



The Society for Vascular Technology of Great Britain and Ireland

ISSUE

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Welcome to the Winter edition of the SVT Newsletter

President's Welcome

I would like to begin by saying how honoured I feel representing the SVT as your new President. For those of you who may not know me, I have been involved with the SVT executive committee since 2009, firstly as shadow treasurer, taking over as treasurer in 2010, and then as Vice President in 2014. As Vice President I have represented SVT on committees for CASE and the Academy for Healthcare Science.

Thank you to Vicky Davis, now our Past President, for all her hard work and support over the last few years, both in her role as Conference Secretary and her Presidential role, she now takes on the role of past president.

I would like to thank everyone who attended the AGM in Glasgow, making it a huge success, and everyone involved with, and who attended the renal / dialysis access workshop. This was the first time SVT has held a workshop at the annual meeting, and it is something we hope to continue, so if anyone has any ideas on subjects

they would like included in a workshop please get in touch and let us know.

Welcome to the new members on the executive committee, Sara Causley who has returned to the role of membership secretary, Siobhan Meagher in the role of education chair, Dominic Foy who will take on the role of conference secretary, with support from Emma Waldegrave, and Georgie Fenwick who has taken over my role as treasurer.

I am sure I speak on behalf of all the membership in saying a huge thank you and goodbye to Teresa Robinson who has now left the executive committee, she thinks for a quiet life, but I'm sure that won't last long. Teresa has worked so hard and given up so much time to ensure the success of the vascular science STP programme. Thank you also to Jess Matchan who has left the executive committee and has now gone travelling. I would also like to thank all those who have left and who are joining the various supporting committees.

This is an exciting time for SVT, we are building relationships with our

★ Prize-winning
article

President: Tanyah Ewen. **Vice President:** Tracey Gall. **Past President:** Vicky Davis. **Membership Secretary:** Sara Causley. **Conference Secretary:** Dominic Foy & Emma Waldegrave. **Treasurer:** Georgie Fenwick. **Newsletter Editor:** Helen Dixon. **Web Site Manager/Job Adverts:** Jacqui George. **SVT Website & email:** www.svtgbi.org.uk office@svtgbi.org.uk

colleagues in America, and hope to become more involved with them over the coming year. The STP programme has seen its first group completing the programme, well done to everyone who has completed it.

I would like to finish by saying that the executive committee are here to support all members, so if

anyone has any ideas for study days, workshops, items for the newsletter or topics for the AGM please contact us.

Tanyah Ewen
SVT President

Society of Vascular Technology Annual Scientific Meeting Thursday 26th November 2014

Kate Houghton, Trainee Clinical Vascular Scientist, Bristol Royal Infirmary

Trainee Research Proposals:

The conference was started with a session from three STP trainees each presenting a short proposal describing their MSc project. Only three trainees took the opportunity to present in this session and receive tips and questions from more experienced members of the audience. Reshat Reshat (University Hospital Bristol NHS FT) kicked things off with his proposal on the benefit of vein mapping prior to coronary artery bypass operation. Ming Yeung (Portsmouth NHS Trust) followed with the potential use of volume flow distribution in carotid arteries and the relationship this may have on carotid disease. Matthew Adams (Royal Free London NHS FT) finished with his study that will examine haemodynamic changes in the radial and ulnar arteries in patients with Raynaud's phenomenon secondary to systemic sclerosis. Reshat Reshat was awarded the prize for best student proposal as voted by the audience.

Professional issues:

The professional issues session started with a look at the current popular topic of equivalence. Matthew Bartlett (AVS, Royal Free London NHS FT) explained the importance in the near future of undertaking equivalence and becoming HCPC registered as a Clinical Scientist. He highlighted this is not equivalence to the knowledge of the STP programme however to the principles of good scientific practice and leadership and is in no way degrading the AVS qualification. Michelle Bonfield (AVS, University Hospital Bristol NHS FT) followed with a positive light on her personal experience of going through the equivalence process.

Gaining IQIPS (Improving Quality in Physiological Services) accreditation is a goal for vascular laboratories as well as other diagnostic specialities. Independent Vascular Services (IVS) has become the first



Ian Franklin presenting Reshat Reshat with his prize from the Circulation Foundation.



Trainee session: Ming Yeung, Matthew Adams and Reshat Reshat



vascular service to gain UKAS accreditation under the IQIPS programme. Richard Pole (AVS, IVS, University of South Manchester) told the audience about the importance of having a quality accreditation for the quality of care and safety of patients and spoke about the 18 months of hard work delivered by everyone at IVS in achieving accreditation in 5 of the 8 IVS vascular laboratories in the North West of England.

Dr. Michael Lilly and Dale Cyr were special guests who joined the conference from the U.S.A. Many SVT members had the opportunity to talk to them over the course of the conference. Dr. Michael Lilly gave a very interesting insight into how our profession is carried out in America under the American Registry for Diagnostic Medical Sonography (ARDMS) organisation. ARDMS is an organisation promoting patient quality through certification and continuing competency. It was interesting to learn scan interpretation isn't carried out by the Vascular Technologist; instead detailed images are given to a medical colleague with interpretation credentials.

The Jacqui Walton Lecture:

Consultant Vascular Surgeon Mr Paul Hayes (Addenbrooke's Hospital, Cambridge University Hospital NHS FT), began session two with the Jacqui Walton lecture. Secondary intervention of endovascular aortic repair is costly to the NHS. Endovascular Aortic Aneurysm Sealing (EVAS) with the Nellix device has been developed and could minimise secondary intervention. The Nellix device is comprised of two stents with an attached bag. Once the stents are attached in place the bag is inflated

with a polymer to seal the aneurysm. It takes about 3-5 minutes for the polymer to set and once its set there's no going back! An initial practice run with saline can be performed. If the bag isn't filled up appropriately there is the potential for endoleaks to occur.

Before the break for lunch the annual general meeting took place with an update from all of the committees whilst the trainees headed off for the trainee breakout session. Teresa Fail gave the trainees a quick review on this year's OSFAs which all vascular STP trainees passed first time whilst Tom Cranfield gave advice and preparation tips on what to expect from the SVT practical exams.

Guest lectures and scientific proffered papers:

Mr Sanjay Patel (Guy's and St Thomas' NHS FT) gave a talk about lower limb endovascular procedures highlighting problems of neo-intima hyperplasia and negative remodelling and the recent advances in technology to help minimise restenosis.

Fabrizio D'Abate (AVS, St Georges Healthcare NHS Trust) started the proffered papers session with his presentation about the diagnostic imaging of iliac artery endofibrosis; a rare condition which limits blood flow under mechanical stress. The group of patients who took part in this study were cyclists who had been complaining of a lack of power in the upper thighs. At rest ABPI and duplex results were normal, however, post high intensity exercise there was a drop in ABPI and abnormal waveforms observed on duplex. To detect endofibrotic lesions ABPI and duplex is more reliable

than angiogram imaging and should be performed post exercise.

