

SCT Newsletter



September / October
2017

Hello and welcome to the SCT newsletter. This edition is an Australian takeover with two conference reports from across the ditch. A very interesting report from the CSANZ meeting in Perth by Liane Dawson from Waitemata DHB and a report from my time in Sydney for Echo Australia.

CSANZ conference report by Liane Dawson

CSANZ 2017 Perth 10th -13th August 2017

The meeting covered a broad range of cardiology topics, as expected. My interests lie more with Devices and EP and there were quite a lot of EP presentations, but not so much on devices. This gave me the opportunity to spend time in other sessions and rediscover areas of cardiology I'm not directly thinking about e.g. new thinking on embryology and an update on interventional cardiology. There was a common theme in many sessions around the need for multidisciplinary approaches to provide the best outcome for patients. This was especially evident in Device therapy, Heart Failure and rehabilitation post MI. The needs of Indigenous patients were also highlighted in several discussions around follow-up. The involvement of all clinical staff was also important in improving patient outcomes reducing admissions.

I have included a couple of summaries from presentations of particular interest.

Heart Failure continues to be a challenge for clinicians and while CRT has improved the quality of many patients it is not suitable for all. There is a sub-group of patients with symptomatic HF_{rEF}, NYHA II-III, on maximal medical therapy and a narrow QRS who CRT is not indicated. Cardiac Contractility Modulation (CCM) maybe an option for these patients. This therapy uses a pacemaker type device with 3 leads to RA & RV (2) which delivers non-excitatory pulses at 7.5V over 22ms during the absolute refractory period. This does not initiate contraction but modifies calcium delivery to myocytes and the sarcoplasmic reticulum. It has been shown to change gene expression locally (hours-days) within the cardiac cell and at 3 months remotely. Resulting in improved EF LV dimensions with LV reverse re-modelling. An early single centre experience (5 patients) from Monash University was presented. 5 patients studied over 18months. 3 showed significant symptomatic improvement, NYHA class by at least 1, EF improved from 28-40%, improved PkVO₂, 6min Hall Walk and Minnesota Living with HF QOL score (MLWHFQ). Of the 2 with no improvement, 1 was the 1st implant with a borderline QRS at 130ms (should be <120ms)

and the other was only 3 months post implant. Obviously bigger studies and long-term data are needed but there is interest in the future of this therapy.

Another very good overview was on 'Getting the Most from CRT' by Vince Paull from Fiona Stanley Hospital in Perth. Patient selection is obviously the most important issue. Implant procedure tips included avoiding scar areas and using echo speckle tracking or 3D activation mapping can be useful. (However not all centres would have the resources to do this). Using a quadripolar lead gives more options and using all device features to optimise pacing, however no technology will completely address a poorly placed lead. He recommended finding a position with the latest activation and reviewing the QRS width during BiV pacing prior to accepting a final position. Post implant follow-up it is important to maintain optimal medical therapy (ACE inhibitors, Beta blockers, Aldosterone antagonists, diuretics) and patient education is often overlooked. Adherence to medical therapy, lifestyle changes, weight monitoring and sodium restriction are important factors.

He also discussed the importance of device monitoring and evaluation of LV lead position and capture, assessment of true BiV pacing, review of HF diagnostics, arrhythmias and optimal AV & VV programming. Ideally, these patients would be part of a multidisciplinary CRT clinic which would include HF physician, EP specialist, HF nurse and Exercise/Device Physiologists. This may seem like unachievable to many of us in NZ, however that doesn't mean that we should not consider this in future planning of our services.

There was also a brief overview of some new techniques including HIS Bundle Pacing and wireless LV endocardial pacing. The early data looks promising, so watch this space.

I would like to thank the SCT committee for approving funding for my attendance at this meeting. It was great to catch up with colleagues at social events and gain new knowledge to pass on.



Echo Australia 2017

11-13 OCTOBER 2017

EXTREMELY THOUGHT PROVOKING, VISUALLY STUNNING AND A GLIMPSE INTO THE NEAR FUTURE...WERE ALL PHRASES USED TO DESCRIBE THE FILM BLADE RUNNER 2049, WHICH I RECENTLY SAW ON THE BIG SCREEN IN SYDNEY. THE MAIN PURPOSE OF MY TRIP THERE WAS TO ATTEND THE ECHO AUSTRALIA MEETING WHICH WAS ALSO VERY INTERESTING. AS USUAL, THE MEETING WAS GREAT, SO I THOUGHT I WOULD INCLUDE A BREAKDOWN OF MY FAVOURITE SESSIONS

Day 1 started off in classic fashion with traditional methods for assessing LV systolic function by Michelle Bierig the Director of Cardiovascular Services, Hillcrest Hospital South, Tulsa, Oklahoma. Michelle made a familiar topic very interesting with a presentation ranging from the first days of echocardiography to the most up to date techniques through the lens of the current guidelines. This talk was grounded in the simple foundations of solid measurements. There were many interesting points made including an important reminder to use the Interface between the compacted myocardium and the LV cavity for Simpson's biplane method measurements. The talk also opened my eyes to the increasing use of LV contrast in echocardiography.

