

The objectives of this review were to describe factors associated with intravascular malpositioning of CVCs inserted via the neck and chest and to offer ways of preventing, identifying, and correcting such malpositioning” Roldan and Paniagua (2015).

#### Abstract:

Despite the level of skill of the operator and the use of ultrasound guidance, central venous catheter (CVC) placement can result in CVC malpositioning, an unintended placement of the catheter tip in an inadequate vessel. CVC malpositioning is not a complication of central line insertion; however, undiagnosed CVC malpositioning can be associated with significant morbidity and mortality.

The objectives of this review were to describe factors associated with intravascular malpositioning of CVCs inserted via the neck and chest and to offer ways of preventing, identifying, and correcting such malpositioning. A literature search of PubMed, Cochrane Library, and MD Consult was performed in June 2014. By searching for “Central line malposition” and then for “Central venous catheters intravascular malposition,” we found 178 articles written in English. Of those, we found that 39 were relevant to our objectives and included them in our review. According to those articles, intravascular CVC malpositioning is associated with the presence of congenital and acquired anatomical variants, catheter insertion in left thoracic venous system, inappropriate bevel orientation upon needle insertion, and patient’s body habitus variants. Although plain chest radiography is the standard imaging modality for confirming catheter tip location, signs and symptoms of CVC malpositioning even in presence of normal or inconclusive conventional radiography findings should prompt the use of additional diagnostic methods to confirm or rule out CVC malpositioning. With very few exceptions, the recommendation in cases of intravascular CVC malpositioning is to remove and relocate the catheter. Knowing the mechanisms of CVC malpositioning and how to prevent, identify, and correct CVC malpositioning could decrease harm to patients with this condition.

#### Reference:

Roldan, C.J. and Paniagua, L. (2015) Central Venous Catheter Intravascular Malpositioning: Causes, Prevention, Diagnosis, and Correction. *The Western Journal of Emergency Medicine*. 16(5), p.658-64.

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