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GETTING TO KNOW APHRS LEADER

Andreas Pflaumer

MD, FRACP, FCSANZ, FHRS, CEPS-P
APHRS Pediatric EP Subcommittee Chair 2023

Associate Professor
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Why did you choose to enter medicine and above all, prefer to specialize in Pediatric Electrophysiology?

Medicine is a care-based vocation that offers an opportunity to improve the lives of other people. I have been introduced to medicine when I have been a volunteer paramedic and never regret this decision. When I started as a pediatrician, Electrophysiology was in a very early stage. I chose to specialize in Electrophysiology because I was fascinated by the beauty and logic of electrophysiology. In addition, Invasive Electrophysiology and Ablation in children often eliminates all symptoms, which allows them to be independent and active again.

What do you regard as the most significant development in Electrophysiology in the recent past?

The recent progress in Genetics and Genomics changes so much in all of medicine and probably will have a major impact on how we understand and treat arrhythmias. There is already a shift from the idea of monogenetic causes to “oligogenetics” and polygenetics. While this is currently mostly about understanding and risk assessment, therapy will be shaped by genetics in the future.

Can you talk about an accomplishment that you are particularly proud of?

The End Unexplained Cardiac Death (EndUCD) project is an Australian research project that aims to prevent deaths due to sudden cardiac arrest and collect genetic information of the surviving and the deceased. As the founding pediatric scientific committee member for EndUCD, I helped to start the project from the ground. The team working on the project has already collected, analyzed and published a large amount of information from the state of Victoria. This is already helping the relatives of the deceased by educating and supporting them with newly discovered data insights.

If you could have an alternative career, what would it be and why?

I probably would be a physicist. I was always interested in the fundamental building blocks of the universe and new technologies. Who knows – maybe in an alternative universe I am the one working on the science behind the next generation pacemakers or EP mapping system.

Who has inspired you the most in your life and why?

Arthur Schnitzler, who simultaneously worked as a doctor and was able to express his creative ideas in plays and novels. Imagination drives the world.

What are your hobbies and interests outside of medicine?

Outside of medicine, I like taking photographs – of nature and cityscapes. (My wife says I take bad photos of her.) Most of all though, I like to be the nature, hiking and traveling. When traveling we also like to explore the local food and restaurants. These are the hobbies I share with my wife and my son which makes it even better.



What is your best life advice, motto or favorite quote?

My favorite quote is by my favorite author Arthur Schnitzler. What he said is not only true for life decisions in general, it also works for ablation in EP: To be ready is one thing, to be able to wait is another; but to seize the right moment is everything.

What advice would you give to your younger self?

It's important to be patient, enjoy the moment and embrace the failures. As a young person I did not grasp the beauty of the moment and the importance of patience.

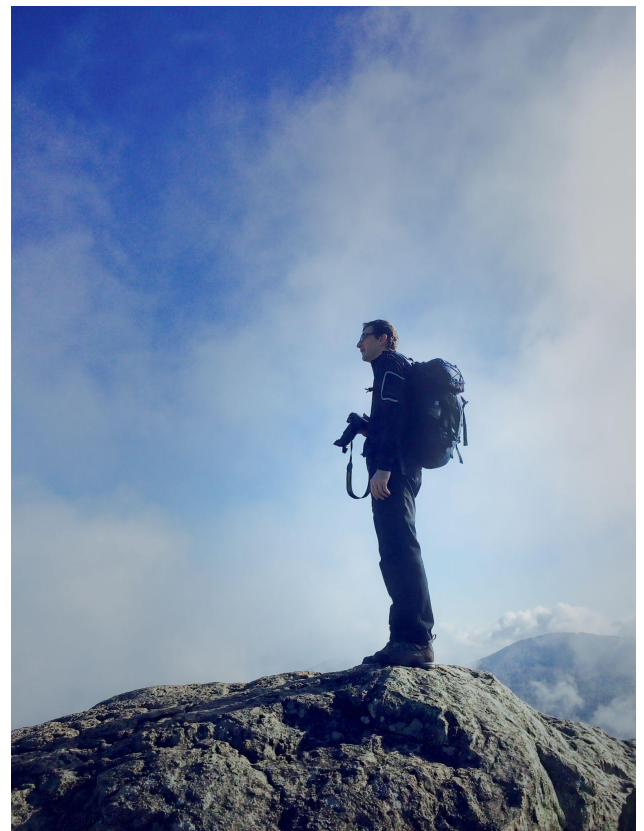
How do you keep a healthy work/life balance?

