

Femorally-inserted Central Venous Catheters

Question:

We frequently have patients with central venous catheters inserted through the femoral vein. What are the risks associated with this insertion site? What activity restrictions, if any, are necessary?

Answer:

Catheters inserted through the femoral vein are frequently used during emergency situations because the vein may be easier to locate quickly. However, routine use of femoral vein catheters should be discouraged due to the higher rates of complications associated with them. A recent study reports that jugular and femoral sites were more prevalent in critical care patients, while peripherally inserted and subclavian catheters are more prevalent in non-critical care patients. This study also reported that the percentage of ICU patients with a central venous catheter (CVC) was higher but the total number of CVCs in non-ICU patients was higher. 1

At present there are few studies comparing outcomes between CVC insertion sites. One study is available comparing complication rates for femoral and subclavian sites. Insertion sites were randomly assigned with 145 patient with femoral sites and 144 with subclavian sites. Mechanical, infectious, and thrombotic complications were tracked. Femoral sites had more infectious complications with 20 per 1000 catheter-days versus 3.7 per 1000 catheter days for subclavian sites. Thrombotic complications were reported to be 21.5% for femoral sites and 1.9% for subclavian sites. Mechanical complication rates between the two insertion sites were similar with 17.3% for femoral and 18.8% for subclavian. 2

One important factor is that the available studies have been conducted in critical care patients, which are usually sedated, comatose or bed-ridden. I can find no studies examining complications from femoral sites in patients that have any degree of physical activity such as sitting or ambulating. Without studies or case reports, it is difficult to make a recommendation about appropriate physical activity for patients with femoral catheters. The vascular access device should never be allowed to interfere with patient mobility or activities and this alone would be a reason to avoid femoral insertion sites. Changing to a different insertion site when the patient is clinically stable may allow for greater mobility.

Other published case studies report additional complication with femoral catheters. Femoral nerve palsy in a patient with severe coagulopathy was likely caused by an internal hematoma. 3 Dislodgement and malposition can lead to infiltration or extravasation injury of the anterior abdominal wall and subsequent peritonitis.4, 5 Compartment syndrome secondary to extensive thrombosis of the external iliac vein can result in the need for surgical release to spare the limb.6

Patients with any type of catheter inserted via the femoral vein require assessment of the lower extremity for signs of thrombosis. This could include routine assessment by ultrasonography to detect clinically silent thromboses and appropriate anticoagulation as a preventive measure. Proper catheter tip position in the inferior vena cava near its junction with the right atrium is necessary. Careful attention to external securement may prevent accidental dislodgement and subsequent abdominal infiltration. Routine patient assessment should include signs and symptoms of abdominal problems.

While femoral catheters may be the best choice in some clinical situations, they can produce serious complications that can differ from other catheter insertion sites. Careful nursing assessment must include knowledge of the venous pathway from the femoral vein and the potential for unusual outcomes.

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