CAIR EXPRESS

Summer 2018

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President's Blog

Dear CAIR members,

I'll keep this short and sweet. As I write this on the summer solstice, and celebrate the official beginning of summer, I would like to reflect on the success of our recent annual meeting. This was in collaboration with the Canadian Association of Medical Radiation Technologists (CAMRT). We added an additional ½ day devoted solely to technologist and nurse lectures. The feedback on a separate day for the technologists and nurses has been very positive.

We had a fantastic guest speaker faculty of Dr. Alda Tam, Dr. Jim Benenati, Dr. Scott Trerotola, and Dr. Suresh Vedantham, all of whom were great and fully engaged in our meeting. Dr. Benenati attended many sessions that he did not speak in and commented on how high the quality of the meeting was and how enjoyable it was for him. Of course, as usual, we had a great Canadian faculty who showed their devotion to CAIR and ongoing education.

We introduced some new formats for the meeting this year including rapid fire sessions (10 minute talks) and a film panel. The rapid fire sessions were a vehicle to touch on important IR topics. The film panel was meant to be educational and fun, and it certainly delivered both in ample quantities.

I would like to thank everyone involved in the meeting, especially Daniel Lapointe and Sarah Elimam for doing all the hard work behind the scenes to ensure a smooth running meeting.

I hope everyone has some warm sunny days and enjoy the summer.

Yours truly,

Jason Wong,
President

Dr. Jason Wong

Catching up with… Dr. Robin Gray

Introduction

Dr. Robin Gray is one of the stalwarts of Interventional Radiology in Canada. Having worked in the East (Toronto) and the West (Calgary), he was instrumental in the development of interventional radiology programs across the country and the training of numerous residents and fellows over his distinguished career. He recently retired from IR as Professor from the University of Calgary and is currently globetrotting with his beautiful wife May, whereabouts unknown. Join us as we catch up for a heart to heart with Dr. Gray on what made him tick as an IR and where he thinks our field is headed…

Dr. Robin Gray

"In the U.S, IR is a profit centre and in Canada, we are a cost centre."

CAIR Interview Question & Answers

1. Are you happy with the way Canadian IR practice has evolved over the last few decades? Do you have any suggestions for what aspects of practice we should focus on?

I am pleased that we continue to evolve new procedures as older procedures become obsolete (eg arch aortography replaced by CT). Now we are doing tumor ablations. However, I don't think our hospital administrators fully understand our value, and I think this is getting worse as our more sophisticated equipment becomes more costly. This may be in part because of the way we are funded. In the U.S, IR is a profit centre and in Canada, we are a cost centre. So realistically, I don't think we'll ever catch up. However, new procedures will keep coming and we will develop some of them. I think that in the future IR will be more involved in cancer therapy. As immune therapies improve getting rid of large metastatic foci with IR techniques will be accepted, with immune therapies cleaning up smaller residual lesions and micrometastases.

"'An IVU for guidance sometimes helped, but air or CO2 were the only contrast agents that didn't disappear as soon as you injected them."

2. What were the most challenging cases you've been involved with? Does any particular one come to mind?

In the days before extracoporeal US lithotripsy we had to access the kidney in the correct calyx to gain access for rigid nephroscopes to allow the urologist to disrupt the stones directly. When the stones filled the calyx or when there were stag horn calculi, there would be little or no space to place catheters or wires (no microwires available). Air injection and later CO2 helped a bit. Percutaneous nephrostomy in nondistended systems prior to US guidance gave similar problems. An IVU for guidance sometimes helped, but air or CO2 were the only contrast agents that didn't disappear as soon as you injected them. A retrograde ureteral catheter also proved helpful.

3. Could you share with us one or two of the most exciting cases you were involved with?

One of my most memorable cases was not a complicated case, but a case which showed our surgical colleagues how much we could help, it was an early trauma case. I was at the graduation party for our residents when I got a call from our trauma surgeon who said "Come now. We'll hold the patient in the OR till you get here. We can't stop the bleeding." This was from a surgeon who was respectful of our time and who never called to give us "a heads up". As soon as I got there, they wheeled in a patient with 2 Big berthas going and blood all over the place. About 40 units of blood had been given. The aortogram showed avulsion of an internal iliac artery. We had the artery coiled and occluded before the trauma team had even moved all the IVs over to our angio table. By this time my jeans and shoes were

already soaked in blood below my apron and gown. The patient survived and the surgeons were impressed and grateful.

