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Reference:


Incidence of mechanical complications of central venous catheterisation
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Abstract:

PURPOSE: Central venous catheterization is a standard procedure in intensive care therapy. In developing countries, this intervention is frequently performed by physicians in training and without the availability of ultrasound guidance. Purpose of this study was to determine the incidence and potential risk factors for mechanical complications during central venous catheterization in an intensive care setting performed by a mixed group of practitioners without the use of adjunct ultrasound.

METHODS: Prospective observational cohort study in a university teaching hospital. Three hundred critically ill patients requiring their first central venous catheter insertion were enrolled. All patients were observed for 24 hours for mechanical complications (pneumothorax, hemothorax, arterial puncture, incorrect tip position, cardiac dysrhythmia, and/or subcutaneous hematoma). Potential associations with mechanical complications were adjusted using multivariable analysis. Main outcome was the cumulative incidence of mechanical complications.

RESULTS: The incidence of mechanical complications was 17% (n = 51). After covariate adjustment, the number of punctures was significantly related to mechanical complications. Compared with 1 puncture, 3 or more attempts were significantly associated with mechanical complications (odds ratio 3.62 [95% confidence interval 1.34-9.8]; P = .011). Experience of the operator was not associated with mechanical complications.
CONCLUSIONS: The incidence of mechanical complications is affected by the number of punctures performed. After adjustment, the risk increases substantially with more than 3 attempts. Limiting the number of attempts, appropriate supervision and the use of ultrasound guidance when available are recommended for the further reduction in mechanical complications of central venous catheterization.

Other intravenous and vascular access resources that may be of interest (External links – IVTEAM has no responsibility for content).

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