

**Midline Catheter Tip Positioning and Catheter-Related Complications during
Antimicrobial Therapy: A Multicenter Randomized Controlled Trial**

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The current study followed the conformance study protocol analysis and conducted the statistical analysis using SAS 9.4 (<http://www.sas.com/>). The catheter measurement data were represented by mean and standard deviation according to the normal distribution. In contrast, the catheter measurement data with non-normal distribution were represented by median and quartile, and the number of cases or percentages represented the counting data. The catheter-measurement data between the three groups were compared through variance analysis or the Kruskal-Wallis H test. Counting data were compared using the Chi-square test, exact probability method, and Kruskal-Wallis H test. The test level $\alpha=0.05$ for all three groups was a two-sided test, and $P<0.05$ was considered a statistically significant difference. Bonferroni method was used in pairwise comparison to optimize the significance level. The test levels $\alpha=0.017$ and $P<0.017$ were statistically significant differences. To analyze the rate of complications, cumulative event rates were plotted as Kaplan-Meier curve, and differences in these rates were assessed using log-rank tests, and $P<0.0001$ was considered a statistically significant difference. Mann-Whitney U tests were performed to analyze the differences in observed event times.