After hearing about endovascular aortic aneurysm sealing (EVAS) earlier in the day, Mark young (AVS, St Georges Healthcare NHS Trust) gave an interesting presentation on the appearance of the Nellix device on duplex and how this differs to the appearance to stents used in EVAR.

NHS TCD sickle cell screening is offered for the prevention of stroke in children aged 2-16 years with sickle cell anaemia. Simon Greenwood (Kings College Hospital NHS FT) presented his STP MSc project, which involved the analysis of TCD data to review the incidence of abnormal blood flow in children with sickle cell. The data reviewed showed no patients over the age of 12 developed a cerebral circulation TAMMV (time-averaged mean of the maximum velocity) >170cm/s, suggesting a potential change in screening guidelines, which usually screen children until the age of 16 years.

Vanessa McDonald (AVS, Tallaght Hospital Dublin) gave a talk on the uses of transcutaneous oximetry as a measure of oxygen in tissue and the predictability of healing.

Sam Davis (Royal United Hospital, Bath) presented his MSc project on the significance of the ABCD2 score and the degree of carotid stenosis seen on ultrasound. Results showed only age and diabetes had a significant relationship with the degree of carotid stenosis. Blood pressure had a relationship with the presence of disease (but not significant disease). Type and duration of symptoms

showed no correlation with carotid disease. Sam concluded that results suggest the ABCD2 score as inappropriate for triaging patients for fast track carotid duplex scans.



Ian Franklin presenting Fabrizio D'Abate with his prize for best proffered paper.

The proffered scientific paper prize was awarded to Fabrizio D'Abate for his presentation on iliac artery endofibrosis. Simon Greenwood and Samuel Davies were both awarded book vouchers for the presentation of their trainee MSc projects.

Simon Daniel is a renal access specialist nurse (North Bristol NHS Trust) who spoke about how he has expanded his nursing role to involve duplex scanning for haemodialysis access. Since completing his postgraduate certificate in medical ultrasound, patient waiting times for surveillance scans have reduced and vascular scientists are able to focus their time on non-renal access scans.



Samuel Davis, Mark Young, Simon Greenwood, Fabrizio D'Abate and Simon Daniel

Christopher Kellet (Extended scope physiotherapist, Spire Healthcare) returned to give us a fascinating update of a physiotherapist's view of the role of exercise in the management of claudication pain.

Finally, Tim Hartshorne (AVS, University Hospital of Leicester NHS Trust) gave an update of the AAA Screening Programme. This was the first year of full national coverage. Potential options for the future could involve the possibility of looking into rescanning men with aortas measuring between 2.5-2.9cm diameter on their original scan when they reach 70 years of age, scanning female smokers and increasing surveillance intervals for patients with 3.0 - 4.4cm diameter aneurysms from yearly to 2 yearly scans and those with aortas measuring 4.5-5.0cm from 3 monthly to 6 monthly scans.



Graduation Success

Crispian Oates, Freeman Hospital, Newcastle Upon Tyne

A bright but chilly day in early December saw the first STP Vascular Scientists graduate with their MSc in Healthcare Science at Newcastle University. From the left they are Michael Davis, Rebecca Ridgley, Caroline Dainty, Sophie Coles, Naavalah Ngwa-Ndifor, Katy Bloom, Hannah Lines and Simon Greenwood. Joanne Widdup also graduated but was unable to attend the ceremony. They all managed to navigate the

lectures, teaching, assignments and exams to do extremely well. Between them they achieved 6 distinctions and 3 merits. They also all passed the dreaded OSFAs set by the National School of Healthcare Science and completed their OLAT training to gain the certificate of completion for the STP programme enabling them to gain HCPC Registration. They have now all found jobs! Congratulations.



A Trainee Abroad!

Naavalah Ngwa-Ndifor, Clinical Vascular Scientist, Barts Health NHS Trust

PRIZE
ARTICLE

As part of the Scientist Training Programme (STP) trainees are required to do a 4-6 week elective which can be taken at any point during the 3 year training programme.

I personally chose to do my elective at the end of my 3rd year following my final exams. Not only did I feel that I would be able to focus on the elective with no distraction but that at the end of 3 years I would have amassed a greater amount of knowledge from my rotational elements and within vascular, meaning that I could get the most out of my elective and also be able to offer my knowledge to my host centre. The Society of Vascular Ultrasound (SVU) Annual Conference is the US equivalent of the UK's Society of Vascular Technology (SVT)

Conference held over 4 days in August with over 500 delegates in attendance. I had always wanted to go to the SVU conference, so when the time came to decide on an elective I thought that this would be a great place to start out.

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Planning

The SVU stipulated a registration fee of \$695 for non-members and a student rate of \$95 for non-members. The only catch was that to qualify as a student you must be studying a 3 year degree programme as the route for Vascular Sonographers (as they are known in the USA) is a 3 year bachelor's degree rather than postgraduate entry as we have in the UK.

Needless to say the prospect of paying \$695 was slightly daunting and seemed a little unfair! I wrote to Tish Poe the President of the SVU Board of Directors outlining the ways in which vascular scientists are trained in the UK. I provided her with an in depth look at the new Scientist Training Programme and explaining why I felt I should be eligible for a student rate.

After a rather nervous wait I finally received a response from Judy Fried the Annual Conference Chair saying that I could attend at a student rate. *Furthermore, in future, any other trainees from the UK studying a relevant MSc would also be eligible for the student rate.*

Once this was settled I then forged ahead with confirming a placement.

As the SVU is only 4 days I still had another 3-5 weeks to fill with the remainder of my elective. I had initially dabbled with the idea of doing my elective in Africa but having already gained some experience of the healthcare system on the African continent I ruled this out. I spoke to other heads of vascular departments and vascular surgeons with links in Europe such as Italy and France who provided me with some local options. Having had numerous debates with friends and family on the American healthcare systems I was intrigued by the thought of an elective in the USA. With my decision to attend the SVU conference I thought I would make the most of my time there and continue on with an elective experience there.

Now, North America is a huge continent and I needed to narrow down where I would do my placement. Having a lot of family scattered around the US, I started by contacting them to see if any would be willing to accommodate me for 4 weeks! While a big ask, having someone you can stay with for free or even at reduced rates significantly helps with elective costs. So I had my pick of states including New York, California, Georgia, Hawaii, Delaware. I decided on Georgia.