I like reading, running, and hiking in nature, but there isn't always time for it.

It's not easy to keep a healthy work/life balance these days with digital technologies and e-health systems tempting us to work anywhere anytime. It's important to be a bit more disciplined and budget for self-care and family life.

Favorite weekend activity?

I like to spend my weekend outside in the nature with my wife. Australia is blessed with vast space and beautiful scenery, so there are plenty places to go for bush walking and day trips along the coast or the hinterland. Come and visit Australia!



Rolling Out Pulsed Field Ablation in Asia Pacific

Pulsed Field Ablation (PFA) is a promising energy source that has the potential to expedite complex ablations, reduce procedural complication rates and possibly improve clinical outcomes associated with complex arrhythmias. As PFA is progressively rolled out across the Asia Pacific region, we asked early adopters of this technology in Australia, Singapore and Hong Kong on how the introduction of PFA has changed their local practice.

Dr Haris M. Haqqani

Senior Cardiac Electrophysiologist

Prince Charles Hospital, Brisbane, Australia

The Prince Charles Hospital Department of Cardiology is a large tertiary referral cardiology service in a heart or lung transplant centre, managing the full array of complex arrhythmias, including Atrial Fibrillation (AF). In terms of catheter ablation for AF, we routinely perform this as a day-case procedure and were using cryoballoon Pulmonary Vein Isolation (PVI) for de novo AF ablation and Radiofrequency Ablation (RFA) for redo cases (with PV re-isolation and posterior wall isolation performed as required).

Given the limitations of existing thermal ablation modalities, as well as promising early clinical data on PFA outcomes from multiple centres, we were keenly awaiting the arrival of PFA. We commenced our PFA program for the treatment of AF last year and did the first worldwide case outside of Europe on 2 August 2022.

Our initial 6-month experience has been positive overall. Training to use the system was seamless despite pandemic-related limitations. A highlight was the virtual proctoring delivered by Dr Kars Neven who has a profound mechanistic understanding of all things PFA, having worked alongside Dr Wittkamp to develop this new ablation paradigm from its infancy. Dr Neven was able to visit late last year to make sure we remained on the straight and narrow!

We have transitioned essentially all AF ablation procedures to PFA and have not performed any routine thermal AF ablations since. However, given the limitations around delivering PFA lesions near the valve annuli (with the attendant risks of coronary spasm), we would deploy RFA for any cases where typical or perimitral flutter require treatment.

The most important consideration we faced when commencing PFA was securing additional anaesthesia support as we perform cryoballoon PVI under conscious sedation. However, our new anaesthetic director has previously worked with Dr John Sapp so has a soft spot for EP! (Thanks Dr Sapp!) We have performed all our PFA cases under GA as nurse-delivered propofol is not available in Australia (although this is changing). The advantages of GA include the ability to guide anterior transseptal access with transesophageal echo and avoid the expense of intracardiac echo. We have certainly found that anterior puncture sites assist with pentaspline catheter manipulation around the right veins, particularly when in flower pose. GA also allows for neuromuscular blockade to ensure stable catheter position during each of the 8 electroporation applications per vein.

We have been impressed with how stress-free AF ablation has become with PFA. There are no concerns around oesophageal or phrenic injury, and the lack of any significant risk of vein stenosis means that the full spectrum of variant pulmonary vein anatomy as defined on a preoperative CT can be tackled safely and effectively. Our procedure times are not fast, around one hour, but this includes GA induction and imaging time. The actual ablation times from first to last application have been as short as 13 minutes.

In our first 57 patients, we have had 2 femoral vascular access complications which resolved without sequelae. Most patients have been discharged on the same day. Importantly, apart from one patient (our third overall) with a reconnected right superior pulmonary vein, no signal of early recurrent AF in the blanking period has been seen so far.

Although there are no randomized data to compare the efficacy of PFA with thermal ablation yet (3 RCTs are in progress), improvements in the safety profile and efficiency of the procedure are welcome and have a clear positive impact on any AF practice.



Figure 1. Proctor Dr Kars Neven (left) and Dr Haris Haqqani (right)



Figure 2 Dr Jeremy Chow (left) and Dr Pipin Kojodjojo (right) during their first PFA case in Singapore.

Dr Jeremy Chow

*Director of Cardiac Electrophysiology
Asian Heart and Vascular Centre, Singapore*

My previous default single shot procedure for PVI in paroxysmal AF was cryoablation with and without 3D mapping. Since the availability of PFA in Singapore in October 2022, I was privileged to be the first user in private practice in Singapore. I was also delighted to combine PFA with left atrial appendage occlusion (LAAO) with the Watchman Flx device, the first such case in Asia Pacific I have been told!

