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**Reduce Infections**

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The image shows a SecurAcath device, which is a yellow and orange catheter with a handle labeled 'LIFT' and 'HOLD'. The device is shown inserted into a vein, with a cross-section of the vein and surrounding tissue visible. The background is a gradient of orange and brown.



The objective of this study is to compare the accurate placement of the CVC tip using anatomical landmark technique with ECG-guided technique” Krishnan et al (2018).

Abstract:

**BACKGROUND:** The current standard followed for assessing central venous catheter (CVC) tip placement location is through radiological confirmation using chest X-ray (CXR). Placement of CVCs under electrocardiogram (ECG) guidance may save cost and time compared to CXR.

**OBJECTIVE:** The objective of this study is to compare the accurate placement of the CVC tip using anatomical landmark technique with ECG-guided technique. Another objective is to

compare CVC placement time and postprocedural complications between the two techniques.

**METHODS AND MATERIALS:** A total of 144 adult individuals, who were critically ill and required CVC placement in the Emergency Department, were included for the study. Study duration was 6 months. Anatomical landmark and ECG-guided groups were assigned 72 participants each. Analyses were performed using t and Chi square-tests.

**RESULTS:** It was observed that 13 (18%) in the landmark technique were malpositioned as compared to none in the ECG-guided technique ( $P = 0.000$ ). The landmark group had 22 (30.6%) participants with arrhythmias during the procedure, compared to none in the ECG-guided group ( $P = 0.000$ ). The landmark group revealed that 30 (41.7%) of the CVC were overinserted and required immediate repositioning, compared to none in the ECG-guided group ( $P = 0.000$ ).

**CONCLUSION:** ECG-guided technique was found to be more accurate for CVC tip placement than the anatomical landmark technique. Furthermore, the ECG-guided technique was more time-effective and had less complications than the anatomical landmark technique. Hence, ECG-guided CVC placement is relatively accurate, efficient, and safe and can be considered as an alternative method to conventional radiography for confirmation of CVC tip placement.

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### Reference:

Krishnan, A.K., Menon, P., Gireesh Kumar, K.P., Sreekrishnan, T.P., Garg, M. and Kumar, S.V. (2018) Electrocardiogram-guided Technique: An Alternative Method for Confirming Central Venous Catheter Tip Placement. *Journal of Emergencies, Trauma, and Shock*. 11(4), p.276-281.

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