

To needle or not to needle... that is the question!

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Introduction

When Anita first asked me to write an article for the LSN about my particular interest in venous access and lymphoedema, I was thrilled, but after I'd put the phone receiver down, the realisation set in that I had a difficult task ahead.

Needles and Lymphoedema is often an emotive issue. I know the LSN have many queries about injections and I have attempted to answer many of the frequently asked questions. As you read on, my hope is that you will see how complex an issue this is and that the answers are not always straight forward.

So why have I been asked to talk about this issue?

I am a nurse whose main speciality has been cancer treatment and giving chemotherapy treatments for the cure or palliation of cancer patients. I love nursing and remain passionate about excellence in nursing practice and provision of the highest quality patient care. Over the years, I have gained a lot of experience in venous access in patients receiving cancer treatments. I have been putting needles into patients' veins for many years and believe me, I have heard every nickname you can imagine!

I first became interested in lymphoedema back in 1998 when I worked for the vascular access team at the Royal Marsden. The standard advice given to patients at the time of their breast surgery is to avoid having blood pressure measurements and injections on their "at risk of lymphoedema" arm. I was informed that the reason for this is that it may reduce the likelihood of swelling developing. For my BSc dissertation, I decided to conduct a systematic review of the evidence relating to the risk factors for lymphoedema development with a particular focus on the subject of needles and lymphoedema. There is anecdotal evidence where patients have reported swelling developing after blood pressure recordings and injections, however, I found that there was little good research based evidence relating to this subject. I have been working within the field of lymphoedema for nearly 18 months now and am currently attempting to write guidelines for professionals on the subject of injections in patients at risk of lymphoedema, however, the process is taking longer than I expected, but I'm nearly there!

"At risk" versus those with existing lymphoedema

Those who have lymphoedema are people who have swelling present in their arm (or other body part, but for this instance we will be discussing arm lymphoedema). Those who are at risk of lymphoedema are people who have had one or more of their axillary nodes removed. If someone has never had their nodes removed but has disease present in their axillary nodes, they are also at risk. People who have undergone axillary radiotherapy are also at risk, due to the scarring of the nodes which can occur years after radiotherapy.

Some useful definitions and explanation of terms you may hear:

Venepuncture

- The procedure for taking a blood test is known as venepuncture. The needle only remains in the vein for as long as is needed to withdraw blood. It is then promptly removed.

Cannula (sometimes known as a venflon, peripheral line or drip device)

- A cannula is a flexible tube which is placed into a vein for purposes of administering medication or fluids. It is introduced using a needle and the cannula can remain in the vein for a few days.

Injection

- A subcutaneous injection is an injection which goes into the tissues of the limb, for example, a local anaesthetic to numb an area.
- An intramuscular injection goes into the muscle of the arm, for example, a flu vaccination.

BM test (Blood sugar testing)

- This is a very fine needle which pierces the finger tip in order to produce a droplet of blood to find out the level of sugar in one's blood.

Central venous access device

- This is a device which is inserted into one of the larger veins near the heart and they can remain in place for extended periods of time. There are three main types of central venous catheters; a peripherally inserted central catheter (inserted via a large vein in the arm), a skin tunnelled catheter and an implanted port (inserted via the chest).

So why should injections be avoided?

At the time of breast surgery, patients should be advised to avoid having injections and blood pressure recordings taken in the affected side. This means blood tests, cannulae, BM tests and injections listed above. Theoretically, the affected limb is more at risk of developing infections within the arm because axillary nodes (the lymphatic nodes in the armpit) have an immunity function and if they are removed this immunity role is compromised. If a foreign object (that is a needle, for example) is placed in the arm, an immune response occurs and this puts the lymphatic system under more stress.

People who have lymphoedema are at an increased risk of cellulitis (an acute inflammatory episode). This is an infection of the tissues in the limb and may cause pain, the lymphoedema to worsen and may make you feel quite unwell. Injections should be avoided in someone who has swelling but sometimes injections into a swollen arm are necessary. Entry into veins in a swollen arm is more problematic because the swelling makes the veins harder to visualise and palpate. The risk of developing cellulitis is theoretically higher in someone with existing swelling.

Those at risk of developing lymphoedema but who have no swelling to the arm are still at an increased risk of developing an infection compared to someone who has not had the nodes removed. There have been reports that lymphoedema has been triggered by an injection in the arm where no associated cellulitis has been diagnosed. It often occurs immediately or within a period of a week or so. We are not sure why this occurs but it has been reported by patients we look after. Conversely, there have been reports of injections being given with no adverse effects and swelling never developing. "What is the percentage risk of getting lymphoedema if you put a needle into my affected arm?" is one of the most common questions I used to hear. I've made it one of my professional aims to find out the answer to this question but this is not as easy as it may seem. All of this is anecdotal and until an audit or further research can be carried out, we will not be able to give patients statistical likelihoods. To be able to give patients a percentage risk can help direct future choices regarding venous access and help patients and staff make decisions on whether to use the arm that has had axillary node treatment. However, there are many factors which need considering, for example; is the likelihood increased

in the older person, or is the incidence higher in someone who has had more nodes removed? Is hand dominance a factor relating to increased swelling? How do we ethically carry out this research?