I wrote personalised letters and emails to over 60 different vascular labs and surgeons within Georgia. From most I received absolutely no response. From some I received a mix of responses all essentially saying no for one reason or another. The remaining few displayed the Southern hospitality that Georgia is famous for and gave me a range of options of a placement within Georgia. I chose to go to Athens Regional Medical Centre, a 360-bed level II trauma hospital which I arranged through my contact there, vascular sonographer Danny Watts. I then went ahead completing their necessary immunisation requirements.



The Elective Experience

The SVU conference in 2014 was held at Disney World, Florida, at the beginning of August from the Wednesday to the Saturday inclusive. I arrived in Florida to the rain early on the Wednesday and got straight to it. For those people who thought I was going to Disney World to have fun let me say each day of the conference was absolutely jam packed with lectures and workshops and ran from as early as 7am to 6pm some days leaving very little time for play! There was one evening I took a ride to one of the theme



parks and spent a few hours there and I was lucky enough to win an Apple TV in one of the prize draws, other than that, I was being barraged with information.



Winning an Apple TV at the SVU Conference

Following the conference I then went on to Atlanta, Georgia where my cousin and his wife had kindly agreed to accommodate me during my elective. Athens Regional Medical Center was located in Athens, a city about an hour and 30 minutes drive from Atlanta. I'm not the biggest fan of driving but in many states in America it is the only way to get around so "when in Rome..." I rented a car for the 4 and a half weeks I was out there and purchased a US SIM card

which also allowed me to use my phone for GPS purposes. On my first day I drove out to the hospital for my induction where I had to sign some documents and complete an online induction covering the various health and safety components of the hospital. I finally met Danny who I had so far only spoken to via phone and email. He showed me around and introduced me to the rest of the Lab.

It was a somewhat nerve wracking experience but everyone was so welcoming and keen to show me how they worked that I felt at home almost immediately.

For the next few weeks I drove the 3 hour round trip which was exhausting (particularly when there was a 7am start in theatres) but it was all part of the American experience! I sat in on consultations, vascular ultrasound examinations and got to try out some their equipment.

During my time there I was able to engage with some of the other departments such as general ultrasound and echocardiography. I was also introduced to the vascular surgeons including Dr Topher Everett and Dr Jonathan Woody who kindly

invited me into their theatres to watch endovascular and open surgeries and debated with me the differences in the UK and US. Some similarities existed of course; much like in the UK obesity is a huge problem. In the US the highest rates of obesity are seen in the southern states, which is unsurprising given that the hospital canteen menu's definition of vegetables was corn bread, deep fried okra and deep fried tomatoes. The surgeons I spoke to felt like obesity was the greatest obstacle they faced in their treatment of patients.

Reflections

From talking to delegates at the SVU conference I was able to see that there was such a huge variation in the way things were done not just by state but between hospitals with regards to grading criteria and a uniformity of their reporting. This was also the topic of one of the talks presented by one of the doctors.

Another issue, which I believed stemmed from the private nature of the US healthcare system, was over-prescription and over-testing; insurers must pay for every scan performed. The majority of the referrals received by the vascular lab came with little clinical background information or any clear indication for the testing. Unsurprisingly there were a lot of normal results. To their credit the vascular lab did a wonderful job, however I felt that they lacked the encouragement to question the necessity of tests which is in stark contrast to the protocols and culture within my lab at Barts Health.

This links in with the belief that a free healthcare system would reduce the quality of care. If all tests had to be justified for cost purposes then perhaps patients would not receive a

level of care above and beyond that which was absolutely necessary.

The vascular sonographers also seemed to have very little input over the protocols used, for example all carotid measurements had to be taken at an angle 60° which was determined by the vascular surgeons rather than the sonographers. Not only that but the vascular sonographers had to take numerous images and cine-loops which were then reviewed and interpreted by the vascular doctors. This concept was rather foreign to me as, assuming competence, I couldn't understand the need for someone else to interpret and report someone else's images. Perhaps that is the difference between a vascular sonographer and a vascular scientist, a term which they are largely unfamiliar with in the US.



Experiencing Segmental Pressure and Pulse Volume Recording in the Vascular Lab

I learned a lot from talking to not only vascular sonographers and surgeons but also the patients. Coming from the UK a lot of people were interested to hear about the National Health Service (NHS) and were keen to discuss the differences between the US and UK healthcare systems. The Healthcare Reform 2014 (colloquially known as Obama Care) had just recently been rolled out. This was a new initiative making it compulsory for all Americans to have insurance and if not they faced a fine of \$95 in 2014, \$325 in 2015, \$695 in 2016 and so on, rising as the years progress. I got the impression that a lot of patients would rather pay the fine than pay for the insurance. With the average insurance premium costing around \$330 a month it's not hard to see why. All that

said, some of the benefits of an insurance-based healthcare system can be seen i.e. each patient having their own private room thus reducing infection rates.

In truth, American healthcare is not just about private insurance (public insurance is also available) and is a multifaceted system, which I cannot claim to be fully versed with. I can neither condemn nor laud the American system but my time in the US did make me very grateful for the UK's NHS.

So what did I gain?

I came away from this experience having had my eyes opened in a country not that dissimilar to the UK but having a drastically different healthcare system. The SVU Conference provided me with a great platform of vascular knowledge and insight to the American Healthcare system. I was able to apply and build on this everyday during my placement where I gained knowledge and was able to share mine, even being asked to consult on some interesting cases.

On my weekends I did some travelling, which included trips to New Orleans and Savannah. I was able to develop international relations and forge friendships with members of the vascular specialty with whom I still keep in contact. The elective is a great component of the Scientist Training Programme which encourages further learning in an unfamiliar environment. With the right planning an elective can be a very positive excursion.

Top Tips for your Elective

1. Start thinking about your elective sooner than later.
2. Don't be put off by rejections; persevere.
3. Have a back up plan!
4. Budget: consider travel, accommodation, daily transport, food, immunisations and visas. *STP trainees may be able to use some of their training allowance to go towards the cost of travel and accommodation.*
5. Read up about your host centre, including the population and demographics of the area.
6. Be aware of language/dialect barriers.
7. Set out clear learning objectives for your elective.
8. Keep a diary/log of everything you see and do on your elective.

Thanks to the Society of Vascular Ultrasound and the Vascular Sonographers and Vascular Surgeons at Athens Regional Medical Center for making my Elective such an enjoyable and worthwhile experience.

Is DVT the new epidemic?

Helena Edlin¹, Sarah Cleal¹, Toni Tinken¹, Vince J. Smyth², Jecko Thachil³

Affiliations: Departments of ¹Vascular Laboratory, ²Vascular Surgery, and ³Haematology, Manchester Royal Infirmary, Oxford Road, Manchester, United Kingdom.

