



NSW
Therapeutic
Advisory
Group Inc.

Advancing
quality use
of medicines
in NSW

Group Discussion: Locking of CVCs

Date: July 2018

Question:

A NSW TAG member is wondering what other hospitals are using to lock central venous catheters (CVCs) given that heparinized saline is out of stock? We would be grateful for any policies/protocols you may have for this process.

Background:

Queensland Health Guideline for Percutaneous Central Venous Catheters January 2015 (due for review June 2018) https://www.health.qld.gov.au/_data/assets/pdf_file/0028/444493/icare-pcvc-guideline.pdf (page 11) states

'There is limited information concerning the most appropriate solution to lock a catheter. Heparinised saline has been used primarily due to the antithrombotic properties of heparin. However, complications such as heparin-induced thrombocytopenia (HIT), altered coagulation studies and bleeding have been reported, particularly if other general anticoagulant therapy is administered. Additionally, heparin is incompatible with certain substances in solution e.g. gentamicin sulphate.

Until there is further evidence, sterile sodium chloride 0.9% should be used by clinicians to lock a catheter that is no longer required for continuous infusions in preparation for future use; unless the manufacturer recommends catheter lumens be locked with an alternate solution.

- The most important part of locking the catheter is the mechanical action of the procedure itself, designed to prevent backflow of blood into the catheter tip i.e. 'pulsatile' and 'positive pressure' flushing techniques.
- Some CVCs integrate valve technology which restricts blood backflow and air embolism by remaining closed when not in use therefore eliminating the need for heparin flushing to maintain patency.

Low-dose oral warfarin or other systemic anticoagulants should not be prescribed for prophylaxis of catheter occlusion. (See document for supporting references).

NSW Health has Policy Directive PD 2011_060: Central Venous Access Device Insertion and Post Insertion Care but this does not give any specific advice apart from referring to 'heparin for "heparin locking" catheter lumen'. NSW Health Guideline for Peripheral Intravenous Cannula (PIVC) Insertion and Post Insertion Care in Adult Patients (GL2013_013) states sterile 0.9% saline is to be used for flushing PIVCs and "The flushing solution and flushing intervals should be either ordered on a medication chart or given according to facility standing order or local protocol."

The Cochrane Library published a systematic review "Heparin versus 0.9% sodium chloride locking for prevention of occlusion in central venous catheters in adults" 30th July 2018- <http://cochranelibrary-wiley.com/doi/10.1002/14651858.CD008462.pub3/full>

A number of hospitals provided the Dear Healthcare Professional letter from Link Medical Products information, 19th June 2018, (attached) with regard to shortage of heparinized saline 50 IU/ 5 mL ampoule and alternative supply arrangement under Section 19A of The Therapeutics Goods Act.

Responses:

6 responses were received from:

Concord

Provided a Heparin Lock Contingency Flowchart 14th July 2018

John Hunter Hospital

Attached local policies that refer to 5000 units/5mL heparin use and highlighted the sections.

Liverpool

We do use the Heparinised Saline for locking of CVCs. We haven't yet purchased any, but Link have this available under S19A. It's a glass ampoule and costs a lot. (\$5.45 per ampoule and usual price approx. 87 cents), but not much else we can do. The replacement stock of the various Pfizer lines is costing us a fortune!

Northern NSW LHD

We use Heparin 5,000u in 5ml, and put only the volume of each lumen (~2ml) in to "heparin-lock" the line. Local policy attached, specifically on p6.

Northern Sydney LHD

Provided NSLHD Central Venous Access Device Guideline, June 2015.

St George Hospital

Provided Dear Healthcare Professional letter from Link Medical Products information.

Please contact NSW TAG to request the attachments.

Responses received as at 17 July 2018

Please note that all information and policies are only current at the time the response is sent and individual hospitals should be contacted to ascertain current policies and practices. The responses received are only representative of the hospitals participating in the discussion at the time and do not necessarily indicate a complete picture of current practices. Information sharing occurs on the understanding that due acknowledgement will be given to the original source and that the information will not be quoted or used out of the context of the discussion. Permission should be sought from the original source before any policy, protocol or guideline is used or applied in another setting.