# To explore the clinical application of the intracavitary electrocardiogram (IC-ECG) guided Peripherally Inserted Central Catheter (PICC) tip placement among neonates" Zhou et al (2017).

Abstract:

OBJECTIVE: To explore the clinical application of the intracavitary electrocardiogram (IC-ECG) guided Peripherally Inserted Central Catheter (PICC) tip placement among neonates.

BACKGROUND: the ECGs of neonates are difficult to perform and their wave shapes are of doubtful accuracy due to various interfering factors.

METHOD: 115 neonates were admitted to perform PICC guided by IC-ECG. Logistic regression was performed to analyze all possible influencing factors of the accuracy from the tip placement. The puncture site of the PICC, gestational age, height, weight, basal P/R amplitude and positioning P/R amplitude might be related to the accuracy of IC-ECG location.



RESULT: The accuracy in the lower extremity was higher than that in the upper extremity. Multivariate logistic regression analysis showed that the weight (Odds Ratio (OR)=1.93, 95%Confidence Interval(CI):1.06-3.50) and positioning P/R amplitude (OR=32.33, 95%CI: 2.02-517.41) are statistically significant risks to the accuracy PICC tip placement.

CONCLUSIONS: Possible methods to improve the accuracy might be Catheterizing through lower extremity, keeping the neonates calm, enhancing the electrocardiogram signal and strengthening technical training. Therefore it is practical to perfrom a tip placement by the dynamic change in the P waves from an electrocardiogram (ECG) guided PICC among neonates and as reliable as using X-rays.

Reference:

Zhou, L.J., Xua, H.Z., Xu, M.F., Hu, Y. and Lou, X.F. (2017) An Accuracy Study of the Intracavitary Electrocardiogram (IC-ECG) Guided Peripherally Inserted Central Catheter Tip Placement among Neonates. Open Medicine. eCollection 2017.

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