Best device for the patient

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Introduction

The uses of vascular access device (VAD) are associated with many complications, some which lead to early removal of the device. This can result in extended hospital stays which leads to increased costs and poor patient outcomes (Hallam et al., 2016).

As health professionals we have a responsibility to deliver safe and effective care, (NMC 2016).

We need to minimise discomfort and complications if we are to improve the patient experience.

By ensuring the right patient receives the right device at the right time will minimise complications while reducing interruption in treatment (Hill 2014)

While after prolonged use of vascular access devices (VAD), veins become more challenging, potential causes include: phlebitis, occlusion, dislodgement of the cannula, or possible infection, extravasation and infiltration (Rickard et al., 2015). These factors can affect peripheral IV cannulae success rates (Hallam et al., 2016): Which in turn makes vascular access more problematic.

Many factors have to be considered before deciding which VAD to place, including the anticipated dwell time, patient's vasculature and the type of medication being administered.

A Vessel Health and Preservation tool (VHPT) was developed with the intension of providing staff with the resources to assist them in assessing and selecting the best device to meet the individual needs in order to preserve veins for future use. It can be used to improve clinical decision making, while improving the patient experience in relation to vascular access and IV therapy (Moureau NL 2012).

The type of VAD chosen must be made on the needs of the patient, the reason the line is required, the length of time its required for and the skill of the operator.

Method

NHSG (National Health Service Grampian) policy is to change short peripheral cannula every 72hrs. If someone required IV therapy for longer than 72hrs, rather than exposing them to repeated painful cannulations we decided to change to longer dwell catheters. Patients were assessed 24/48 hours following admission and the most appropriate device was placed.

This was either a short cannula, which once placed was only left in for up to 72hrs.

Although (Loveday et al., 2014; Rickard et al., 2012) recommend now peripheral cannula should be re-sited when clinically indicated and not routinely, unless the device specific recommendations provided by the manufactures indicate otherwise.

Short catheter

8cm Leaderflex catheter

Or a 8cm Leaderflex catheters which intended use up to 29 days or a 20 cm leaderflex catheters which can be left in for the duration of treatment.

The decision regarding which VAD to use was dependent on the individual needs

- ➡ We need to think about how often it will be accessed
- ➡ Which antimicrobial agent we are using
- ➡ Frequency of the line manipulations
- ➡ Anticipated duration of therapy

Structure of vein

Example of bruising

Veins consist of three main layers. The outer layer is connective tissue, called tunica adventitia or tunica externa; a middle layer of smooth muscle called the tunica media, and the inner layer lined with endothelial cells called the tunica intima.

Due to the structure of the vein some medications can damage the linings

Infiltration, which is the inadvertent leakage of non vesicant solution, can occur which can be seen as a benign event as it generally does not lead to tissue necrosis, however a large volume of infiltrate can cause compression of the nerves and acute limb compartment syndrome resulting in long term disability (Hadaway 2007)

Extravasation is the inadvertent leakage of a vesicant solution from its intended vascular pathway (vein) into the surrounding tissue (Doellman et al 2009; RCN 2010).

The degree of injury ranges from mild skin reaction to severe necrosis (EONS 2007). Other possible consequences include: infection; complex regional pain syndrome; and loss of function (Hadaway, 2009).

During 2017 within the Out Patient Antimicrobial Therapy (OPAT) unit 30 leaderflex 8cm, 22g catheters were inserted, which were left in for up to two weeks, while 60 leaderflex 20cm, 22g catheters 10 were left in for approx 4 weeks while 40 of these were left in for approx 6 weeks the final and 10 were left in for approx 10 weeks. The dressings were changed weekly and according to the manufactures guidelines.

Results

During 2017 on OPAT we had zero line infections in any of the leaderflex catheters and only one device had become occluded, which was easily resolved when they attended the unit using Hepsal 10 iu/5ml

Discussion & Conclusion

The use of longer catheters is improving the patient's journey, with fewer complications, and has reduced the workload of staff members, as staff are no longer required to spend so much time on cannulations, but most importantly vessel health and preservation is being considered. Patient's veins are being preserved and we are experiencing fewer episodes of missed medication doses, along with patients stating they feel "less like a pin cushion".

References

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(NB since abstract was accepted NHSG policy has now changed to changing cannula when required)