The biggest impact of PFA for me was the speed of the procedure to achieve complete PVI in all 4 veins in less than 45 minutes, hence giving allowance for subsequent LAAO implantation in the same sitting for the appropriate patients. Both procedures took only an additional 15 mins more than conventional cryoablation for 4 PVI. The safety aspect of PFA was also very impressive in reducing major complications as shown in initial studies especially phrenic nerve injury and no reported cases of pulmonary vein stenosis or esophageal complications. The initial experience of seeing prolonged vagal pause necessitating ventricular pacing was something new to most of us.

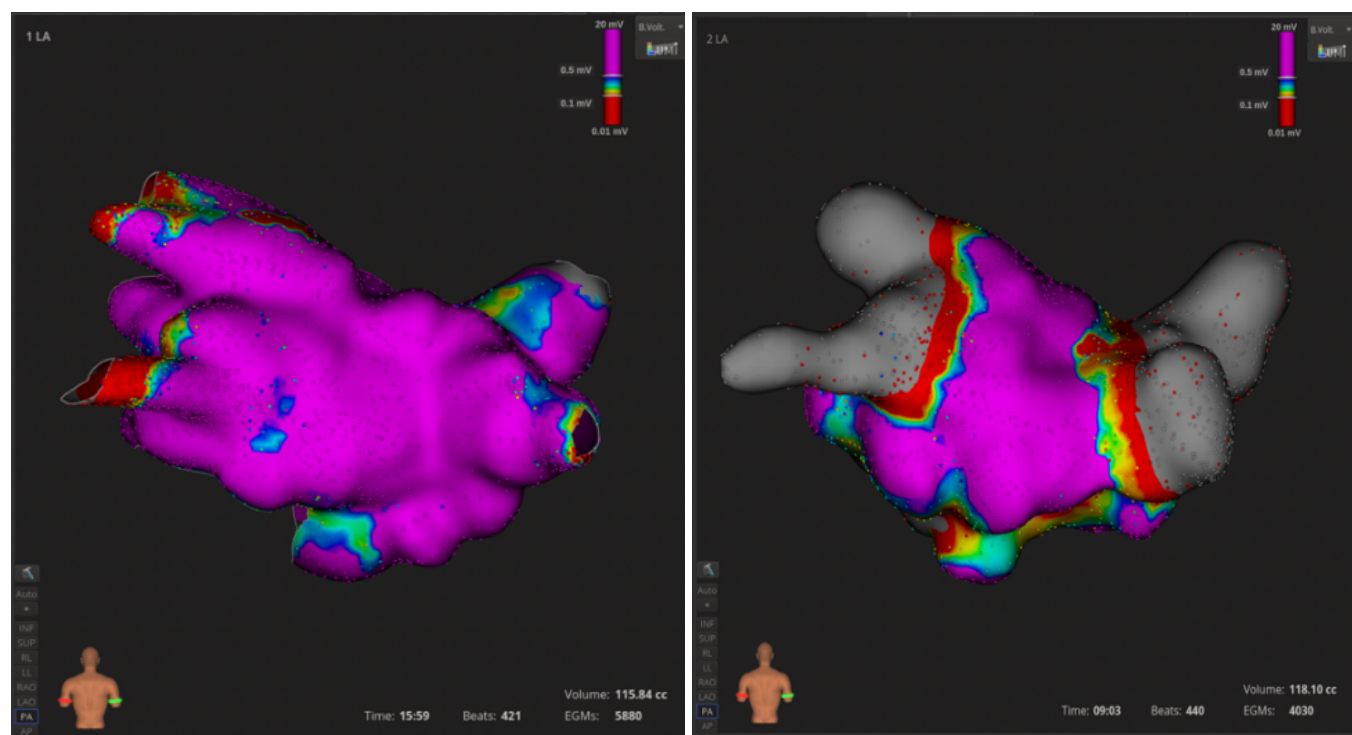
In my own practice, PFA is suitable for both paroxysmal and early persistent AF if the goal was single shot therapy for PVI plus posterior wall isolation as needed. If additional ablation for substrate modification or elimination of triggers were required, then RFA would still be the preferred choice. The patient selection for cryoablation for me previously was only for paroxysmal AF, especially those with early disease and normal atrial size. However, the capability of PFA to treat wider areas and safely isolate the posterior wall has widened the indications of this single shot device. Amongst our first 5 PFA cases, we even had one patient who had persistent AF for 10 years and had successful PVI with posterior wall isolation.

