oncology and is the first of a group of three studies assessing the results of adding SIR-Spheres Y-90 resin microspheres to first-line chemotherapy in the treatment of mCRC. The results of the three studies (SIRFLOX, FOXFIRE and FOXFIRE Global), which together enrolled more than 1,100 mCRC patients, will be combined in a pre-planned assessment of the overall survival benefit of adding SIR-Spheres Y-90 resin microspheres to first-line chemotherapy for mCRC. Results are expected in 2017.

Indications for percutaneous thermal ablation using radiofrequency, microwave or cryoablation are limited to small liver or lung metastases. In 2014, a retrospective evaluation of two EORTC trials by Tanis et al. showed that the local recurrence rates between surgery and RFA are similar for metastases smaller than 4 cm.

Ablation can also be used in combination with systemic therapy, as shown in the updated results of the CLOCC trial, the first-ever prospective randomised phase II study between 2002 and 2007 to evaluate patients with unresectable mCRC using a combination of systemic therapy and local RFA. After a median follow-up of 9.2 years, overall survival was favoured in the RFA arm with 35.9% compared with 8.9% in the chemotherapy-only arm.

Regarding these new clinical studies, Prof. Pereira believes that patients with oligometastases in the liver could be treated by ablation

if these metastases are smaller than 3 cm. He further notes that, if the results of the CLOCC trial can be confirmed by another study, there could be a place for a minimally invasive tumour debulking in metastatic colorectal cancer in the future. He envisages that intra-arterial treatment with drug-eluting beads or radioembolisation could be performed in a neoadjuvant or adjuvant situation to reduce the risk of relapse after resection or ablation, or in patients with liver-dominant metastatic disease in combination with immune therapies in order to limit the toxicity of chemotherapies or to allow a "chemo vacation".

**The interdisciplinary mission**

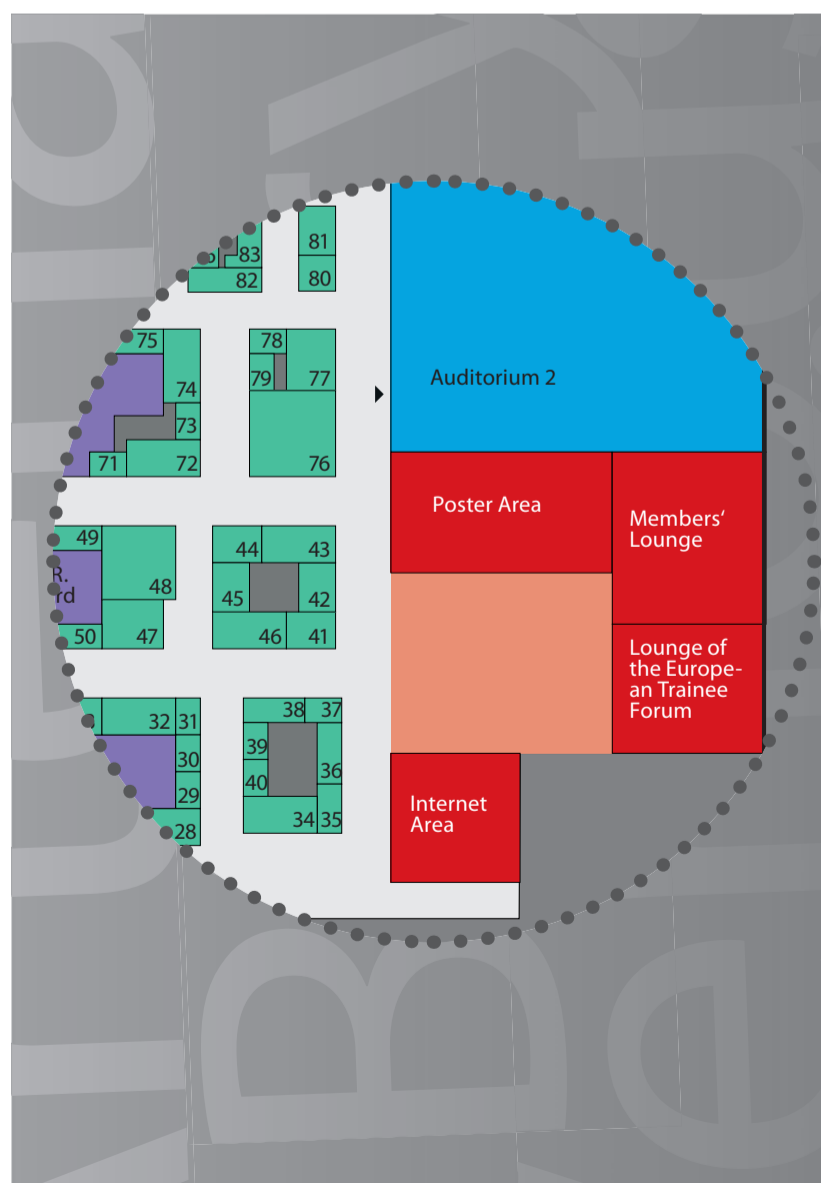
Prof. Pereira will outline that patient selection and local expertise play a major role, since deciding on one treatment versus the other or for combined therapies is increasingly difficult. These decisions require a large amount of expertise and should therefore be made by an interdisciplinary tumour board which includes an interventional oncologist.

