Hot Topic Question November 2016

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Which is the best line for a 4 year old with osteomyelitis who needs antibiotic therapy?

- Tunnelled central venous access device
- PICC

Accompanying text and algorithm

Answer- PICC

Central Venous Access Devices (CVAD):

- Catheters whose tip terminates in a central vessel
- These are suitable for infusions requiring central venous infusion e.g. cytotoxic chemotherapy, TPN and extended antibiotic therapy
- Central Venous Catheters can be tunnelled or non-tunnelled, tunnelled lines may have a cuff close to the exit site which helps to secure the catheter position

Types of CVADs

Central Venous Catheters

- **Non-tunnelled CVC** inserted into a central vein for short term access.
- **Tunneled cuffed CVCs** include HICKMAN™, BROVIAC™, permacaths (tunnelled cuffed haemdialysis catheter). These 'permanent' devices tend to be placed by radiologists or surgeons. The presence of a cuff decreases the likelihood of displacement over time. These devices are placed when central access is needed for months to years.

- **Tunnelled non cuffed CVCs** are an alternative to a PICC line in a patient less than 1yr or 10kg (these thresholds may vary at other centres). These can be used for up to 2-3 months.
- **Vascaths -** double lumen non tunnelled temporary haemodialysis catheters are usually placed in the femoral vein for dialysis, haemofiltration, plasmafiltration or harvesting.

Percutaneously Inserted Central Catheters (PICCs)

- A long catheter inserted into the basilic, brachial or cephalic vein positioned so that the tip terminates in the lower third of the SVC.
- May be open ended or have valves.
- Bleeding at the insertion site less likely so may be useful in the presence of coagulopathy and low platelet levels.
- Dwell time >7 days – 2-3 months.

Choosing an appropriate CVAD

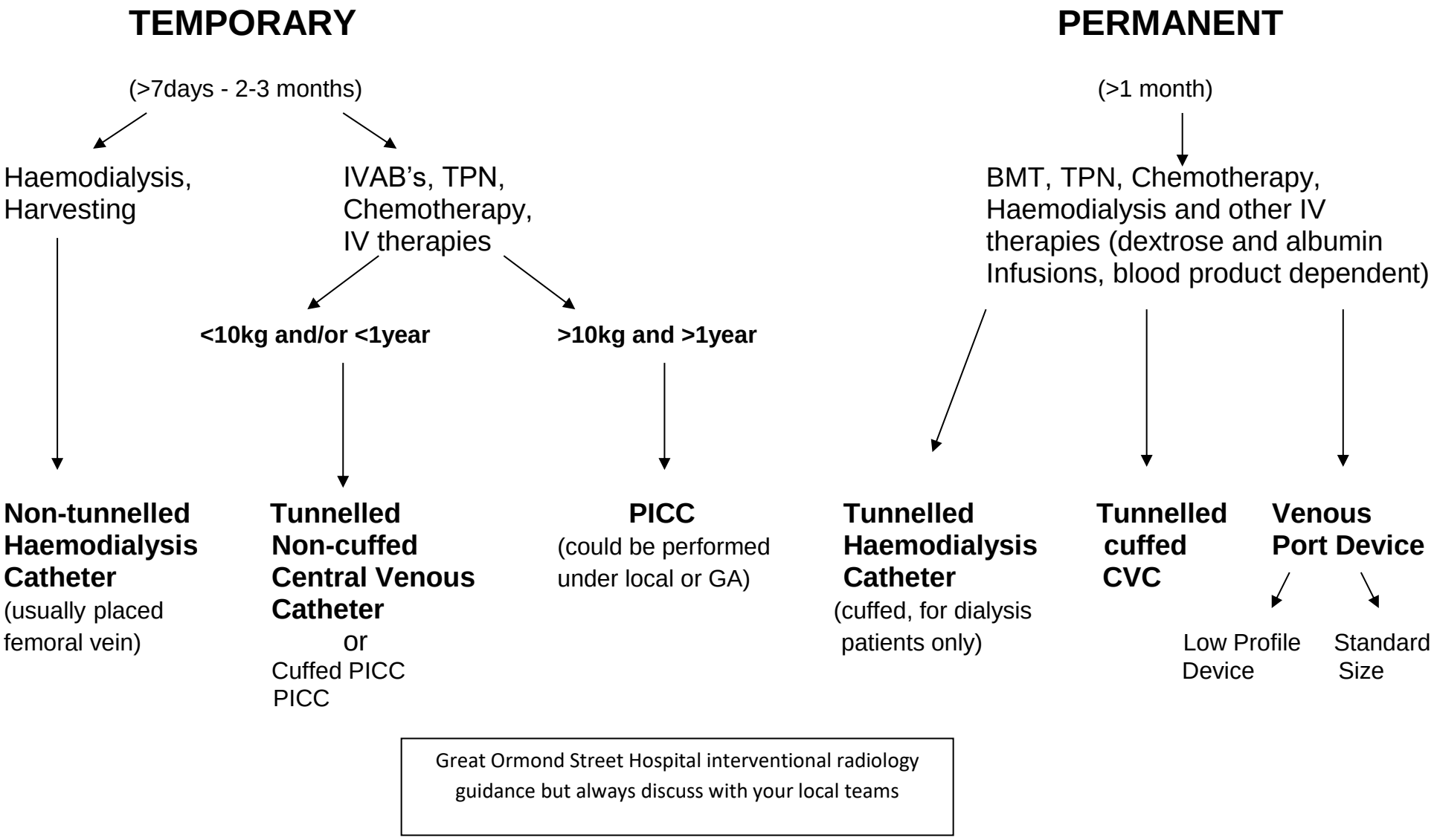
a) Considerations for the type of CVAD include:

- Therapeutic indication
- Estimated length of treatment **(note: any patient requiring more than seven days of intravenous therapy should have early assessment for insertion of a central venous access device)**
- Medical history (including any cardiac anomalies or haematological disorders) and previous history of line complications (such as thrombosis)
- Vein status **(difficult peripheral IV access should be a flag for early insertion of a central venous access device if the expected duration of IV therapy exceeds seven days)**
- The correct care must be available during and following insertion of venous access devices to ensure correct function and to limit the potential for complications

b) Catheter selection

c) No of lumen

- Minimise the number of lumens to limit the risk of infection. Where clinically practical restrict to one.


TEMPORARY
(>7days - 2-3 months)
Haemodialysis, Harvesting
IVAB's, TPN, Chemotherapy, IV therapies
<10kg and/or <1year
>10kg and >1year
Non-tunnelled Haemodialysis Catheter
(usually placed femoral vein)
Tunnelled Non-cuffed Central Venous Catheter
or
Cuffed PICC
PICC
PICC
(could be performed under local or GA)
PERMANENT
(>1 month)
BMT, TPN, Chemotherapy, Haemodialysis and other IV therapies (dextrose and albumin Infusions, blood product dependent)
Tunnelled Haemodialysis Catheter
(cuffed, for dialysis patients only)
Tunnelled cuffed CVC
Venous Port Device
Low Profile Device
Standard Size
Great Ormond Street Hospital interventional radiology guidance but always discuss with your local teams