Dr Mark Tam

Cardiac Electrophysiologist

Prince of Wales Hospital, Hong Kong

The use of pulse field ablation was started in November 2022. On average, our centre performed about 2-3 AF ablations per week. Before the introduction of PFA, half of these cases were performed with RFA and the other half with cryoballoon. We performed a total of 18 PFA procedures so far, with 3 of them being combined procedure with left atrial appendage occlusion. Our centre embraced PFA and did about 70% of cases with PFA now. For patient selection, we used PFA for all patients with paroxysmal AF without documented atrial flutter. In early persistent AF cases, we would still use PFA if we did not expect extrapulmonary triggers. In redo cases, we would fall back to traditional RFA to find the gaps and ablate any atypical flutters. We saw that the use of cryoballoon has faded out in our centre.



For all of these cases, we used the 35mm catheter since it allowed us to get a more antral ablation. The total left atrial dwell time has shortened to about 20-30 minutes now. Because of the reduced procedure time, at one point we were able to perform 4 PFA procedures in a day. The main time limiting factor is the GA time, so we would be eager to learn the sedation experience from other centres. We attempted sedation for two early cases but found it really challenging because of the patient's intolerance.

In the initial few cases, we mapped the left atrium with Orion catheter before and after ablation and confirmed the entrance block in all the veins. After these successful cases, we only did the procedures under fluoroscopic guidance.

For the 3 cases of combined LAAO AF ablation cases, we found that transseptal access is tricky. We used TEE to guide our transseptal access. To facilitate right lower pulmonary vein access, we prefer a more anterior transseptal access. However, the access of left atrial appendage would be easier with a more posterior transseptal puncture site. Therefore, to compromise between both needs, we cross the fossa ovalis at the mid inferior point. So far, all the three cases were successful with on table TEE showing full seal of LAA.

Because of the efficiency and safety profile, we would be happy to expect more patients with AF to benefit from PFA ablation.

