



“...study evaluated the sensitivity and specificity of bedside chest X-ray (CXR) for proper positioning of the catheter tip” Salimi et al (2015).

Reference:

Salimi, F., Hekmatnia, A., Shahabi, J., Keshavarzian, A., Maracy, M.R. and Jazi, A.H. (2015) Evaluation of routine postoperative chest roentgenogram for determination of the correct position of permanent central venous catheters tip. Journal of Research in Medical Sciences. 20(1), p.89-92.

Review of chest x-ray technique to determine central venous catheter tip location
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Abstract:

BACKGROUND: Proper placement of central venous catheter (CVC) tip could reduce early and late catheter-related complications. Although the live fluoroscopy is standard of care for placement of the catheter, it is not available in many centers. Therefore, the present study evaluated the sensitivity and specificity of bedside chest X-ray (CXR) for proper positioning of the catheter tip.

MATERIALS AND METHODS: A total of 82 adult patients undergoing elective placement of

tunneled CVC were enrolled in this study during 2010-2012. The catheter tip position was evaluated by postoperative bedside chest radiographs as well as trans-thoracic echocardiogram as definite diagnostic tool. The catheter position was considered correct if the tip was positioned in the right atrium both in CXR or echocardiography. Finally, CXRs interpreted by expert radiologist. Thus findings were compared by echocardiography. Sensitivity, specificity, accuracy, positive, and negative predictive values were calculated. Data were analyzed using SPSS version 16 (SPSS Inc., Chicago, IL), and $P < 0.05$ considered as significant.

RESULTS: The patients were 57.37 ± 18.91 years of age, weighed 65.79 ± 15.58 kg and were 166.36 ± 9.91 cm tall. Sensitivity and specificity of CXR for proper catheter tip position were 74.3% and 58.3%, respectively. Positive and negative predictive values were 91.2% and 28%. In addition accuracy, positive likelihood ratio, and negative likelihood ratio were 71.9%, 1.78, and 2.27 respectively.

CONCLUSION: Bedside CXR alone does not reliably predict malpositioning after CVC placement.

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