Where I worked previously we had a great relationship with our gastroenterologists and did many complex cases jointly with them. One was recanalizing an occluded cervical esophagus secondary to radiotherapy of an esophageal cancer. We had done a gastrostomy for feeding. The gastrostomy was dilated and a 30 French sheath from our nephrolithotomy setup placed through which we cannulated the esophagus and got a scope in retrogradely. After a scope was placed from the mouth the endoscopists lined up the scopes under our multiplanar fluoro guidance and we rammed the hard end of a guidewire through the occlusion to the upper scope. The wire was pulled out the mouth and we then dilated a track to 10 mm. Over a period of a few months the gastroenterologist gradually dilated the track further allowing the patient to eat.

My first primary jejunostomy was also a great challenge as at that point as there was no prior report so we had to figure it out as we went, and the available materials were not like what we have today. Lots of other procedures were also invented as we went.

4. What are your views on the ongoing debate about interventional radiologists becoming more clinical in their practice versus remaining a referral service?

As an old fart, I am not terribly interested in a return to clinical medicine. I certainly couldn't effectively teach it to residents and fellows, or even practice effectively. This may be less of a problem for new IRs. I realize that the theory is that we will have more control over the patients and not be dependent for referrals by others who may decide that they can do our job just as well. However, the commonest complaint I here from younger colleagues is the lack of room time. Running clinics will not help this, in fact it will likely make it worse. Also, if as I expect more IR procedures come on line we will need as many people in "the room" as possible. A more useful approach may be to attend or create more inter specialty rounds and generally try to establish a more collegial situation with our clinical colleagues. As I illustrated with the GI case previously, we can find ways to find collaborative solutions to complex problems which utilize skills and ideas from different specialties.

5. What in your opinion have been some of the biggest challenges to developing Interventional Radiology as a dedicated clinical service over the years?

I will continue to criticize ignorant administrators who do not provide adequate budgets for IR. This remains our major problem. I think that a more conscious effort to publish more will help to create an image for our hospitals that even administrators can understand. For example, the stroke protocols, largely from our centre, are known across the continent as the Alberta protocols. This requires extra effort, but I believe it will pay off for us in the end. A problem in the past was the call frequency for IR which killed the interest of many of our trainees, who saw other sub specialties working much better hours for the same income. The call by hospitals for 24 hour coverage will make IR more attractive as other sub specialties work more evening and night shifts.

Dr. Robin Gray,
MD, FRCPC, FSIR
Staff Interventional Radiologist
and Clinical Professor of Radiology, University of Calgary

" ...The commonest complaint I here from younger colleagues is the lack of room time. Running clinics will not help this (...). "

Hot off the Press : Drug-Eluting Periphera Balloon Catheter (DEB)

Introduction

Dr. Dheeraj Rajan is the co-principal investigator for the upcoming Lutonix AV Post-Approval Registry which would involve 5 Canadian sites. He is a prolific clinical investigator in interventional radiology and has significantly contributed to dialysis access literature among others. CAIR Express interviewed him to get his thoughts on the utility of drug coated balloons in fistula work and any tips and tricks he has learnt with the Bard Lutonix balloon, currently approved for fistula work in Canada.

Technical Considerations

1. How was the paclitaxel dose on the balloon arrived upon?

Extensive testing was performed on over 10000 histology samples, with over 250+ formulations and 45 preclinical studies to ensure a proper balance between safety and efficacy. The goal was to be able to deliver a therapeutic dose with a sustained presence in the vessel wall while minimizing downstream effects of embolization of paclitaxel and/or the excipient.

2. Most of the data on drug eluting balloons has been in the arterial system. What is the pathophysiology of action in venous stenosis?

The molecular mechanism for intimal hyperplasia is the same regardless of arterial or venous system. Hence inhibition of smooth muscle proliferation, the primary driver of intimal hyperplasia, remains the same.

3. Is there a special mechanism for drug delivery in this balloon design? What is the rate of drug elution?

Yes. The carrier or excipient (polysorbate and sorbitol) is specifically designed to optimize retention of paclitaxel on the balloon when passing through the sheath, to allow the release of paclitaxel to the vascular wall during inflation and to minimize unnecessary exposure to staff and patients. The uniform coating (dose of 2 µg/mm2) delivers the drug in 360 degrees at the target vessel. The drug elution starts immediately, but it has been shown in the SFA that a longer inflation time (minimum 2 minutes) may have a positive effect on results.

4. Are there any specific considerations while using these DCBs?

Yes. There are considerations when prepping the balloon. The operator should ensure the drug coated part is not exposed or wetted before entering the patient. Second, the DCB is a semi-compliant angioplasty balloon that assists with the delivery of paclitaxel. Therefore, vessel preparation with a proper high pressure balloon is required before drug delivery. Finally, target delivery of the drug is very important. The area previously dilated should be entirely covered but the area where the drug delivered should also be extended by at least 5 mm on either end.