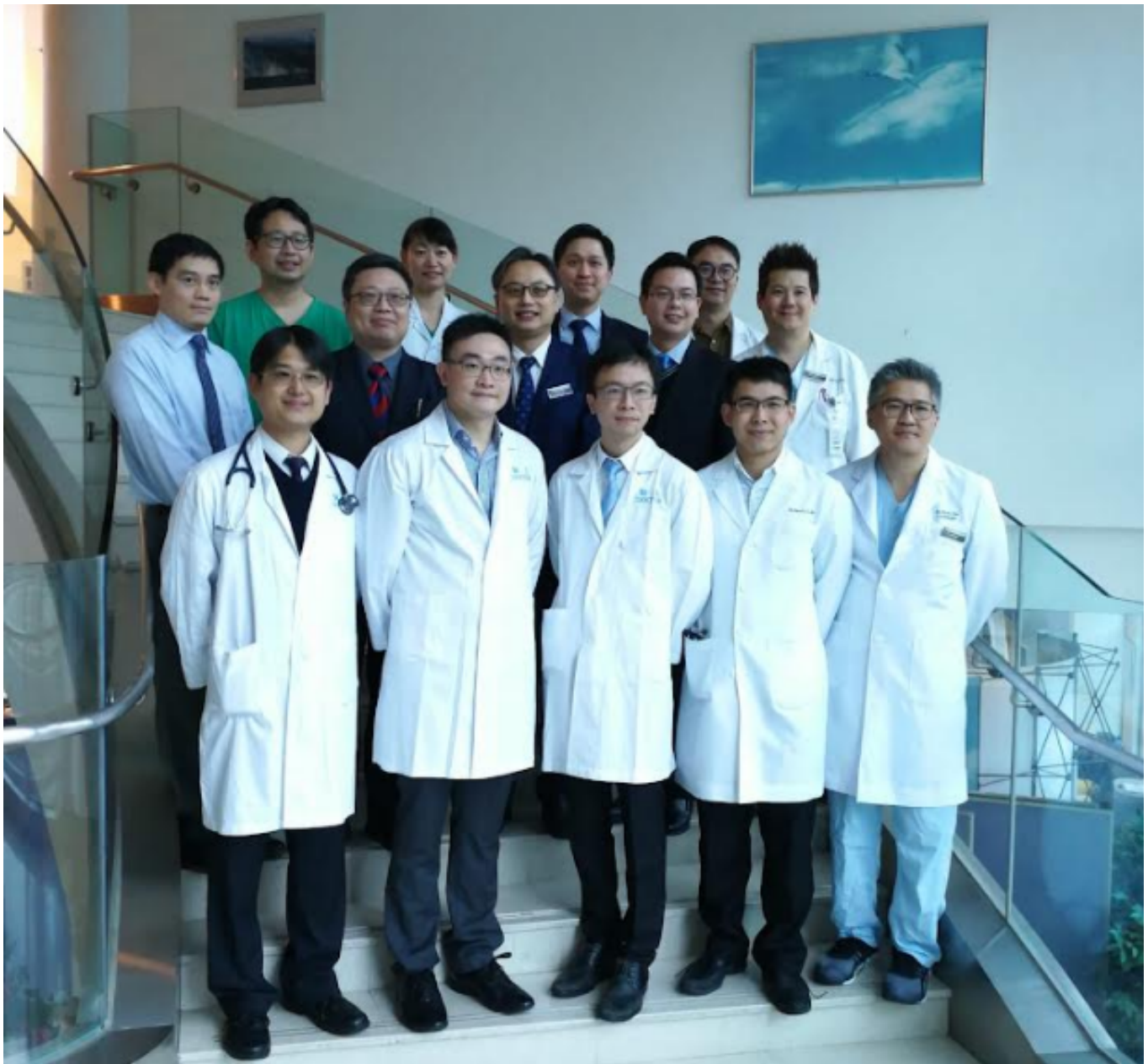


Figure 3. EP Team at Prince of Wales Hospital, Hong Kong

How do you succeed in EP without role models? You become one!

A/Prof Sandeep Prabhu MBBS(Hons), LLB(Hons), FRACP, PhD¹⁻³

1. The Alfred Hospital, Melbourne, Australia
2. The Baker Heart and Diabetes Institute, Melbourne, Australia
3. University of Melbourne, Melbourne, Australia

Introduction

Electrophysiology (EP), like many procedurally-based cardiac sub-specialties, continues to be an unequivocally male-dominated field. In the US, women account for only 12% of EP trainees and only 9% of accredited electrophysiologists. Recent data suggests that in the EP field this trend has remained stagnant over the last decade. Howell et al¹ recently characterized trends in the proportion of female EP operators in the US from 2013 to 2019. In 2013 only 4.6% of EP procedures in the US were performed by female operators rising only to 5.7% in 2019. The proportion of female EP operators remained stagnant across all procedure types including SVT or Atrial Flutter Ablation (5.0%), Device Implantation (5.9%) and AF Ablation (5.0%) – the latter being so despite a near 2.5 fold increase in the volume of AF ablations over the study period. Concerningly, in 2019 one fifth of US states had no female operators performing more than ten EP procedures per year. Abdulsalam et al explored the factors influencing the choice of sub-speciality by cardiology trainees and identified a lack of female role models as a crucial factor deterring females from pursuing a career in EP.²

The statistics paint a sorry picture of the current state of gender equity across the EP field in general. In particular, the lack of visible role models results in a self-fulfilling cycle.³ Low number of visible role models translates less opportunity for potential emerging female EPs to be inspired, mentored and influenced to achieve success – and consequently fewer potential role models to inspire again. In this setting, this article seeks to highlight two successful EP physicians, one currently in training, and one as an established consultant. Drs Louise Segan and Ashley Nisbett kindly agreed to share their influences, and experiences in embarking and succeeding in their respective electrophysiology careers, in particular sharing their experience as a female navigating the male-dominated world of EP.

Profiling Two Successful Emerging and Established Female Electrophysiologists

Meet Dr Ashley Nisbet and Dr Louise Segan

Dr Louise Segan is a cardiologist residing in Melbourne, currently completing sub-speciality training in electrophysiology and pacing at the Alfred and Royal Melbourne Hospitals through an academic PhD program in parallel with a clinical fellowship. She currently coordinates several research projects in addition to training in complex EP interventions and cardiac device implantation. Dr Segan is married with a 6-month-old child.

Dr Ashley Nisbet is an established consultant cardiologist and electrophysiologist currently working at the Bristol Heart Institute in the UK. After completing her PhD, she undertook an international fellowship at the Royal Melbourne Hospital in 2013-2014, and is the current Training Program Director at the Bristol Heart Institute. She has a particular interest in EP in the setting of congenital heart disease, and runs a busy public and private practice in the UK. Dr Nisbet is also married with two school aged children.



Dr Louise Segan is a Clinical and Research Electrophysiology and Pacing Fellow and is currently completing a PhD in Melbourne, Australia. She was recently runner up at the 2022 APHRS Young Investigator Awards.



