Nursing Protocol for the removal of Central Venous Catheters following Cardiothoracic Surgery

Indications for Central venous catheter removal include:

- If patient is stable and no potent IV Drugs are required
- No indication for CVP measurement
- Catheter related Infection
- Catheter exceeded recommend dwell time
- Persistent catheter occlusion
- Damaged catheter

Aims of Protocol

1. To provide nursing guidance for the safe removal of central venous catheters
2. To ensure patient safety by reducing the risk of potential complications of central venous catheter removal

Section	Nursing Action	Rationale
Haemodynamics	• Ensure Patient is haemodynamically stable prior to removal and is not requiring Potent IV drug administration	Ensuring patient safety and no potential need for central venous catheter
Clotting Profile	• If the patient is taking warfarin ensure the INR <3.0 prior to removal • A platelet count of >50 ($x10^9$ Litres) • If the patient is due to commence Dabigatran remove the central line prior to commencing. If the patient has been receiving Dabigatran stop it 48hrs prior to removal. This should be checked by a Doctor. • There is no need to stop low weight molecular heparin, aspirin or clopidogrel	To reduce the risk of bleeding and development of haematoma.
The Procedure	• The nurse must provide a comprehensive explanation of the procedure to the patient and to gain informed verbal consent • Disconnect or transfer any IV infusions to alternative IV access ensuring all three-way tap handles are closed and appropriate caps in place	To ensure patient is aware of what the intended procedure involves and to reduce anxiety To ensure no medication, fluid or air can be delivered to the patient

	• Where able ensure the patient is laid on the bed supine or no greater than at 45 degree angle. **Do Not Remove Whilst Sitting Upright**	Increases the central venous pressure and reduces the risk of air embolism
	• Wash hands	Minimise the risk of infection
	• Wearing appropriate PPE remove the dressing from the catheter site and if site looks infected take a swab. Clean site with normal saline.	Gain access to site. Identify pathogens and reduce the risk of infection entering the site
	• Using an aseptic technique cut the stitches holding the central venous catheter in place.	To facilitate removal
	• Explain and ask patient to perform the Valsalva manoeuvre and/or hold his or her breath during catheter removal and/or time catheter removal to coincide with end inspiration/beginning expiration.	To minimise the risk of air embolism by promoting positive intrathoracic pressure.
	• Use one hand to cover the insertion site with sterile gauze swabs and with the other hand firmly but gently remove the catheter. Apply gentle pressure as catheter is being removed, taking care not to massage the exit site. If resistance is felt stop and contact medical staff.	To cover exit site to prevent entry of air and promote smooth removal of the catheter and seal the catheter tract Massaging the exit site can dislodge a thrombus or cause vagal stimulation
	• Once the catheter is removed press firmly with sterile gauze swabs until haemostasis is achieved (approximately five minutes)	To help prevent haemorrhage and haematoma formation
	• Apply air-occlusive dressing which should remain in place for at least 24 hrs	To give an occlusive seal to the exit site to minimise the risk of air embolism
	• The catheter tip should be sent for culture and sensitivity if patient shows signs and symptoms of infection.	Identify pathogens and treat accordingly
Post procedure	• Document catheter removal	To ensure accurate record of removal

	• Ensure the Patient is comfortable and rests on the bed in the same position for a minimum of 30mins • Observe for signs of respiratory distress and further bleeding • Advise the patient to inform the nursing staff if they feel unwell ensuring nurse call is to hand	To maximise patient comfort and minimize the risk of air embolism, pneumothorax and secondary haemorrhage To be aware of any signs or symptoms of potential complications and initiate early intervention

Potential complications

Air Embolism
Catheter fracture and embolism
Dislodgement of thrombus or fibrin sheath
Haemorrhage/bleeding
Arterial complications – bleeding, compression of brachial plexus

Information sources

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