It is becoming ever more important for physicians from different specialties to collaborate and devise the best treatment plans for individual patients, stimulating interdisciplinary exchanges on commonly encountered challenges in oncology, especially with the emerging aforementioned combined therapies. Multidisciplinary tumour boards are therefore central to providing the best for patients according to agreed therapeutic strategy pathways. The ESMO guidelines stress the importance of multidisciplinary teams when outlining treatment strategies. Finally, managing the costs of all the new information and technology is likewise a collaborative team effort.

The theory of this is undoubtedly easier than the day-to-day clinical practice. Prof. Andy Adam believes that harmonious multidisciplinary teams can be achieved by IRs working with other oncological specialists on the basis of equality and mutual respect. He asserts that it is vitally important that interventional radiologists should participate in multidisciplinary meetings in their capacity of a treating clinician, rather than as diagnosticians. He furthermore suggests that interventionalists should earn respect in the field by behaving as clinicians rather than technicians and not acting as advocates for IR but rather as doctors trying to decide what is best for the patient.

In order to integrate within an oncology team, Prof. Adam believes that interventionalists should be familiar with the outcomes of IR treatments and with the results obtained by other disciplines working in the same area. IRs must always take into account the patient's overall condition and consider whether other treatments may be preferable or whether treatment should be offered at all, not simply offering to perform procedures because they are technically feasible. From this angle, interventionalists should undertake primary clinical responsibility for their own patients.

**Join us for this exciting discussion today at 15:00 in Auditorium 1!**

**Members' Lounge**

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

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

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

**ETF Lounge**

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

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

Stop by throughout the congress and meet your colleagues!

## How to manage patients after stage migration

Marta Burrel

Hepatocellular carcinoma (HCC) is the most common primary liver cancer. It usually arises as a result of a chronic liver disease but may also appear without any underlying disease.

Recent advancements have improved the management of patients with HCC. Results of studies have provided information on how to stage and decide on the optimal treatment option for each patient with an adequate balance between risks and benefits. The Barcelona Clinic Liver Cancer (BCLC) staging and treatment strategy has been widely endorsed for this purpose. Following this approach, patients diagnosed with HCC are classified according to tumour burden, liver function and ECOG-performance status (PS). This classifies patients according to prognosis and links each stage with the initial evidence-based treatment approach.

One of the most controversial issues in patients with HCC is when to start and when to stop a specific treatment. Patients who at first glance would be treated with the option that corresponds to their BCLC stage may not actually be treated with the initially suggested treatment due to factors such as co-morbidities, technical issues or even treatment failure/progression. In such instances, the recommended treatment should be the option for the next stage following the treatment stage migration concept.

Furthermore, options for early-stage HCC that aim to provide complete response and achieve long-term disease-free survival (surgery, ablation) are frequently hampered by tumour

recurrence. At this point, despite still belonging to the early stage, the proposed therapy will correspond to that applied in BCLC B or even C stage. Thus, all the effective therapeutic options may be sequentially applied.

One typical scenario of treatment stage migration is a BCLC A patient treated with ablation who presents with recurrence not suitable for further ablation, or a single HCC lesion not accessible to ablation because of its location; transarterial chemoembolisation (TACE) may then be considered despite being at stage A. When applying such a conventional approach, the median early-stage survival after treatment should exceed 50% at 5 years and 50% at 3 years in patients treated with TACE.

Another typical scenario is a BCLC B patient who is a poor candidate for TACE. According to EASL and EORCT guidelines, the recommended treatment for intermediate-stage HCC is TACE, but the guidelines already additionally recommend some restrictions within BCLC B stage. Liver disease should be compensated, and selective chemoembolisation is desirable. Hence, patients with jaundice or ascites are not suitable candidates for TACE. Indeed, if liver decompensation is so intense, the patients should be considered for liver transplantation because of the poor life expectancy due to the underlying liver disease. In such cases, HCC may just become a contraindication for transplant if enlistment criteria are exceeded.