5. What are the contraindications to use of these balloons in fistula work?

So far none, for almost all patients encountered. However, efficacy has not been assessed when used in thrombosed fistulas or at the venous anastomosis of patients with prosthetic grafts. Patients who have a lesion/stenosis that prevents complete inflation of the high pressure balloon or proper placement of the

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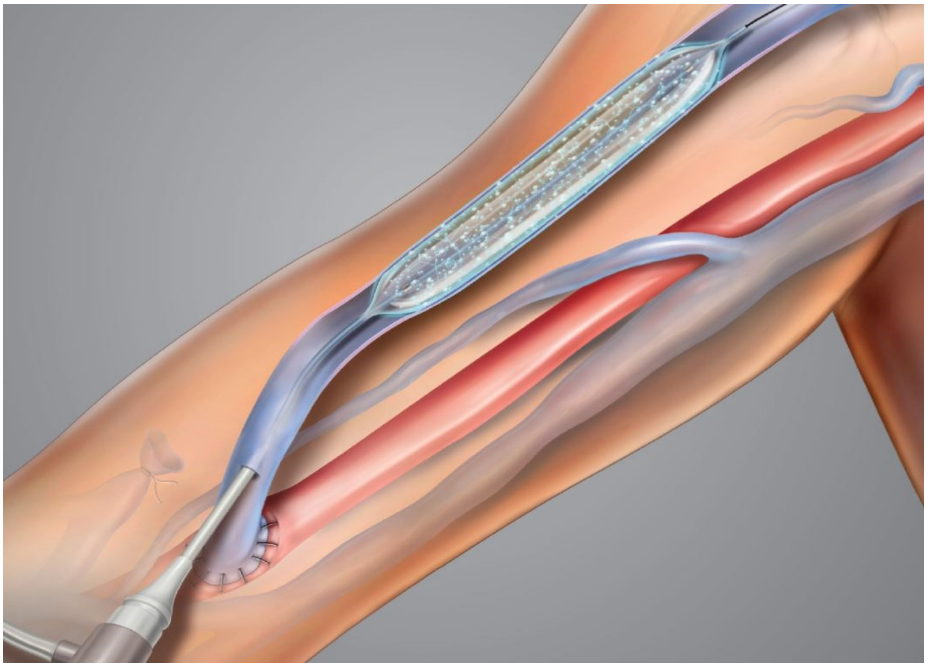

delivery system are contraindications. Also within the IFU, women who are breastfeeding or plan to become pregnant; men intending to father children within the next two years are excluded from use.

Clinical Considerations

1. Who are the ideal patients/ lesions that would benefit from using a drug coated balloon for venous stenosis?

Patients with non thrombosed autogenous fistulas with stenoses along the entire access circuit with the exception of central veins.

2. What is the recommended technique for the use of DCBs in venous stenosis? Any special tips?

The operator should ensure that dilation with a high pressure balloon achieves optimal dilation of the stenosis before using the Lutonix® balloon. Then, the DCB should be appropriately sized to ensure full wall apposition of the DCB for adequate drug delivery. The goal of treatment is to have the predilation angioplasty balloon achieve the appropriate mechanical gain and then the DCB is applied to inhibit restenosis.

3. Have you seen any complications with the use of DCBs in fistula work? What, in your opinion if any, are the downsides of using these balloons?

I have not observed any complications with use of the Lutonix® balloon in AV fistulas and the 30-day safety endpoint of the Lutonix AV IDE trial (soon to be published in CAJSN) showed no difference to balloon angioplasty.

The one downside is that DCB's are an additive cost to AV fistula stenosis treatment. It is important that when considered upfront costs, the physician should also consider the clinical benefits for patients and downstream savings related to lower intervention rates.

4. Could you give our readers a brief overview of the existing evidence for use of DCBs in venous stenosis?

The Lutonix® DCB is the only DCB used within AV fistulas with completed Level 1 evidence from a multi-center trial (soon to be published). Also the Lutonix DCB is the only DCB being studied in a global registry and a post approval study to begin within Canada and the United States this year (over 800 patients under study protocols). The Medtronic In.Pact® DCB multicenter IDE study has completed recruitment recently with follow-up underway. There are also multiple prospective and retrospective studies (>10) with less than 50 patients that have shown superior target lesion patency over standard high pressure balloon angioplasty within AV fistulas.

Dr. Dheeraj Rajan,
MD, FRCPC, FSIR, FACR
Professor and Division Head | Interventional Radiology

Upcoming Event

This year again, CAIR will hold the **Grand Slams & Catastrophes Course** in Lake Louise (AB). More details will come soon but get ready to register next fall.

Cook Medical's Beacon® Tip Catheter is back!

Philips Canada welcomes Spectranetics - Effective June 29th 2018, Philips Canada will be the exclusive distributor of Spectranetics Vascular Intervention products in Canada

Siemens Healthineers: Registration is now open for Innovations Symposium 2018! More information here.