Dr Ashley Nisbet is a Consultant Electrophysiologist and Cardiologist at the Bristol Heart Institute and is Training Program Director.

Did gender impact my career choice?

Both Dr Segan and Dr Nisbet both stress that their passion for the clinic work of electrophysiology was the primary driving factor in the decision to embark on a career in EP, much as it would be the case for any prospective trainee. *"I was very keen to have a career that combined both the academic and the clinical which EP could offer."* Dr Louise Segan states. Despite recent studies² suggesting that perceived "old boys club" and the potential for discrimination or harassment were significant factors influencing the decision to pursue EP training, both Dr Segan and Dr Nisbet stressed that gender imbalance was not really a significant feature in their decision making process. *"Being female didn't really matter"* Dr Ashley Nisbet notes. Her decision was made taking into account how much enjoyment she experienced from the clinical and academic work itself, more so than other factors. She also notes that this is the same advice she gives to prospective trainees. Dr Segan also notes that most of the challenges associated with EP, in particular the requirement to essentially "learn a new language" and skill set, at a relatively late stage in one's career, in addition to; long hours, physically demanding procedures and multiple academic commitments, were by no means specific to gender.

Navigating the gender bias

Both Dr Segan and Dr Nisbet clearly noted a distinct lack of visible or readily accessible female role models in senior EP positions which, to a degree, made navigating the training and practice of EP somewhat challenging - particularly when navigating challenges such as pregnancy and child care where such role models may have been useful. Dr Segan notes that *"it was challenging"* to find female role models particularly in the interventional space, but noted that her research and clinical supervisors were "very supportive" in providing her with adequate support during her pregnancy and the early postpartum period. She did concede that broaching such issues in a male dominated environment felt "somewhat taboo", however after doing so, found the support offered was overwhelmingly "positive".

Nonetheless, despite this, it became critical to “maximize efficiency” during pregnancy when it came to her research work to ensure that her projects continued to progress, something which she found challenging but also rewarding. Dr Segan coordinates a series of research projects through her PhD, including several already achieving high impact publications. She was recently awarded Runner Up at the 2022 APHRS Young Investigator Awards in Singapore. Nonetheless, Dr Segan concedes there remain challenges on the horizon, particularly seeing if she might be able to complete an international fellowship after her PhD, whilst balancing child care and her partner’s work commitments.

Similarly, Dr Nisbet stressed the importance of having a supportive partner who understood the commitments of the job, including having detailed plans and preparation about how parental responsibilities would be managed. She recalled even paying specific attention to radiation dosage and exposure when planning pregnancy to ensure that she minimizes disruption to her training. Attention to organization in concert with a supportive family has allowed Dr Nisbet to accomplish many achievements in her career, including the opportunity to embark on an international training fellowship prior to commencing as a consultant, and become Training Program Director at her hospital in Bristol – all whilst balancing the demands of her family life. Ashley feels her career experiences to date have been “overwhelmingly positive” and does not feel any significant gender based hindrances to her career, although she does note that her experience may not be universal.

The ‘imposter’ syndrome

Both Dr Segan and Dr Nisbet were interviewed separately; however, interestingly both physicians described feelings of “imposter syndrome” early in their EP careers. Imposter syndrome is the “phenomenon of *feeling* inadequate or fraudulent despite having the qualifications, accolades and attributes to succeed”.⁴ Imposter syndrome is recognised as a phenomenon of “high stakes” careers which leave little room for error, and is reported in both females and males. Minimal data exists regarding the prevalence of imposter syndrome, particularly as to whether it may have any inherent gender bias.⁵ Despite these feelings being transient and by no means a defining feature of their experiences, both Ashley and Louise remarked that the lack of visible female role models in the field of EP undoubtedly contributed to this.

Experience at scientific meetings

The lack of female representation at scientific meetings, continues to be a feature of medicine across the board. Although Dr Segan feels that as a female EP fellow she has had equivalent opportunities to participate at international gatherings to her male counterparts, she is mindful of the sparse appearance of females in central roles at those meetings, most notably in popular feature sessions such as late breaking clinical trial sessions are where major trials results are mostly presented by males. Her experience is supported by recent data by Burgos et al who analyzed the gender distribution amongst 3,786 participants across 752 cardiology scientific sessions in 2019 and 2020 across North, Central and South America. Women accounted for only 25% of participants in North America, falling to as low as 10% in South America. Furthermore in 2020, over 40% of panels were composed entirely of men.⁶