Introduction

Venous thromboembolism is increasingly recognised by physicians as a major cause of morbidity and mortality in and out of the hospital. As such, early recognition is considered very important for timely administration of anticoagulant treatment and prevention of complications. In the case of suspected thrombosis of the lower limbs, Doppler ultrasound scans have now become the standard investigation of choice for lower limb thrombosis due to its ease and lack of invasiveness. However, easy availability of these scans has instigated a requesting habit without adequate consideration to clinical probability scores and experience. We undertook an analysis of all ultrasound Doppler scans done over a set period of time over two separate years to understand whether there really has been a DVT epidemic recently.

Methods

All Doppler ultrasound scans done over a six-month period on the hospital wards in the years 2011 and 2013 are included in this analysis. The period chosen was based on the time before and after recommendations from the National Institute of Clinical Excellence (NICE) in England about the higher incidence of thrombosis in hospitals [1]. A positive scan is confirmed in a person who has had thrombus identified in one of the leg veins (femoral, popliteal, gastrocnemius, posterior tibial or peroneal veins), this could be occlusive or non-occlusive. Negative scan is defined as flow demonstrated in all the similar veins wall to

wall throughout the vessels on augmentation, as well as complete occlusion on compression. An inconclusive scan is when parts of the veins were not clearly imaged; usually calf veins. The request cards were checked in all these cases to identify the site of initiation of the test.

Results

1. *There is an increase in number of scans in total and that of negative but not positive scans*

Table 1 shows the increase in the number of scans performed to rule out a DVT over the years in the emergency department and on the hospital wards. Focusing particularly on the time-periods in 2011 and 2013, the total number of scans has increased (238 in 2011 to 341 in 2013). However, the number of scans which were positive for the presence of DVT has actually decreased; 36% (n=85) in 2011 to 24% (n=82) in 2013; while the number of negative scans has significantly increased; 38% in 2011 (n=90) to 49% in 2013 (n=167) (P = 0.01, < 0.05). There was no change in the number of inconclusive scans between 2011 and 2013.

2. *Results based on specialities (Table 1)*

Out of all the scans in 2013, the majority of all referrals were received from acute medicine wards as would be expected. Next frequent requests were from the surgical and gynaecology/obstetrics wards. Among these, the number of negative scans has increased significantly since 2011, with acute medicine and gynaecology departments

having the highest percentage of negative scans; whilst acute medical wards had the highest percentage of positive scans, 20% of which were acute.

3. Usefulness of Wells score

Clinical prediction scores have been considered a good indicator of excluding deep vein thrombosis. On this basis, a Wells score recorded before the request from Accident and emergency department was identified. Among the 247 patients, only 182 (74%) were given a Wells score on referral. 38 (21%) of these patients had had a previous DVT/PE and were therefore excluded from the analysis. The number of patients given a 'high risk' Wells score (score of 3 or above) was therefore 109. Only 21% of these 109 had a positive scan while a very high 72% had negative scan and 7% had inconclusive scan. The results show that a high Wells score is not a good indicator for a positive DVT in this Trust. Wells et al (1997) concluded in their study that 75% of high risk patients (i.e. risk score ≥ 3) tested positive for DVT, excluding those with previous VTE [2].

Discussion

In this survey, we identified that there is a significant increase in the number of ultrasound Doppler scans requested by hospital physicians. This probably relates to two important developments - the directive from the Department of Health about the high incidence of hospital-acquired thrombosis and also the phenomenon of 'thromboneurosis' - the worry about missing a clot among the physicians and the public alike

[1,3]. The House of Commons Health Committee reported in 2005 that an estimated 25,000 people in the UK die from preventable hospital-acquired venous thromboembolism every year [4]. This led to the NICE clinical guideline implementation on the measures to “Reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital”. Since it is believed that the incidence of DVTs can be very high in the hospital wards, and Doppler ultrasound scans to rule out this diagnosis are quite simple with minimal radiation risks, it has become common practice to perform this test without adequate thoughts on resource implications. This is reflected in the present survey where despite the huge increase in the number of scans, there has not really been any increase in the number of *positive* scans compared to two years previously.

Another worrying trend

being noted is the inaccurate scoring of the established Wells’ scoring system. In the original study by Wells et al, of all 593 patients, 3%, 17%, and 75% of the patients with low, moderate, and high pre-test probability, respectively, had DVT [4]. In the present survey, we noticed that a high Wells’ score very seldom translated as positive scan. This could be due to various reasons including the lack of appropriate training, confusion with respect to what should be included in ‘alternative causes for DVT exist’ and false recording of the score so that the scans be done. This issue needs to be urgently addressed and measures put in place especially since it has tangible financial implications and also significant impact of human resources in the current NHS.

Conclusion

The increase in the number of referrals to the Vascular Lab department for scans to rule out DVT seems to be a result

of suspected over diagnosis, not because of a true DVT epidemic. Also, inaccurate Wells scoring may contribute to this false epidemic.

References

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Review of the SVT ‘Fundamentals of Vascular Ultrasound’ Study Days

January 2015, Cambridge. Nazrina Islam, Trainee Clinical Vascular Scientist, IVS Ltd

The SVT study days for all the trainee vascular scientists in the UK took place on the 15th and 16th of January in Cambridge. It was my first time visiting Cambridge; Cambridge is a beautiful city with lots of beautiful architecture and cyclists (I hadn’t seen this number of people on bikes not even in Holland!).

The first lecture given was ‘Basic Ultrasound and Physics’ by Matt Bartlett at 10am. This was very informative, but a bit intense first thing in the morning. Though I find physics quite daunting,

Matt thoroughly explained the way in which ultrasound works in relation to scanning in the vascular field. I had been working for Independent Vascular Services for five weeks prior to the study days so I had knowledge and experience using the ultrasound machines, however, I didn’t understand much of the theoretical physics behind what I was doing, so this proved to be very beneficial.

The second lecture was given by Davinder Virdee on ‘Peripheral Vein Scanning’ who told us about the basic

anatomy and physiology of the veins and how to successfully carry out ultrasound scans of the veins.

By far my most favourite lecture was given by Mr. Gohel, a consultant vascular surgeon, on venous disease and interventions. Mr. Gohel was very interactive and explained the various treatments available for e.g. varicose veins including ablation, laser treatment, surgical removal and foam sclerotherapy. He also told us about some new and up and coming treatments. Next Dominic Foy presented

Plethysmography, something which I did not know much about; we were told that we need to understand this for our SVT exams.

On the second day we were presented with the material required for arterial scanning. The first lecture was on ‘Arterial Disease and Interventions’ given by Mr. Coughlin, another consultant vascular surgeon. A lecture on ‘Haemodynamics’ was given by Matt – a lot of equations were given here, but Matt systematically explained everything thoroughly. The second lecture on ‘Peripheral Arterial Scanning’ by Mathew Slater explained how to successfully use ultrasound to identify upper and lower limb arterial disease. The physics question and answer session was next by Matt, we all found this was good. We understood the type of questions that will be asked in the exams and what is expected from

Bubbles

Matt Slater, Chair of the Professional Standards Committee

The controversy of managing calf vein thrombosis. Masuda E.M., Kistner R.L., Musikasinthorn C., F. Liquido, Geling B.S., He Q., Journal of Vascular Surgery, 2012;55:550-561.

