

Central venous catheter insertion management: Recommendations

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Background

While existing guidelines, such as those produced by the Australian and New Zealand Intensive Care Society (ANZICS), address the prevention of central line-associated infections, mechanical complications during central venous catheter (CVC) insertion remain a significant concern. These complications, often resulting from unintentional placement into an adjacent artery, occur with concerning frequency and are associated with substantial morbidity and mortality.

Despite the prevalence of these complications, there is limited robust evidence to guide safe practices, with most recommendations based on expert opinion. Experts suggest that ultrasound should be used whenever possible to guide percutaneous CVC insertion, and venous placement must be confirmed before dilatation and line placement.

Assessment

The VPCC and its Anaesthetic Subcommittee have reviewed multiple cases related to central venous catheter (CVC) insertion, highlighting the need for improved practices to enhance patient safety and reduce complications.

To ensure safe and accurate CVC placement, confirmation of venous cannulation must employ multiple strategies. These may include evaluating the colour of aspirated blood, measuring pressure from the insertion needle or cannula, analysing blood gas samples from aspirated blood, and/or using ultrasound to visualise the wire within the vein lumen.

Furthermore, a credentialing process is essential to ensure that practitioners performing CVC insertions have adequate training and experience, while those without credentials are supervised appropriately. Since CVC placement is performed by various medical specialties, any developed guidelines must include representation from all relevant stakeholders.

Recommendations

After careful consideration by the VPCC and its Anaesthetic Subcommittee, the following recommendations for maximising correct vessel access during central venous catheter (CVC) insertion have been strongly endorsed by the VPCC:

1. Central venous catheterisation should only be undertaken by, or under the direct supervision of, an appropriately trained and credentialed practitioner.
2. Guidelines / protocols and training for central venous catheter insertion should include steps to verify that the correct vessel has been accessed. This should occur before vessel dilation occurs and before the definitive catheter or sheath is inserted.

Yours sincerely



Professor David A. Scott

Chair, Victorian Perioperative Consultative Council

Should you have any queries or concerns, please contact the VPCC secretariat, Consultative Councils Unit, Safer Care Victoria, at vpcc@safecare.vic.gov.au