The purpose of this study is to verify as early as possible the correct positioning of the peripherally inserted central catheter (PICC) tip in order to reduce complications due to possible malpositioning" Baldinelli et al (2015).

Reference:

Baldinelli, F., Capozzoli, G., Pedrazzoli, R. and Marzano, N. (2015) Evaluation of the correct position of peripherally inserted central catheters: anatomical landmark vs. electrocardiographic technique. The Journal of Vascular Access. June 23rd. .

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Abstract:

PURPOSE: The purpose of this study is to verify as early as possible the correct positioning of the peripherally inserted central catheter (PICC) tip in order to reduce complications due to possible malpositioning. The ECG-guided technique proved to be reliable, easy to carry out, straightforward, low-cost and allows us to recognize an incorrect or a suboptimal positioning throughout the procedure. The purpose of this study is to compare two methods used during the PICC insertion so as to prevent catheter malpositioning; the first study estimates the catheter length by the landmark method (based on cutaneous anatomical landmarks, CALs) with the addition of the postprocedural verification of tip location by chest X-Ray (CxR), whereas the second method of intraprocedural tip location is based on the observation of the morphological variations of the P wave (ECG-guided technique) with the addition of the postprocedural verification by CxR.

METHODS: From 2010 to 2012, 90 PICCs were positioned, 48 using the anatomical landmarks and 42 using the ECG technique.

RESULTS: Twenty-five percent of the catheters positioned with the anatomical landmark technique did not reach the correct position of the tip in SVC; of these, 6.25% were placed in an aberrant position and others in a sub-optimal position.Of the 42 PICCs positioned with the ECG technique, only in three cases (equal to 7.14%), a suboptimal position of the tip was observed, whereas there was no case of aberrant positioning.

CONCLUSIONS: The ECG technique represents an accurate, low-cost and safe technique to

verify the correct positioning of the tip. The use of the ECG allowed a more correct positioning in terms of catheter tip-carina distance and catheter tip-tracheobronchial angle, and in no patient was it necessary to place a catheter again.

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