Dr Nisbet’s experience is similar, however she acknowledges that organizations such as the European Heart Rhythm Association and APHRS are taking steps to address this imbalance. Whilst noting that perhaps females may not “put themselves forward enough” to participate in scientific meetings, again the lack of visible role models may also contribute to this – creating a self-fulfilling cycle. She notes that there may also be a concern that participating females may be seen as “token”, rather than genuinely deserving participants despite having equivalent or even superior credentials to their male colleagues. Nonetheless, Dr Nisbet is adamant that this myth needs to be dispelled. “It is really crucial that female EP trainees can see their female counterparts in visible leadership roles at scientific meetings” and it is important female EPs continue to put themselves forward to participate both at conferences and importantly also during the organizational process.

Conclusion

While data can provide a 'broad strokes' picture of the current state of gender inequity in the EP field, it can't provide a real world, experience-based account of what it is like to achieve success in the EP field as a female electrophysiologist. Although these individual accounts provide an important insight into the challenges of succeeding as a female in the male dominated field of electrophysiology, they are also revealing in highlighting that those challenges can be met and overcome with appropriate and practical support for gender specific issues. Nonetheless, stories like Dr Segan and Dr Nisbet's need to become the rule, rather than the exception. Electrophysiology is widely regarded as a rapidly modernizing specialty, operating on the cutting edge of technological advancements – aggressively refining and modernizing the treatments we can offer to patients. The field needs to adopt this same intensity to addressing the gender imbalance currently present in the field – only then can the EP field be considered truly modern.

Acknowledgements

The author would like to thank Dr Ashley Nisbet and Dr Louise Segan for agreeing to be interviewed and sharing their experiences. Both doctors consented to being identified and approved the article before publication.

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Clinical Viewpoint: Use of Suture Mediated Vascular Closure Device for Better Patient Care and Procedural Conservation in Ablation Cases

Prof. Kyoko Soejima

Department of Cardiovascular Medicine, Kyorin University, Tokyo

Suture-mediated Vascular Closure Devices have been widely used across several therapy areas involving vascular closure. It is considered as a credible and time-tested alternative in vascular closure involving either small or large bore vascular accesses because of its numerous merits, such as reducing vascular complications, shortening the time to hemostasis, time to ambulation (TTA), and shortening the length of stay / early discharge. In this article, I will discuss my viewpoints and considerations for adopting suture-mediated closure devices and their real-world effectiveness in conserving procedural outcomes in atrial fibrillation ablation.

Atrial Fibrillation is the most frequent cardiac arrhythmia, and its absolute burden may increase by > 60% in the next three decades (Lippi et al., 2020). At Kyorin University, most of the cases we deal with are atrial fibrillation ablation, radiofrequency ablation, and cryoablation. In the past, we used the Figure-of-eight Suture (FO8) for closure in atrial fibrillation ablation, and it worked fine overall. However, one major drawback was that the patient had to lie still for long hours (6 hours) and had tremendous back pain. In certain cases, patients even refused to go through the repeat procedure, which is typically 15 to 20% of cases, as the postoperative back pain was 'Excruciating' for them. However, since we started using suture-mediated vascular closure devices routinely in our lab, we appreciated the real difference—F8 works by applying pressure to the deep tissue without actually closing the vessel, hence re-bleeding risks following the procedure are higher. In the case of the suture mediated device, the vessel is truly closed and hence closure is more secure and hemostasis more effective, thereby minimizing associated complications.

Particularly concerning patient Quality of life (QoL) and satisfaction, the suture mediated vascular closure devices have played a transformational role. With faster ambulation, reduced occurrences of back pain and use of Foley catheters, and low complication rate including hemorrhage, the overall post-procedural experience for the patient has been exceptional. This is also reflected in the patient satisfaction inputs in the post-operative surveys in our hospital.

This turning point in our closure protocol was introduced with Dr. Andrea Natale's paper published on this topic. In his research study, Dr. Natale and his team discussed the benefits of suture-mediated closure (Del Prete et al., 2020). The device promoted early ambulation and improved patient comfort, thereby reducing the length of hospital stay and hence further speeding up the patient discharge process. These benefits and advantages made us switch from FO8 to suture-mediated closure. The mechanism is very simple, and it reduces the length of time a patient would typically need to recuperate, thereby boosting trust in the entire process from access to closure. The use of this closure protocol has helped us to increase our Electrophysiology (EP) laboratory efficiency, minimize avoidable costs, and enhance the patient experience.