We then jumped straight into advanced assessment of LV function with a session on strain imaging from Dr Jonathan Chan Professor of Cardiology, Griffith University and Senior Staff Specialist, The Prince Charles Hospital and Gold Coast University Hospital. This talk usefully referred to the 2015 paper;

Definitions for a common standard for 2D speckle tracking echocardiography: consensus document of the EACVI/ASE/Industry Task Force to standardize deformation imaging.

[Voigt JU](#), [Pedrizzetti G](#), [Lysyansky P](#), [Marwick TH](#), [Houle H](#), [Baumann R](#), [Pedri S](#), [Ito Y](#), [Abe Y](#), [Metz S](#), [Song JH](#), [Hamilton J](#), [Sengupta PP](#), [Kolias TJ](#), [d'Hooge J](#), [Aurigemma GP](#), [Thomas JD](#), [Badano LP](#).

Which suggested that for simplicity of reporting it would be beneficial to remove the minus sign when reporting strain and instead use a bracketed number with \geq [20%] being normal and $<$ [20%] being abnormal.

Dr Chan suggested that with strain, pattern recognition was often more useful than the numbers themselves and established patterns were recognised for

- cardiac amyloidosis (apical sparing, the so-called cherry on top)
- Apical HCM (low strain values at apex)
- Ischaemic cardiomyopathy (global random pattern)
- Myocardial infarction (regional reduced strain in line with affected regions)

The research shows how vendor variability is improving in the realms of strain but is still at unacceptable levels; so serial measurement should be carried out on the same machine with the same software version.

Other research showed that there was a learning curve associated with performing strain rate imaging. Fellows and sonographers could reach a good standard after performing strain imaging 50 times.

This session was rounded out with some less validated but up and coming techniques like 3D strain and strain of the left atrium and right ventricle. Dr Chan pointed out that strain of the RV free wall has been considered reproducible and feasible for clinical use in the latest ASE guidelines and is very simple to perform. This method may be useful in times when the mid-apical RV free wall is affected and the basal segments contract well. This would cause pseudonormalization of the TAPSE and RV S'.

The advanced sonographer session was kicked off by Natalie Kelly senior cardiac scientist from the Prince Charles hospital who spoke on estimating aortic valve area on prosthetic valves including TAVR which I was keen to attend as I often find this challenging. Aortic stenosis is one of the most common forms of acquired valvular disease and TAVR numbers are expected to vastly increase in the years ahead, so these challenges will be encountered in greater numbers. As always it was stressed that sound measurement of the LVOT diameter was important and a common error was to measure the internal diameter of the prosthesis instead of the LVOT. Another pearl of wisdom was to look for the closing click of the aortic valve on your LVOT pulse wave Doppler to ensure optimal position. Measurement of the LVOT in TAVR patients can be particularly challenging as the CoreValves protrude further into the LVOT, the measurement for the AVA calculation should be made within the stent proximal to the valve cusps. The talk also highlighted the fact that as the degree of expansion of a TAVR varies between patients there are no normal ranges for valve gradients or EOA so comparisons to baseline study is important.

For the session on the echo assessment of pulmonary hypertension Dr Greg Scalia, director of echocardiography at the Prince Charles hospital proposed a novel method to

discern pre-capillary physiology from post-capillary physiology. The echocardiographic pulmonary to left atrial ratio (ePLAR) is very easy to calculate ($ePLAR (m/s) = TR V_{max} (m/s) / \text{mitral } E/e'$) and uses a composite surrogate for both transpulmonary gradient (TPG) and left atrial pressure (LAP). As each of the components has a modest linear correlation with the invasive equivalent the idea is that lower ePLAR values are consistent with rising LAP and higher ePLAR values are consistent with rising TPG. Below is the study information for further reading on the subject.

[Int J Cardiol.](#) 2016 Jun 1;212:379-86. doi: 10.1016/j.ijcard.2016.03.035. Epub 2016 Mar 19.

ePLAR - The echocardiographic Pulmonary to Left Atrial Ratio - A novel non-invasive parameter to differentiate pre-capillary and post-capillary pulmonary hypertension.

[Scalia GM](#), [Scalia IG](#), [Kierle R](#), [Beaumont R](#), [Cross DB](#), [Feenstra J](#), [Burstow DJ](#), [Fitzgerald BT](#), [Platts DG](#).

I left (both the conference and the cinema) with my head swimming wondering if I had comprehended the complex themes on offer but had plenty of new tricks to try out in my clinical practice. I also heard echocardiographers referred to as 'non-invasive haemodynamists' which I thought was very poetic. Now I just need to convince the boss to let me have that on my name badge.

Contributions to the newsletter

I would love to receive some case study contributions to the newsletter and submissions from any discipline would be great. Please e-mail anything you would like to submit to me at gary.zealand@hbdhb.govt.nz