These concepts have been summarised in several consensus documents by panels of

experts and scientific reviews. If following established recommendations, the methods and scores suggesting to repeat TACE may lose their clinical value. Indeed, treating patients beyond the guideline recommendations may not provide a survival benefit to the patients. It is important to stress that the same criteria to initiate TACE should be applied when deciding whether to retreat during follow-up. Patients may develop liver decompensation during follow-up or may show absence of response to TACE or even progression that is no longer amenable to successful TACE. In such instances, the patient fits into the untreatable progression concept and should be shifted to systemic therapy, even if still within BCLC B stage.

In summary, clinical practice guidelines based on scientific evidence are the key to achieving optimal results in conventional care, while at the same time exposing the limitations of current therapies and the unmet needs that should be solved by prospective research.

### Don't miss it!

HCC: controversial issues (beyond guidelines)

Special Session

Wednesday, September 14, 10:00-11:00

Room 115



**Marta Burrel**  
Barcelona Clinic Liver Cancer (BCLC) Group  
Hospital Clinic of Barcelona  
Barcelona, Spain

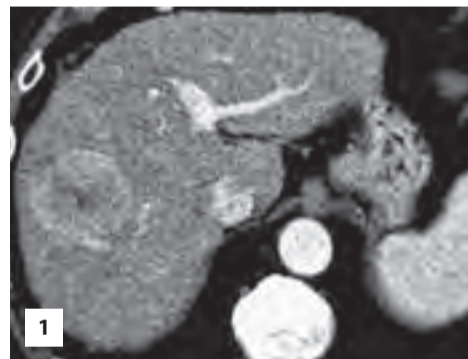
Dr. Marta Burrel currently works as a senior staff radiologist in the Radiology Department at the Hospital Clinic of Barcelona, University of Barcelona. She has wide-ranging experience in all types of interventional vascular procedures, and particularly in transarterial therapies.

Dr. Burrel is an active member of the Barcelona Clinic Liver Cancer (BCLC) and member of the Spanish Society of Radiology (SERAM), the Spanish Society of Interventional Radiology (SERVEI) and the Cardiovascular and Interventional Radiology Society of Europe (CIRSE).

#### References:

1. Bruix J, Reig M, Sherman M. Evidence-Based Diagnosis, Staging, and Treatment of Patients With Hepatocellular Carcinoma. *Gastroenterology* 2016 Apr; 150(4): 835-53
2. Reig M, Darnell A, Forner A, Rimola J, Ayuso C, Bruix J. Systemic therapy for hepatocellular carcinoma: the issue of treatment stage migration and registration of progression using the BCLC-refined RECIST. *Semin Liver Dis* 2014 Nov; 34(4): 444-55
3. Bruix J, Reig M, Rimola J, Forner A, Burrel M, Vilana R, Ayuso C. Clinical decision making and research in hepatocellular carcinoma: pivotal role of imaging techniques. *Hepatology* 2011 Dec; 54(6): 2238-44
4. Raoul JL, Sangro B, Forner A, Mazzaferro V, Piscaglia F, Bolondi L, Lencioni R. Evolving strategies for the management of intermediate-stage hepatocellular carcinoma: available evidence and expert opinion on the use of transarterial chemoembolization. *Cancer Treat Rev* 2011 May; 37(3): 212-20

**Case report:** 64-year-old male, HCV + and liver cirrhosis; Child-Pugh A, Performance Status 0, clinically significant portal hypertension (HVPG = 17 mmHg). He does not present jaundice, encephalopathy or ascites. A CT exam shows 1 HCC nodule, 48 mm in diameter, in the liver dome, not accessible to percutaneous ablation. According to treatment stage migration concept, the patient is shifted to the next treatment option, i.e. TACE.



Figures 1 and 2: Transverse and coronal CT images showing a 48 mm-HCC nodule in the liver dome.

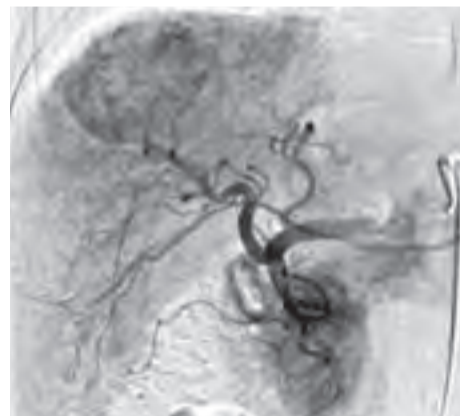
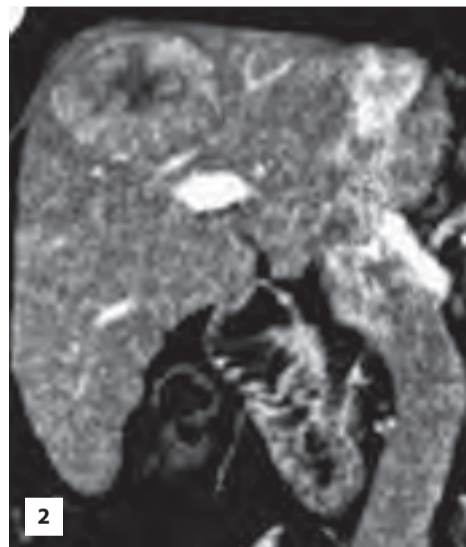