So what should you do?

In the first instance, always offer your unaffected arm for injections of any type. Educating practitioners is not forbidden! Let staff conducting procedures involving needles know that it should be avoided so they can look into this in more detail. I have been attempting to spread the word by talking to district nurses and speaking at conferences. It is not uncommon for medical, nursing and phlebotomy staff to have never heard of lymphoedema, let alone know what it is and its implications on someone's life. The purchase of a medic alert bracelet may be a useful tool to help people who are conducting these procedures know that use of the patient's affected arm should be avoided.

Practitioner competency?

Everyone has to learn somehow. Contrary to popular opinion, nurses generally don't enjoy hurting people. Conducting such a procedure needs confidence and expertise. How do you become an expert if you don't start somewhere? It is important that if practitioners are having problems accessing your veins for either a blood test or a cannula, you ask for an experienced member of staff to conduct the procedure. Our rule is to try twice and refer on, as after two attempts, both the patient and the practitioner are getting anxious and this will not help. Ensure that warming the limb has been tried before gaining venous access as this helps enormously. It is worth spending a few extra minutes warming the arm in order to achieve a successful result!

Problematic veins?

Patients who need repeated chemotherapy treatments may develop problems with their veins. The veins may become hard to find and the walls of the veins can become hardened and phlebitis may occur. This is when the wall of the vein can become inflamed causing discomfort and the vein may need to be avoided for further cannulation attempts. Some people are born with "bad veins", often members of the same family have difficult veins. It isn't that the veins aren't there (otherwise the arm would not be a very good colour!) but it is that the veins may be deeper within the tissues and harder to access.

What happens when there are no suitable veins left in the unaffected side?

This is a common question. The most important thing to do in this situation is to discuss any problems with your medical team or your general practitioner. Until we have percentage risk figures then we have to look at the whole picture and each patient's medical history.

Some questions to consider may be:

- What is the regularity of having to have needles in the affected arm?
- What type of treatments are you receiving?
- Is an occasional blood test needed or regular intravenous treatment?
- Can foot veins be used instead for blood tests?
- Should a central venous access device be placed?
- What are the risks of these devices and do they outweigh the risk of potentially developing or worsening lymphoedema?

It is obviously vital, particularly in the case of cancer patients, that they receive suitable treatment for their disease. There may be a possibility of having a central venous access device placed, but these devices carry with them significant risks. The pro's and con's of having such a device placed will need to be weighed up.

What happens if both arms have had their associated axillary nodes affected?

If you only require the occasional blood test, then the feet may be able to be assessed for suitable veins. Venepuncture can sometimes be more painful in the top of the foot. By heating the foot and using anaesthetic creams, the procedure can be carried out more comfortably. Some phlebotomists (practitioners who are specifically trained to take blood) are instructed not to use the feet, especially in the general hospital setting. If this occurs, ask your breast care specialist nurse or your GP for advice on who to contact for a blood test should the need arise. Often, blood tests in the feet can be carried out by staff in the chemotherapy day unit. If no suitable veins are present in the foot then a choice needs to be made on which arm should be offered for such procedures. If longer term treatment and/or frequent blood tests are required, then further venous assessment may be necessary. Consensus on the issue of venous access in patients who have had bilateral axillary node treatment can be problematic. Some medical centres advocate early placement of a central venous access device, while others advocate using the arm which had its associated axillary nodes operated on first (providing that side had not undergone axillary radiotherapy). Again, the regularity of the need to gain intravenous access needs to be considered, as well as the potential risks of central venous access devices.

Conclusions

There are still a lot of questions as to why some people develop swelling and others do not. Unfortunately, we still have a lot to learn and medicine does not always have the answers we want. By medical and nursing staff working together with patients, we give the best advice we have at the time and give you the high quality care you deserve. By raising awareness in avoiding the use of the affected side, we can reduce the likelihood of swelling occurring. Prompt and early detection of potential problems means that decisions regarding someone's venous access can be made earlier so that the most appropriate device is selected for the job!

Editor's note: If you have had personal experience of having an injection in the arm and subsequently developed persistent arm swelling we would like to hear from you. Conversely, if you have had an injection of any type in the affected limb and not developed or exacerbated existing swelling, we would also like to hear from you. Your letters will increase our knowledge base in this area and help professionals and patients make informed decisions.

<http://www.lymphoedema.org/Menu3/5Articles%20by%20healthcare%20professionals.asp>