Masuda E.M., Kistner R.L., Musikasinthorn C., F. Liquido, Geling B.S., He Q., *Journal of Vascular Surgery*, 2012;55:550-561.

Controversy persists as to whether all calf deep vein thrombosis (CDVT) should be treated with anticoagulation or observed with duplex surveillance. The significance of CDVT is clinically important because it can potentially propagate, result in pulmonary emboli (PE) and/or death and /or lead to post thrombotic syndrome. However, anticoagulation for all is challenged by potentially undesirable effects of major bleeding, including death, burden of treatment and increased utilisation of costly resources. This review article hoped to review current evidence supporting and not supporting anti-coagulation and identify the natural history of calf vein thrombi.

One thousand five hundred and thirteen citations were reviewed, after exclusion thirty one were included for analysis (including six randomised control trials, with the other twenty five being observational studies). Exclusion criteria included; absence of separate analysis of Popliteal and CDVT, CDVT not-distinguished from Popliteal DVT, “distal DVT” not being defined, whole leg imaging not undertaken and

us. ‘Carotid Artery Scanning and Transcranial Doppler’ lecture was given by Thomas Cranfield who was very enthusiastic. I haven’t been shown how Transcranial Doppler works so this was very interesting. I understood the scope of the role of vascular scientist further and this was exciting. We also had practical sessions at the end of both days, these were good as we got to use the various ultrasound machines (some more modern and advanced than others) and the scientists were on standby to guide us all. Overall, these study days increased my comprehension of vascular science, some of it was revision, but most of the material covered was new to me. The location and venue were good and we were spoilt at lunch on both days (the carrot cake was delicious).

lack of follow up to measure early outcome. A meta-analysis of the data was not possible because of a lack of sufficient well designed comparative trials.

The single randomised control trial comparing anticoagulation with no anticoagulation and duplex surveillance found no difference in PE, propagation or bleeding in a low risk population. This review paper suggests that the overall propagation rate of CDVT to the popliteal or femoral vein is approximately 15% (with unassigned treatment), however it may be as low as 2% in low risk groups with transient risk factors. However, two studies showed that CDVT propagation was around 8% in patients with no anticoagulation and duplex surveillance only. However, two studies with “moderately strong methodology” found that CDVT propagation was reduced with anticoagulation.

The authors explain that CDVT does differ from proximal DVT which could rationalise a difference in approaches. CDVT propagates less than proximal DVT, has a lower PE risk, is more likely asymptomatic and does not appear to lead to post-thrombotic syndrome as often. When treated with anticoagulation, CDVT propagation rates are lower as opposed to proximal DVT treated with anti-coagulation.

Malignancy, bilateral DVT and more than one calf vein with DVT may be associated with increased propagation and the authors suggest that those who chose a selective approach to CDVT, these groups should be considered as

higher risk of propagation and perhaps in greater need of anticoagulation. Others may choose to anticoagulate as a first line therapy for calf DVT, but should these patients be offered a shorter course of therapy? Two RCTs suggested that 6 weeks is adequate length of anticoagulation and found that extending treatment to 12 weeks did not prove advantageous.

The authors concluded that in the absence of strong evidence to support anticoagulation over imaging surveillance with selective anticoagulation, either method of managing CDVT must remain as an acceptable standard. No specific therapy other than support stockings and ignoring the calf is inappropriate given the established risk of clot propagation, clot recurrence and a small but not insignificant risk of PE. In considering anticoagulation or imaging surveillance with selective anticoagulation well designed and adequately powered studies are necessary to prove which alternative is better for any given clinical setting.

Iliofemoral stenting for venous occlusive disease.

Titus J.M., Moise M.A., Bena J., Lyden S.P., Clair D.G., *Journal of Vascular Surgery*, 2011;53:706-12.

Venous outflow obstruction can lead to venous hypertension and chronic venous insufficiency. The symptoms of chronic venous insufficiency including ulceration, chronic pain and/or swelling, are a significant cause of morbidity and decreased quality of life for patients. Their treatment represents a large amount of healthcare expenditure. Common causes of outflow obstruction include deep vein thrombosis (DVT) and extrinsic compression of the iliac vein.

Chronic outflow obstruction after DVT can cause multiple symptoms such as pain, swelling, skin changes and ulceration

collectively known as post thrombotic syndrome (PTS). PTS is thought to result from chronic outflow obstruction after occlusion of the venous lumen. Studies have shown that early thrombus removal and decreasing the incidence of further thrombotic events can reduce the likelihood of developing PTS.

Interventional treatment of outflow obstruction in the form of angioplasty and stenting has been shown to relieve symptoms and improve quality of life, and has been found to have comparable if not better patency rates than surgical bypass. The aim of this paper was to evaluate iliofemoral stenting and different review clinical and technical factors to identify risk factors for stent thrombosis.

Thirty six patients were treated with venous stenting for symptomatic iliofemoral occlusive disease. In total 40 limbs were stented as 4 patients (11%) had bilateral thrombosis. The occlusion was considered acute in 14 of the patients. Of the 36, 15 (42%) were considered to have May-Thurner syndrome, 9 patients had an unknown cause (25%), 7 patients had external compression (19%) and 5 patients had a known thrombophilia (14%).

Initial thrombolysis was carried out in 19 patients (53%) which took place for 12-72 hours, and 3 of the 19 patients had residual clot upon cessation of thrombolysis. Stent placement involved the LCIA in 24 patients, RCIA in 6 patients, and bilateral CIAs in 3 patients. The R EIA was stented in 4 patients, the LCIA in 19 patients, and bilateral EIAs in 2 patients. 7 patients also had femoral vein stenting. Postoperatively one stent had early thrombosis and required acute re-operation. There were no incidences of pulmonary embolus or bleeding complications. Primary patency rates (patency with no intervention) were 88% at 6 months and 78% at 12 and 24 months. Assisted primary patency rates (patency after treatment for re-stenosis/non occlusive thrombus buildup) were 93% at 6 months and 83% at 12 and 24 months. Secondary patency rates (patency after treatment for re-occlusion) were 100% at 6 months and 95% at 12 and 24 months.

On telephone call follow up, 29 patients were reached and of those 24 patients reported an overall improvement in their symptoms, 2 reported no

change and 3 patients that their symptoms had become progressively worse.

