

“The Italian Group for Venous Access Devices (GAVeCeLT) has carried out a multicenter study investigating the safety and accuracy of intracavitary electrocardiography (IC-ECG) in pediatric patients.” Rossetti et al (2014).

Reference:

Rossetti, F., Pittiruti, M., Lamperti, M., Graziano, U., Celentano, D. and Capozzoli, G. (2014) The intracavitary ECG method for positioning the tip of central venous access devices in pediatric patients: results of an Italian multicenter study. The Journal of Vascular Access. September 2nd. .

ECG tip positioning of central venous access devices in paediatric patients
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Abstract:

PURPOSE: The Italian Group for Venous Access Devices (GAVeCeLT) has carried out a multicenter study investigating the safety and accuracy of intracavitary electrocardiography (IC-ECG) in pediatric patients.

METHODS: We enrolled 309 patients (age 1 month-18 years) candidate to different central venous access devices (VAD) - 56 peripherally inserted central catheters (PICC), 178 short term centrally inserted central catheters (CICC), 65 long term VADs, 10 VADs for dialysis - in five Italian Hospitals. Three age groups were considered: A (lt;4 years, n = 157), B (4-11 years, n = 119), and C (12-18 years, n = 31). IC-ECG was applicable in 307 cases. The increase of the P wave on IC-ECG was detected in all cases but two. The tip of the catheter was positioned at the cavo-atrial junction (CAJ) (i.e., at the maximal height of the P wave on IC-ECG) and the position was checked during the procedure by fluoroscopy or chest x-ray, considering the CAJ at 1-2 cm (group A), 1.5-3 cm (group B), or 2-4 cm (group C) below the carina.

RESULTS: There were no complications related to IC-ECG. The overall match between IC-ECG and x-ray was 95.8% (96.2% in group A, 95% in group B, and 96.8% in group C). In 95 cases, the IC-ECG was performed with a dedicated ECG monitor, specifically designed for IC-ECG (Nautilus, Romedex): in this group, the match between IC-ECG and x-ray was 98.8%.



CONCLUSIONS: We conclude that the IC-ECG method is safe and accurate in the pediatric patients. The applicability of the method is 99.4% and its feasibility is 99.4%. The accuracy is 95.8% and even higher (98.8%) when using a dedicated ECG monitor.

CONCLUSION: We found no clinical advantages of valved vs. non-valved PICCs.

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