Fig. 3: Selective angiography of celiac trunk shows the HCC lesion. 100-300 and 300-500. Drug-eluting beads were injected superselectively until tumour devascularisation was achieved.

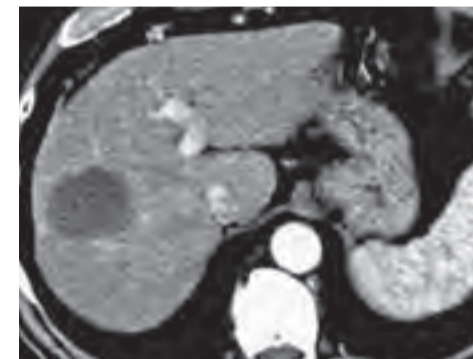


Fig. 4: Follow-up CT scan shows complete response of the treated lesion.



# ECIO 2017

European Conference  
on Interventional Oncology

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Training Day  
Thursday, October 13

Congress  
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Friday, October 14  
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## Journées Francophones de Radiologie Diagnostique & Interventionnelle



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## Sizing for type B aortic dissection

Jos van den Berg

Over the last decade, thoracic endovascular aortic repair (TEVAR) has become the treatment of choice in patients with complicated type B aortic dissection. This is reflected in the prominent role that is reserved for TEVAR in one of the most recent guidelines of the ESC [1]. The aim of treatment is to close the primary entry tear and re-entry sites, redirecting flow into the true lumen while improving distal perfusion by decompressing the true lumen. Malperfusion of distal aortic side branches can thus be prevented or corrected.

Endovascular treatment of aortic dissection has several specific anatomic aspects. The proximal stent graft landing zone is often close to the arch vessels (left subclavian artery) and typically there is not a healthy distal landing zone because, in most cases, the dissection extends beyond the celiac trunk. Furthermore a stent graft in a patient with aortic dissection will most likely have contact with the intima over the entire length, while in an aneurysm, the stent graft's contact with the vessel wall is limited to the proximal and distal sealing and fixation zones. It is difficult to determine the actual size of the affected true lumen and the aortic wall is expected to be more fragile than in patients with a fusiform or saccular thoracic aortic aneurysm. All these factors have implications for the choice of the stent graft [2, 3].

Sizing of the stent graft in patients with a type B aortic dissection should also take into account the normal aortic dynamics: the maximum aortic difference in pulsatility has been reported to be around 18% in the ascending and descending thoracic aorta. It is also known that additional oversizing

(in aneurysm repair) does not lead to better overall outcome [4].

One of the complications of oversizing a stent graft in the distal aortic arch is retrograde propagation of the dissection to the ascending aorta and, in severe cases, even in-folding of the stent can occur [5]. Factors that were associated with retrograde dissection in a single centre study are oversizing of > 10%, stent graft diameter > 42 mm and female gender [6]. In a larger registry, similar results were found [7]: in a subgroup of 195 patients (registry including 1,010 patients) with chronic type B aortic dissection, an incidence of 1.6% of retrograde type A aortic dissection was seen. A univariate analysis revealed that patients with retrograde dissection had significantly greater device oversizing (22% vs. 10.3%). Further analysis showed that retrograde dissection was associated with device oversizing, with each 1% of oversizing increase above 9% leading to a significant increase in risk of retrograde dissection by a factor of 1.14. These findings suggest that patients with aortic dissection (like patients with connective tissue disease) have an increased aortic fragility. Interestingly, this same study did not find a relationship between the occurrence of retrograde dissection and the use of stent grafts with a proximal bare stent configuration vs. those with a non-bare stent configuration.

In addition to diameter measurement, length measurements also play an important role, since it is known that longer grafts result in a significantly higher percentage of thrombosis in the false lumen. This can be explained by the fact that a longer stent graft provides better stabilisation of a longer segment of the

dissection flap, thereby reducing blood movement in the false lumen and thus resulting in a higher thrombosis rate [2]. Uncovered re-entry tears may also inhibit false lumen thrombosis and the aortic remodeling process. Length determination may be optimised by use of pre-operative computational flow analyses, since they help in the detection and quantification of the importance of these re-entry tears/multiple entry tears [3].