In general the results of this study appear promising with excellent patency rates and symptom improvement. When the patients were divided into categories depending on the cause of their occlusion, patients with idiopathic occlusion and May-Thurner syndrome showed a better outcome than those with external compression and thrombophilia, possibly indicating that there may be a more targeted population for venous stenting. Nevertheless, the small sample size and relatively limited follow up (many patients with DVT are young) should lead to caution in interpretation of the results.

Gender differences in health status and adverse outcomes among patients with peripheral arterial disease.

Dreyer R.P., Van Zitteren M., Beltrame J.F., Fitridge R., Denollet J., Vriens P.W., Spertus J.A., Smolderen K.G., *Journal of the American Heart Association*, 2015 epub.

The majority of data on gender based differences have been derived from Coronary artery disease where women have been shown to have poorer health status outcomes, worse in hospital/long term mortality and increased mortality following cardiac revascularisation procedures. In contrast, major knowledge gaps exist in terms of gender specific differences in patients with PAD. This longitudinal study was designed to assess gender differences in health status and long term adverse prognosis, including the role of depression.

A total of 816 patients (284 women) with newly diagnosed symptomatic PAD or with an exacerbation of existing PAD (abnormal ABPI <0.90 or ABPI decrease of 15% following exercise) were enrolled from 2 vascular outpatient clinics in the Netherlands. Exclusion criteria were: an ABPI >1.3, an Ischaemic leg, significant cognitive impairment, a life threatening condition and illiteracy. All patients within the study completed a set of questionnaires (including a physical component score, and mental component score) collected by mail as well as a 12 month follow up. Demographic, risk factor, medication and therapeutic information was obtained by reviewing patients medical records.

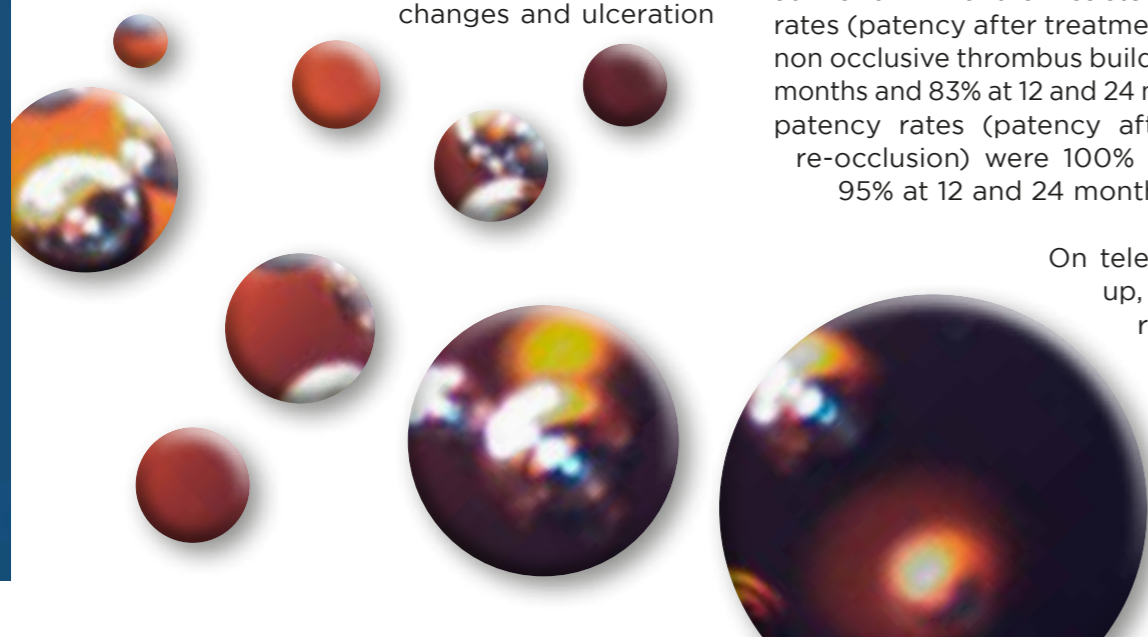
Compared with men, women had poorer socio-economic status and more depressive symptoms (demographic and clinical differences alone were not enough to explain the difference).

There was also significantly reduced physical and mental health status as compared with men at the time of presentation.

More objective measures such as the ABPI did not show any differences between men and women. The magnitude change of women's health scores after 12 months was not different to that of men, however, health scores for both men and women failed to reach the threshold for what is defined a clinically relevant difference. Interestingly, all mean health scores at all points across genders were far below the norm of what is noted in the general Dutch population. Survival/cardiovascular morbidity outcomes 3 years following initial PAD diagnosis did not differ between genders despite previous studies showing poorer prognostic outcomes in women with CAD compared to men.

The authors suggest that the mechanisms behind the poorer reported health status in women may be due to psycho-social factors as there was no difference in disease severity or demographics between the gender groups (it had been previously suggested that women may have greater disease severity, which may explain the difference). Women reported a lower educational attainment compared with men whom the authors suggest may lead to difficulties in dealing with the diagnosis and management of PAD, translating to lower health scores. In addition, women with PAD were less likely to have a partner which may reduce the "protective effect" that marriage is associated with. Moreover, a lack of social support has been associated with an increased propensity to engage in unhealthy behaviours. The authors suggest that these socio-economic factors should remain the focus of further research; certainly at this moment many of the points made above by the authors are theories rather than well supported ideas backed up by data.

The current study does investigate an interesting area which does not appear to have been covered before, however the lack of a disease specific questionnaire could be considered a big weakness. In addition there are possibly many confounding variables not taken into account which may explain some of the differences between men and women. The data also may only be specific to this Dutch population and more population groups need to be studied. More research is needed into the socio-economic factors affecting possible differences health status between male and female patients with PVD.



Registration for the Exam Revision Tutorial Days and Theory Exams opens on the 23rd of January and closes on the 1st of March.

The on-line registration form for both theory exams and revision days will be available on the SVT website.

Exam Revision Tutorial Days

The Revision days will be held on the 31st of March and 1st of April in Coventry.

Exam Revision Tutorial Days: 2 days of tutorial style revising in small groups covering each module of the SVT syllabus, with exam style questions and answers.

Cost Per day is £40

For enquiries about the exam revision days please contact:
davinder_virdee@hotmail.com



Theory Exams

The Theory Exams will be held on the 11th of May in Dublin and London.

Exam Pack will be available on the website in the near future.

Cost per exam is £100

For enquires about the exam revision days please contact:
theoryexam@svtgbi.org.uk



CPD Questions

Winter 2015

Questions

The questions are from: Single sweep three-dimensional carotid ultrasound: Reproducibility in plaque and artery volume measurements. *Atherosclerosis, Volume 232, Issue 2, February 2014, Pages 397-402. Hayrapet Kalashyan et al.*

1. What errors are associated with 2D methods of assessment of a stenosis?
2. What is the length of the acquisition time for the 3D dataset using the single sweep technology?
3. What is the maximum number of stacked consecutive transverse slices that can be used?
4. What prevented measurement of plaque and artery volume in 31 cases?