In terms of improving laboratory efficiency, this closure protocol has helped us to achieve immediate and rapid hemostasis and ambulation. More closure-related interventions / complications mean more staff time. With the use of the device, nursing time has decreased significantly as patients no longer need constant assistance. With the previous procedure, the pressure dressing of the groin puncture needed to be removed while constantly monitoring the patient in the recovery room for pain and bleeding; however, with the present procedure, there is no such requirement, and the patient can be discharged at the earliest. In addition, the requirement of the Foley catheter and complications related to it can also be eliminated. The need to use protamine sulfate is also reduced in this method. Therefore, this closure protocol parallels the surgical gold standard and gives in-lab confidence.

Other benefits of this method include rapid hemostasis and less scarring. In terms of cost-effectiveness, even though regulations in some countries do not allow for same-day discharge, its use will help save costs such as the

need for Foley catheters, costs associated with in-patient stay, and complications management. With a suture mediated closure choice, vascular complications such as ecchymosis risk, pseudoaneurysm, arteriovenous fistula, and hematoma requiring blood transfusion are also reduced (Verma S, 2020). In addition, if the physician's and nursing staff's time is accounted for, then the turnover time is reduced, thereby further improving hospital efficiency and the overall healthcare system. In terms of improving patient experience, time to hemostasis (TTH) and TTA is reduced to approximately 6 minutes and 2 hours, respectively.

Suture mediated closure device does provide a superior closure outcome compared to manual compression and F8 suturing in terms of safety and efficacy and allows an excellent vascular access closure. For a first-time user of this device, patient selection is advised during the learning phase of suture mediated devices. Initially, extremely obese patients should be avoided. Ultrasound should be used to ensure the closure device for better visualization of access and closure. The device is overall intuitive, and the mechanism of deployment is extremely simple to learn with 5-6 cases. In addition, it is always better to start with small procedures before moving to large billion-bore procedures like cryoablation, and leadless pacemakers.

To summarize, suture-mediated devices have helped us to reduce complications and achieve patient approval and convenience. It has assisted us in having a clean wound post-procedure with significantly reduced time for hemostasis, while making the patients feel more comfortable and content post-procedure, thereby freeing up time for physicians and nurses through the entire process. I believe that in the near future, the use of suture mediated closure devices might become a part of a standardized protocol for achieving the better procedural outcome and patient care.

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aphrs-cardiorhythm2023hk.com

ABLATE EFFICIENTLY WITH PREDICTABILITY AND CONFIDENCE

TACTIFLEX™ ABLATION CATHETER, SENSOR ENABLED™

THE FIRST AND ONLY****
CONTACT FORCE
CATHETER WITH A
FLEXIBLE TIP

PERFORM HIGH-POWER ABLATION*
WITH SAFETY AND STABILITY***,**
CONFIDENCE AND EFFICIENCY

**DESIGNED FOR OPTIMAL
SAFETY** AND STABILITY*****

through a flexible laser-cut
tip design

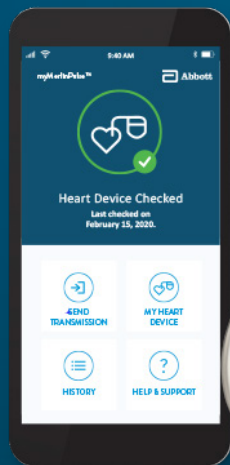
**CONFIDENT LESION
CREATION**

with proven contact-force
technology

PROCEDURAL EFFICIENCY†

from intuitive handling and
usability with full EnSite™ X
EP System integration

BUILT TO DELIVER PATIENTCENTRIC OUTCOMES



ICD and CRT-D Solutions
designed to provide
personalized therapy to
meet unique patient needs.



**LONGER PATIENT SURVIVAL WITH
SYNCAV™ CRT TECHNOLOGY**

100% of patients have a narrower QRS duration²

**ENHANCED DETECTION AND TREATMENT
WITH VF THERAPY ASSURANCE**

>800 PATIENTS annually with challenging arrhythmias could have
their lives saved because of VF Therapy Assurance³

**SAFER MANAGEMENT OF CARE WITH
DEFT RESPONSE™ TECHNOLOGY**

100% success in preserving a 10J safety margin with DeFT
Response™ Technology⁴

* Up to 50W

** PMA Report CL1017540

*** Ambrosius Nick, Fish Jeffrey, & Tranter John. Flexible, Kerfed Ablation Catheter Tip Provides Superior Stability in a Bench Model APHS 2018: Abstract Book; 2018, October 17-18; Taipei, Taiwan. Abstract nr 1170.

**** Information accurate as of June 2022.

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