In conclusion, sizing for type B aortic dissection should markedly differ from sizing for thoracic aneurysms, taking into account the increased fragility of the dissected aorta and the dynamic environment of the thoracic aorta.

### References:

1. Erbel R, Aboyans V, Boileau C, Bossone E, Bartolomeo RD, Eggebrecht H, et al. 2014 ESC Guidelines on the diagnosis and treatment of aortic diseases: Document covering acute and chronic aortic diseases of the thoracic and abdominal aorta of the adult. The Task Force for the Diagnosis and Treatment of Aortic Diseases of the European Society of Cardiology (ESC). *Eur Heart J* 2014 Nov 1; 35(41): 2873-926
2. Qing KX, Yiu WK, Cheng SW. A morphologic study of chronic type B aortic dissections and aneurysms after thoracic endovascular stent grafting. *J Vasc Surg* 2012 May; 55(5): 1268-75
3. van Bogaerjen GH, van Herwaarden JA, Conti M, Auricchio F, Rampoldi V, Trimarchi S, et al. Importance of dynamic aortic evaluation in planning TEVAR. *Ann Cardiothorac Surg* 2014 May; 3(3): 300-6
4. Tolenaar JL, Jonker FH, Moll FL, van HJ, Morasch MD, Makaroun MS, et al. Influence of oversizing on outcome in thoracic endovascular aortic repair. *J Endovasc Ther* 2013 Dec; 20(6): 738-45
5. Won JY, Suh SH, Ko HK, Lee KH, Shim WH, Chang BC, et al. Problems encountered during and after stent-graft treatment of aortic dissection. *J Vasc Interv Radiol* 2006 Feb; 17(2 Pt 1): 271-81
6. Gandet T, Canaud L, Ozdemir BA, Ziza V, Demaria R, Albat B, et al. Factors favoring retrograde aortic dissection after endovascular aortic arch repair. *J Thorac Cardiovasc Surg* 2015 Jul; 150(1): 136-42
7. Canaud L, Ozdemir BA, Patterson BO, Holt PJ, Loftus IM, Thompson MM. Retrograde aortic dissection after thoracic endovascular aortic repair. *Ann Surg* 2014 Aug; 260(2): 389-95

### Don't miss it!

Tips and tricks  
Lecture Session

Tuesday, September 13, 14:30-15:30  
Auditorium 2



**Jos C. van den Berg**

Ospedale Regionale di Lugano  
Lugano, Switzerland

Dr. van den Berg is Head of the Service of Interventional Radiology at Ospedale Regionale di Lugano, sede Civico, as well as being Associate Professor (Privatdozent) of Radiology at the University of Bern, and Associate Professor of Vascular Surgery at the University of Pisa. His main interest is in interventional and vascular radiology. He is past President of the Dutch Endovascular Forum, and an active member of the Dutch Society of Radiology, CIRSE, SSCVIR and corresponding member of SIR.

## Today's Featured Papers

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

### FP 3104 Neurointerventions and carotid stenting

Room 134

RACER: a European registry in the treatment of AIS with the ACE64 reperfusion catheter used as first intention in real life

A. Kowoll<sup>1</sup>, W. Weber<sup>1</sup>, C. Loehr<sup>2</sup>, A. Moreno<sup>3</sup>, J. Weber<sup>4</sup>, J. Masso Romero<sup>5</sup>, S. Peschillo<sup>6</sup>, A. Berlis<sup>7</sup>, G. Gál<sup>8</sup>, T. Lo<sup>9</sup>;

<sup>1</sup>Bochum/DE, <sup>2</sup>Recklinghausen/DE, <sup>3</sup>Murcia/ES, <sup>4</sup>St. Gallen/CH, <sup>5</sup>San Sebastian/ES, <sup>6</sup>Rome/IT, <sup>7</sup>Augsburg/DE, <sup>8</sup>Odense/DK, <sup>9</sup>Utrecht/NL

### FP 3105 Embolisation 2

Room 133

Bariatric embolization of arteries for the treatment of obesity (BEAT obesity): 6-month safety and efficacy data

C.R. Weiss<sup>1</sup>, O. Akinwande<sup>1</sup>, K. Paudel<sup>1</sup>, L. Cheskin<sup>1</sup>, B. Holly<sup>1</sup>, K. Hong<sup>1</sup>, A. Fischman<sup>2</sup>, R. Patel<sup>2</sup>, E.J. Shin<sup>1</sup>, K. Steele<sup>1</sup>, T.H. Moran<sup>1</sup>, D.L. Kraitchman<sup>1</sup>, A. Arepally<sup>3</sup>;