The questions are from: Imaging of plaque perfusion using contrast-enhanced ultrasound – Clinical significance. *Perspectives in Medicine, Volume 1, Issues 1-12, September 2012, Pages 44-50. Edoardo Vicenzini et al.*

5. What types of conventional radiological imaging have been used to assess plaque metabolic activity?
6. When was a plaque considered ulcerated?
7. When was vascularization of plaques not detected?
8. What is one limit to this technique of assessing plaque vascularization?

Two CPD points will be awarded for answering questions 1-8 correctly.

This journal article can be accessed from science direct.

Article references: *Atherosclerosis, Volume 232, Issue 2, February 2014, Pages 397-402.*
Perspectives in Medicine, Volume 1, Issues 1-12, September 2012, Pages 44-50

Please forward answers to:

Miss Siobhan Meagher,
Vascular Lab OPD3,
Royal Infirmary of Edinburgh,
51 Little France Crescent
EH16 4SA

Or: siobhan.meagher@luht.scot.nhs.uk. Emailed answers can be acknowledged at your request.

Closing Date: 3rd of April 2015

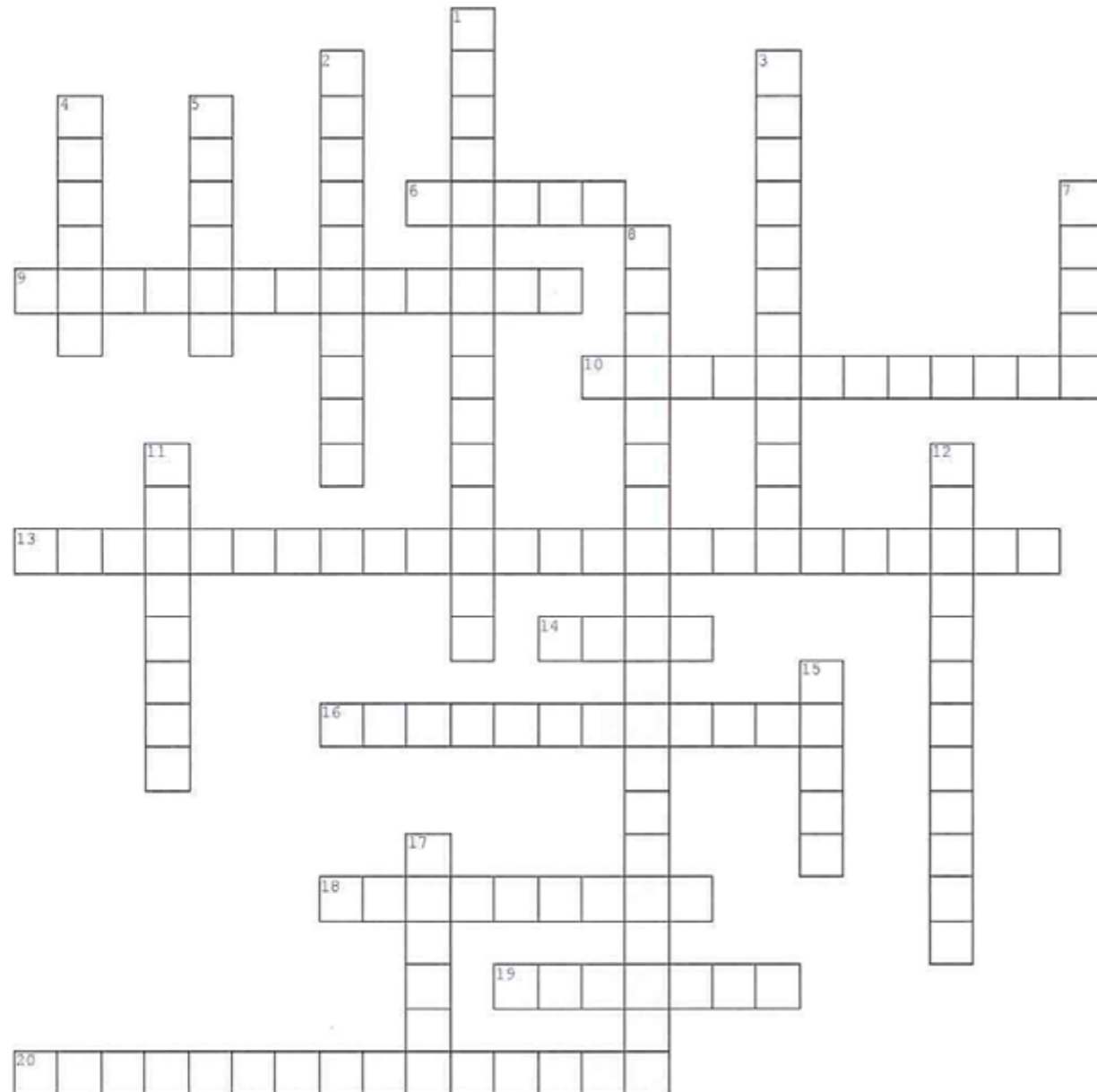
Answers to Questions for the Summer 2014 Newsletter

1. The internal diameter, defined as the distance between the near wall intima-lumen-interface to the far wall lumen-intima interface
2. Blood viscosity was measured in EDTA blood using a rotational viscometer at a high shear rate at 37 degrees
3. Decrease
4. Inversely related to age



Ultrasound machine controls

All the answers relate to controls and functions found on an ultrasound machine. We have used an iu22 but the functions should be standard for all machines.



Across

6. Select the depth at which the transducer beam converges
9. improving colour flow information over b-mode
10. Making this more narrow will improve scan line density and image resolution.
13. Otherwise known as 'scale'.
14. Enlarges pixels in a selected area.
16. More sensitive than colour flow to low flow states but doesn't display directional information.
18. Select the hue of the greyscale image
19. used to make a measurement
20. Is usually adjusted to 60 degrees.

Down

1. Multiple frequencies are generated by non-linear propagation. This filters out fundamental frequencies and passes secondary frequencies.
2. use this to selectively remove low frequency noise.
3. Gate size
4. turn upside down.
5. Press this to select pre-programmed setting for type of scan
7. Controls the penetration of the beam
8. May also be called 'sensitivity time correction'
11. Selected threshold dividing the Doppler spectral display into positive and negative.
12. Maximum range of signal values that can be processed without distortion.
15. produce a hard copy image
17. Water does this to turn to ice.

