The purpose of our study is to compare the reliability and consistency of three commonly used techniques, which are surface measurement, intracardiac electrocardiogram (IECG) and tracheal bifurcation methods in measuring the tip location of totally implantable venous access port (TIVAP) in the same patient” Li et al (2019).

Abstract:

BACKGROUND: The purpose of our study is to compare the reliability and consistency of three commonly used techniques, which are surface measurement, intracardiac electrocardiogram (IECG) and tracheal bifurcation methods in measuring the tip location of totally implantable venous access port (TIVAP) in the same patient.

METHODS: The thirty-five patients scheduled for implantation of TIVAP were included and right subclavian vein was selected for venous access. We used surface measurement method (Group L) to estimate the length and position of catheter before catheterization, and then we used IECG method (Group E) to confirm the position of catheter during catheterization and after catheterization used tracheal bifurcation method by CT (Group T) for measurement. The differences of catheter length measured by three methods were compared by non-parametric Kruskal-Wallis test. Intraclass correlation coefficient (ICC) was used to evaluate the reliability of three methods and Bland-Altman chart was used to evaluate consistency.

RESULTS: There are no difference in the length of TIVAP catheter between L and T groups (P > 0.05), but they have significant differences comparing with E group (P < 0.05). The three positioning methods have a good consistency (ICC = 0.886, P < 0.05). Through linear regression analysis, the regression equation are: catheter length (mm) = 77.32 + 0.66 × height (cm), 36.25 + 0.81 × height (cm) and 68.82 + 0.70 × height (cm). The distances from catheter tip to the junction of superior vena cava and right atrium measured by IECG (Group E) was closer to the target value. CONCLUSIONS: All three methods can be used to measure the length of TIVAP catheter, and IECG method is the most accurate. And similar to most studies, returning the catheter 20 mm after positioning can avoid catheter entering the right atrium, but we found that 10 mm is a sufficient length to achieve this.
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