<sup>1</sup>Baltimore, MD/US, <sup>2</sup>New York, NY/US, <sup>3</sup>Atlanta, GA/US

### FP 3106 Peripheral 2

Room 114

Relationship between albuminuria and renal artery stent outcomes: results of the cardiovascular outcomes with renal artery lesions (CORAL) randomized clinical trial  
T.P. Murphy<sup>1</sup>, C.J. Cooper<sup>2</sup>, K. Pencina<sup>3</sup>, R. D'Agostino<sup>3</sup>, J. Massaro<sup>3</sup>, D. Cutlip<sup>3</sup>, K. Jamerson<sup>4</sup>, A.H. Matsumoto<sup>5</sup>, W. Henrich<sup>6</sup>, J. Shapiro<sup>7</sup>, K. Tuttle<sup>8</sup>, D.J. Cohen<sup>9</sup>, M. Steffes<sup>10</sup>, Q. Gao<sup>3</sup>, C. Metzger<sup>11</sup>, W. Abernethy<sup>12</sup>, S.C. Textor<sup>13</sup>, J. Briguglio<sup>14</sup>, S. Tobe<sup>15</sup>, L. Dworkin<sup>1</sup>;

<sup>1</sup>Providence, RI/US, <sup>2</sup>Toledo, OH/US, <sup>3</sup>Boston, MA/US, <sup>4</sup>Ann Arbor, MI/US, <sup>5</sup>Charlottesville, VA/US, <sup>6</sup>San Antonio, TX/US, <sup>7</sup>Huntington, WV/US, <sup>8</sup>Spokane, WA/US, <sup>9</sup>Kansas City, MO/US, <sup>10</sup>Minneapolis, MN/US, <sup>11</sup>Kingsport, TN/US, <sup>12</sup>Asheville, NC/US, <sup>13</sup>Rochester, MN/US, <sup>14</sup>Lancaster, PA/US, <sup>15</sup>Toronto, ON/CA

# Radiation Protection Pavilion 2016



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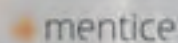
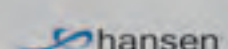
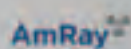
## Visit the Radiation Protection Pavilion

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

### Today's RPP Mini-Talks

11:00 – 11:15	<b>IEC standards on personal radiation protection, friend or foe?</b> (AMRAY)	<i>D.G. Ramirez (Madrid/ES)</i>
11:15 – 11:30	<b>Reducing patient and staff exposure by optimising fluoroscopy-guided interventional procedures</b>	<i>G. Paulo (Coimbra/PT)</i>
11:30 – 11:45	<b>EuroSafe Imaging - the European Society of Radiology's multi-stakeholder alliance to support and strengthen medical radiation protection across Europe</b>	<i>G. Paulo (Coimbra/PT)</i>
12:30 – 12:45	<b>GeoAlign® Marking System</b> (C.R. BARD)	<i>G. Behrens (Hinsdale, IL/US)</i>
14:00 – 14:15	<b>Robotic catheter assistance: the relationship to radiation exposure</b> (HANSEN MEDICAL)	<i>B. Katzen (Miami, FL/US)</i>
14:15 – 14:30	<b>The invisible impact: can simulation really help with radiation protection training and proficiency?</b> (MENTICE)	<i>P. Gilligan (Dublin/IE) D. Steffel (Gothenburg/SE)</i>

The CIRSE Radiation Protection Pavilion is proudly supported by:



## An Inside Perspective on the EBIR Exam

Michelle Weiss, CIRSE Office

Since 2010, the European Board of Interventional Radiology has been successfully running their course to provide exam-based certification to prove an IR's skills and knowledge. This internationally recognised IR title is now held by over 400 interventional radiologists and that number continues to grow every year. With new format changes and the recent adoption of the exam by the Australasian IR society, this summer CIRSE got an insider's view on the EBIR with Examination Council Chairperson Otto van Delden and Deputy Chairperson Raman Uberoi.

**CIRSE: The EBIR exam recently updated its format for the oral section of the exam to include 10 ten-minute case discussions with experts; what inspired the change?**

**Van Delden:** There are actually two main drives: one is to improve the quality and validity of the exam, and the second is to examine the whole spectrum of IR. In every practice you'll choose a focus, but, to start out, you have to know the whole curriculum and specialise from there.

**Uberoi:** We've reduced the variability so people receive a specific standard, and then can develop beyond that in a specialist area. This way you ensure the quality of the operators and the interventional radiologists in Europe. The changes in the exam more closely reflect that ambition, and they will improve how the exam is seen internationally as a quality exam, assessing the key areas for interventional radiologists.

