As many as 35% of the 200,000 central venous catheter (CVC) insertions fail at the ‘first attempt’, resulting in prolonged hospital stays and potentially serious complications, such as arterial puncture, nerve injury and pneumothorax. In response to this, the National Institute for Clinical Excellence (NICE) has recommended ultrasound guidance for CVC insertions. Here we talk to Professor P.M. Hopkins, Professor of Anaesthesia at St James's University Hospital, Leeds, about the impact these guidelines will have on Trusts and his own particular research interest, nerve blocking.

“My professional interest in using the SonoSite 180PLUS is in nerve blocking techniques, particularly for patients having upper limb surgery,” explains Professor Hopkins. “There are various anatomical approaches for patients having upper limb surgery, for example one can enter from the axilla or above the clavical in the neck. While each route has its benefits according to which nerve you are most likely to hit, the supraclavicular brachial plexus gives the best chance of anaesthetising all the nerves that supply the limb. The danger is that during the procedure we can puncture the pleura (the lining of the lung), which lies near to the nerve plexus, and air can get caught causing a pneumothorax in between one and five per cent of cases in published series. In a study presented to the Anaesthetic Research Society, we have shown that it is impossible to predict the distance of the plexus (target bundle of nerves) from the skin, from the height and weight of the patient. Using the SonoSite 180PLUS it’s possible to identify the plexus and the pleura and see the desirable target. I am trying to persuade more people to use the technique as my complication rate for pleural puncture is zero.

“I find the SonoSite180 entirely adequate for the task in hand. I personally prefer the 180PLUS for my more detailed studies as the image is that bit bigger and I can store images for studies and training.”

“The Colour Power Doppler is particularly useful as the plexus is closely related to the subclavian artery. I like the fact that I can turn it on and use it straight away and doesn’t take up a lot of space. As a result of the NICE report recommending that all CVCs are inserted with ultrasound guidance, we have put in a bid to buy two more 180PLUS and three or four iLooks for the fourteen theatres that we have, as a significant proportion of our work is major surgery. The iLook is excellent for CVCs as it has Colour Power Doppler and is even smaller than the 180PLUS.”

“The systems are easy to use for focused examinations and procedures and there is no reason why clinicians and nurses new to ultrasound should not be able to pick up the basics quickly and easily.”

NICE recommends that all those involved in placing CVCs using 2-D imaging ultrasound guidance should undertake appropriate training in how to use the systems and how to interpret the images they produce.

“Different frequencies can be used to look at different structures and doctors should spend time shadowing a radiologist, as well as undertaking some formal training,” says Professor Hopkins. “I strongly encourage all my trainees to use the SonoSite system for every internal jugular line placement, as it seems almost indefensible, if one is available, not to use it to avoid missing the vessel altogether or hitting an artery by mistake. Being able to see the needle continuously from skin to vessel means that one can target the vessel and work out the exact size and location, reducing complications and the potential discomfort for patients with multiple attempts. It is a much quicker way of performing vascular access and has significantly improved our workflow.”

Some staff may question the initial investment needed for Point Of Care ultrasound systems, but they are about a tenth of the price of their cart-based counterparts and yet have comparable image quality.

“It is vital that we take the longer-term view, seeing that these recommendations are likely to save trusts money and improve workflow by reducing complications and unnecessary hospital stays.”

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