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## **Volume 12 - Issue 2-3, 2012 - CIRSE 2012 Highlights**

### **Intra-Arterial Delivery**

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Catheter-directed delivery has revolutionised modern medicine, with applications for treating cancers, infections, stenotic disorders, clots – even diabetes. This is all made possible through the breakthrough of image-guidance, and this year CIRSE, home of interventional radiology, will be examining the latest advances and research in great detail.

Image-guided catheters have many applications, but today's chief area of research is that of catheter-directed delivery, as it offers a very elegant method to deliver medicines, stem cells or nanoparticles locally. Theoretically, any part of the body can be accessed by skilled interventionists – the real challenge is to find what particles can have maximum effect under which circumstances, and how delivery can be tailored to maximise its effectiveness.

#### **A Boon To Oncology**

Oncology is a particularly fruitful field of research: being an essentially cellular and usually local disorder, it is particularly suited to local, targeted therapy. Local intra-arterial delivery of chemotherapeutic or radioactive agents offers far better outcomes for the patients – not only are the discomforts of systemic treatment largely avoided, but also more powerful doses can be administered.

The real challenge, however, is to find the perfect vehicle, and many different polymer, liposome and even viral carriers have been modified to target specific cancer cells, often requiring extra image-guided involvement to activate or track them. The following CIRSE sessions will look at some of the most promising solutions.

#### **Synergies Between Loco-Regional and Systemic Approaches in Cancer Management**

*Monday, September 17, 08:30, Room 3.A*

Synergistic approaches are having tremendous impact, attacking cancer cells from multiple fronts. Renowned specialist, Prof. Riccardo Lencioni of Pisa, Italy, will discuss combining transcatheter chemoembolisation (TACE) and anti-angiogenic therapy. While TACE has been established as a safe and effective therapy for many cancer types, it does face certain limitations. In obstructing blood flow to the tumour, TACE may encourage not only the desired necrosis, but also, paradoxically, angiogenesis.

To counter this, some phase II and phase III trials have been constructed to examine the possibility of combining TACE with Sorfenib (a multi-kinase inhibitor with anti-angiogenic properties), with highly promising results. Prof. Jeff Geschwind (John Hopkins, Baltimore, USA) will discuss other novel methods of using transcatheter therapy to attack tumour metabolism.

Prof. Ronnie Poon from Hong Kong, China, will examine thermally sensitive liposome carriers in combination with ablation. These liposomes encase a cytotoxic agent, which can be released via heat application. Prof. Poon will discuss how these liposome carriers can enhance thermal ablation and prevent recurrence of HCC, as well as preliminary indications from studies in other cancers.

Many other novel carriers are under development, such as nanoparticles and nanorobots, light-activated drugs and magnetic labelling, and other sessions and exhibitions will offer updates on their development.

### **Innovations in Oncologic IR**

*Tuesday, September 18, 08:30, Auditorium 2*

Particularly fascinating is the research into oncolytic viral therapy, which will be discussed by Prof. Steven Rose from San Diego, USA. Clinically innocuous virus particles can be modified to selectively infect and kill tumours. The virus then replicates within the tumour, killing the affected cells via lysis. Lysed tumour cells are then exposed for specific immune recognition and response by the body. Accurate intra-arterial or interstitial delivery is vital to the success of this treatment.

Another exciting therapy will be discussed by Dr. Bradford Wood (Bethesda, USA). Hepatic chemosaturation limits systemic toxicity through use of a special catheter system. This isolates the organ from the systemic blood circulation, and high-dose chemotherapy is directly infused via the hepatic artery to saturate the liver. The hepatic venous blood is then extracorporeally filtered.

By doing this, not only is systemic administration avoided, but both visible and invisible micrometastases are exposed to a higher dose of chemotherapy than would be possible by traditional administration. Chemosaturation by percutaneous hepatic perfusion with melphalan is now an EU-approved treatment option for unresectable metastatic melanoma in the liver.

### **The Field of the Future**

Image-guided intra-arterial delivery offers huge potential for oncology, and even in its early stages, is already revolutionising treatment. The opportunities this elegant delivery system offers has implications for all areas of cancer research, as well as vascular disease and degenerative disorders. CIRSE 2012 will be examining the latest evidence, and asking where the future will take us next.

Other sessions of note:

*Saturday, September 15, 11:30* HCC: The spectrum of interventions

*Saturday, September 15, 11:30* Acute stroke treatment

*Sunday, September 16, 10:00* Stroke prevention: where do we stand in 2012?

*Sunday, September 16, 11:30* Genitourinary IR *Tuesday, September 18, 08:00* Trauma

*Wednesday, September 19, 10:00* IR in the future

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