**CIRSE: Last year the EBIR was adopted by the Interventional Radiology Society of Australasia (IRSA); how do you think the expansion is going so far?**

**Uberoi:** I went to IRSA this year in New Zealand with Colin Nice, where the two of us represented CIRSE. So we saw first-hand how it's working. It's a really positive step that the Australasian society has adopted the EBIR. I think the more countries and societies that adopt it the better, because it will strengthen it and allow for engagement with those societies to enhance and improve the exam, but, ultimately, it will make the exam much more respected and desired by interventional radiologists.

**Van Delden:** It's probably the best example of where the exam is already turning into the exam for IRs. They're frontrunners in that respect. For instance, we're not that far yet, but we're working on making EBIR the official IR exam in the Netherlands. We thought of having our own exam, but there's 10, 20 candidates per year. It's much more practical and more useful to join it with EBIR. And I know of other countries that are thinking about doing the same. This will all help in making it a more recognised, standardised, accepted exam.

**CIRSE: With your busy clinical schedules, how much time do you devote to the EBIR?**

**Van Delden:** Once we have an exam coming up, we're probably working on it every day: returning emails, correcting and discussing questions, phone conferences, standard setting conferences...

**Uberoi:** It's a heavy commitment, and there are peaks and troughs. There's a good amount of frenetic activity three to four months before an exam, trying to get everything ready. But there's also work going on in between. The others on the committee are also busy people. It's a large time commitment on everyone's part and having CIRSE coordinate it and make sure that we're hitting our deadlines is key, because otherwise it would be chaos.

**CIRSE: What's your incentive to dedicate this time?**

**Uberoi:** It's five things. We feel a responsibility for our specialty to thrive, for our trainees' and young consultant colleagues' future survival within a competitive world of medicine. The second thing is that it is key to getting the young people into it. The medical students and young trainees are used to having a structure for training and development. They see that this is an organisation which they can get involved with, and the EBIR helps set that up. The third thing is, we have busy jobs, but this is a real interest. It can be quite hard work, but it can be good fun as well. The fourth thing is it actually brings us together. We have made lots of friends and colleagues from various countries, and getting everyone working together is really positive. It brings harmonisation across the European Union and brings the national societies together. And finally, I think it is a focus for CIRSE. It's a function which CIRSE can do well, which none of the other societies can do on their own. On this scale, it's worth putting in the effort for the whole organisation.

**Van Delden:** You put a lot of work into this and a lot of out-of-office hours and weekends and

nights, but the rewards are being part of the CIRSE community and having all these international friends and meetings. So CIRSE gives you back a lot as well.

**CIRSE: What would you say to an IR who hasn't received EBIR accreditation yet?**

**Van Delden:** It would be good to do this, because, in the very near future, you're going to have to show what you're worth and that you're certified. This is rapidly evolving and becoming more relevant. Look at job applications now: people are asking for EBIR certification at many places, and this goes faster than you think. In a few years, if things go the way I predict, most will ask for EBIR accreditation.

**Uberoi:** It may not be immediately beneficial, but what it shows is that they have achieved a certain standard and accreditation within their specialty. We separate them from others who haven't got that distinction.

**CIRSE: Do you think further recognition is coming for IR, and does the EBIR will help with that?**

**Van Delden:** It is coming, but we have to work really hard at it, because it's not going to come by itself. Certainly the exam alone is not enough. Training programmes have to be improved and harmonised throughout Europe. The EBIR exam and the IR curriculum, which the exam is based on, are both drivers to synchronise training programmes across Europe.

**Uberoi:** These things take time to bed down. It is a juggernaut. There are a lot of differences in culture, in the education programmes, in train-

ing, from medical students through to senior training examinations, and trying to bring that all together over time will happen, but it's a slow, iterative process. It comes back to making the exam much more professional and internationally recognised. It's a chicken and egg situation: the more credible the exam, the more people that want to do it, the more importance it gains. And, similarly, those that then have the EBIR also gain credibility. It's a sort of symbiotic process, where one leads to the other, and then they perpetuate. But it has to start somewhere, and I think these recent changes make the exam better.

If you have not yet taken the EBIR Exam and gained this valuable accreditation, there are several opportunities coming up next year:

**For all CIRSE Members**

**1-2 March, 2017 during ECR 2017**  
Vienna, AT

**15-16 September 2017 during CIRSE 2017**  
Copenhagen, DK

**For IRSA Members**

**10-11 July, 2017 during IRSA 2017**  
Port Douglas, AU

To find out more about the exam, including how to prepare and register online, visit [cirse.org/ebir](http://cirse.org/ebir).



