



The aim of this study was to determine if internal CVC tip position was correlated with subsequent complications” Ballard et al (2016).

Abstract:

Central venous catheters (CVCs) are associated with occlusive, infectious, and thrombotic complications. The aim of this study was to determine if internal CVC tip position was correlated with subsequent complications.

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This was an institutional review board approved single-center retrospective review of 169 consecutive patients who underwent placement of 203 semipermanent CVCs. Using post-placement chest X-rays, a de novo scale of internal catheter tip position was developed. Major complications were recorded. A logistic regression analysis was used to determine if catheter tip position predicted subsequent complications. There were 78 men and 91 women with a mean age of  $48 \pm 11$  years. There were 21 catheter tips placed in the subclavian/innominate veins, 32 in the upper superior vena cava, 113 in the atriocaval junction, and 37 in the right atrium. There were 83 complications occurring in 61 (36.1 %) patients, including sepsis in 40 (23.7 %), venous thrombosis in 18 (10.7 %), catheter occlusion in 16 (9.5 %), internal catheter repositioning in 6 (3.6 %), pneumothorax in 2 (1.2

%), and death in 1 (0.6 %). An internal catheter tip position peripheral to the atriocaval junction resulted in a catheter that was more likely to undergo internal repositioning ( $p < 0.001$ ) and venous thrombosis ( $p < 0.001$ ). Patients with femoral catheters were more likely to develop sepsis (45 %) than patients whose catheters were inserted through the upper extremity veins (18 %) ( $p < 0.01$ ). In conclusion, to reduce catheter-associated morbidity and potentially mortality, the internal catheter tip should be positioned at the atriocaval junction or within the right atrium and femoral insertion sites should be avoided whenever possible.

Reference:

Ballard, D.H., Samra, N.S., Gifford, K.M., Roller, R., Wolfe, B.M. and Owings, J.T. (2016) Distance of the internal central venous catheter tip from the right atrium is positively correlated with central venous thrombosis. *Emergency Radiology*. April 25th. .

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