Winter 2015 Trainee Competition

The Safety of Ultrasound

1. Discuss ultrasound wave propagation in terms of pressure, frequency, wavelength and velocity.
2. What is attenuation of ultrasound?
3. The two mechanisms for the effect of ultrasound on tissue are heating and mechanical effects including cavitation and radiation pressure. Please describe these effects including recognised safe parameters.
4. What does 'ALARA' stand for?

Please send answers to Siobhan Meagher, Chair of the education committee on Siobhan.meagher@nhslothian.scot.nhs.uk. The winner will receive a £25 book token and have their answers printed in the Summer newsletter.



Education Committee Vacancies

BMUS/Venous Forum Representative

This role involves being the main contact for the SVT with the Venous Forum and BMUS and to create awareness of Venous Forum and BMUS activities/events amongst the SVT membership. The role also involves co-ordinating ultrasound symposium content and speakers as part of the annual Venous Forum (currently on a biennial basis) and for the annual BMUS Scientific meeting.

Newsletter Officer

Currently this role involves finding suitable scientific papers on a quarterly basis and writing CPD questions for the SVT membership. There is an exciting opportunity to expand this role to help co-ordinate, design and organise the newsletter submission for the Education Committee.

Exam and Registration Officer

This role currently involves setting up the exam registration form, opening and closing registration forms as well organising exam venues and invigilators. We would like to expand this role to include assisting the current exam officers.

Typically members attend 3-4 meetings per year in London (expenses paid).

Being involved is interesting and a great experience. It's a fantastic opportunity to make new contacts and learn from colleagues.

If you are interested please contact:
siobhan_meagher@luht.scot.nhs.uk



Summer 2014 Trainee Competition Results!

Congratulations to Clare Worrel at Hull and East Yorkshire NHS Trust for submitting the winning answer to the summer newsletter trainee competition. Clare will receive the £25 book token. Please note protocols may vary for the treatment of DVT and these are not the recommendations of the SVT.

A young female patient attends A&E with an acutely swollen right calf having been on a recent holiday and non-occlusive fresh right popliteal DVT.

1. Discuss some of the possible causes of DVT for this patient.

A deep vein thrombosis (DVT) can arise spontaneously or due to predisposing factors for example surgery or prolonged bed rest. Other factors can increase the chances of developing a DVT e.g. age, prior history, acute medical illness or pregnancy. As the description doesn't give an age but states a 'young' female it is unlikely to be caused by age or an age related illness. She has been on a recent holiday which may have included a long haul flight and cramped conditions. Therefore it is likely that her DVT was caused by these factors. Others influencing factors which could also increase her chances of developing a DVT include smoking, taking oral contraceptives, if she is obese and dehydration.

2. Describe the ultrasound appearances that would lead to a diagnosis of fresh, occlusive and non-occlusive DVT.

	Non occlusive	Occlusive
Compression	Can be compressed but possible limitation	Unable to compress
Luminal diameter	Increased diameter	Increased diameter
Echogenicity	Echolucent thrombus	Echogenic thrombus
Colour Doppler	Shows flow around the thrombus	Colour flow absent

A recent acute DVT will show the affected vein on ultrasound as distended and it will appear larger than the adjacent artery. It will be slightly denser than blood and will have an echo lucent appearance. As the clot ages it becomes more echogenic and the vein may return to normal size. Blood flow in non-occlusive will be seen when using colour flow and will be absent in occlusive.

Compression- in transverse plane by applying gentle, slow, smooth pressure, if the vein is patent this should cause the vein to collapse completely. If occluded it won't compress.

3. Describe the possible treatment pathway this patient may receive

According to the NICE guidelines an anticoagulant injection will be given, a choice of a low molecular weight heparin or fondaparinux will be offered with a confirmed proximal DVT. This will be started immediately and continued for at least 5 days. A vitamin antagonist should be offered within 24 hours of the DVT been diagnosed.

Below knee graduated compression stockings should be offered to patients with a proximal DVT that have an ankle pressure greater of 23mmHg. These are usually offered around a week after the DVT is diagnosed after the swelling has decreased. It is advised to wear these for up to 2 years afterwards.

An inferior vena cava (IVC) filter may be offered if the patient can't have anticoagulation treatment; this can be removed when the patient becomes eligible for anticoagulation treatment or if it is no longer required.



Message from the Editor

I would like to take the opportunity to let all members know that on a trial basis the next issue of the newsletter (Spring 2015 edition) will be in electronic format only, following a discussion at the AGM. I would appreciate feedback on this from all members.

As always I would like to extend thanks to all contributors who sent in

articles for this season's issue. Remember the Newsletter is continually looking for original contributions, so please email me any case studies, reviews, your experiences or any comments that you think would be of interest to members of the society. I would also welcome any comments on articles published in this edition.

As always a £25 prize is offered to the individual chosen for sending in the

article or letter of the month.

The prize this issue is awarded to Naavalah Ngwa-Ndifer.

The next Newsletter will be the Spring Issue, and the closing date for receiving articles will be **17th April 2015.**

Helen Dixon
Newsletter Editor
newsletter@svtgbi.org.uk

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Past President
Vicky Davis

Vice President
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Richard Craven
Lila Elliott
Alison Charig





NEWS: AHCS Voluntary Register Accredited by the PSA

The Academy for Healthcare Science is delighted to announce that their NHS funded and supported Register for Healthcare Science Practitioners is now accredited by the Professional Standards Authority for Health and Social Care.

It is the first accredited register for the Healthcare Science workforce. The Accreditation quality mark signifies that the Academy has met the Professional Standards Authority's high standards in governance, standard-setting, education and training, management of the register, complaints handling and information; assuring the public and employers.

Dr Kerry Tinkler, The Academy's Clinical Director and Registrar said 'this is great news for the Academy and will be welcomed by the many Practitioners who are already on our register and those who are about to join. Being registered with the Academy demonstrates a real personal and professional commitment to the standards of competency and conduct and offers a level of assurance to patients and employers regarding quality and safety'.

Becky Foster is already registered with the Academy. She is a Tissue Donation Manager. Becky said 'Being registered definitely has some benefit. I feel more united with my colleagues, as a professional and I think it gives a sense of reassurance.'

But it is not just the Academy, our commissioners and individuals Healthcare Scientists who agree that being on the Academy register as a Practitioner is a good thing. The Government said in its response to the House of Commons Select Committee Report of Session 2014/15: Accountability hearing with the Health and Care Professions Council '*the Academy for Healthcare Science Voluntary Register offers assurance that is appropriate and proportionate to the risks presented to public safety*'.

Quality and safety are at the forefront of the NHS and the organisations within it. It is highly likely that registration, where not statutory, will be a condition of employment, and good quality commissioning in the future.

If you would like to join the register, please follow this link <http://www.ahcs.ac.uk/the-register/join-the-register/>.

For more information on the Academy for Healthcare Science, please visit our website www.ahcs.ac.uk.