Raman Uberoi (Deputy Chairperson) and Otto van Delden (Chairperson)

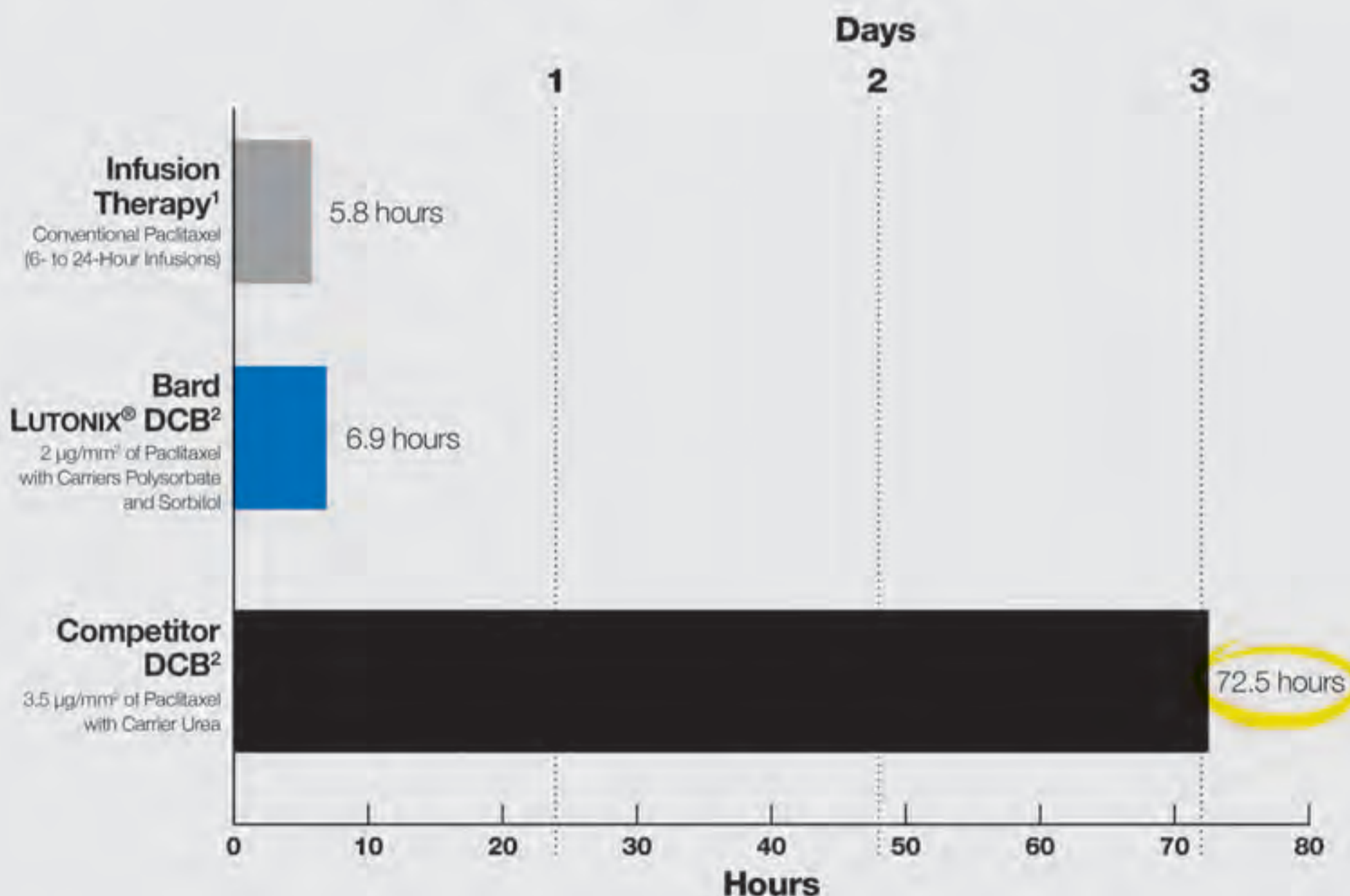
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# When Does a Longer Paclitaxel Half-Life Become a Concern?



## Average Half-Life of Different Paclitaxel Formulations Within the Body



<sup>1</sup> Data obtained from [www.drugs.com/monograph/paclitaxel.html](http://www.drugs.com/monograph/paclitaxel.html). Longer paclitaxel mean half-life values may be obtained with different doses.

<sup>2</sup> Bard and Competitor data obtained from two separate data sets. LUTONIX<sup>®</sup> data from pharmacokinetic sub study data in U.S. IFU (n = 22, SD 4.21 hours). Competitor data from PMA P140010: FDA Summary of Safety and Effectiveness Data (n = 24, SD 39.7 hours)

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