

An Empirical Study of PICC Related Venous Thrombosis Risk Assessment Tool in Cancer Patients

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Abstract

Objective: PICC-VT (Peripherally inserted central catheter-related venous thrombosis) occurs frequently in the indwelling process, and there was no generally accepted PICC-VT risk assessment tool in China. We sought to preliminarily assess the validity of a PICC-VT risk assessment tool (PICC-VT RAT) developed by our team.

Methods

We undertook a prospective study among 143 patients from a Chinese hospital.

Results

Of these 143 patients, 36 developed PICC-VT, including 4 symptomatic venous thromboses and 32 asymptomatic thromboses. 52.78% PICC-VT occurred within 1 week, while 38.89% occurred in the second week, and 8.33% in the third week. The area under the ROC curve (AUC) of PICC-VT RAT was 0.925 ($P < 0.001$, 95%CI:[0.861-0.988]). The optimal diagnostic threshold was 6.5 points, and the sensitivity was 91.67%, the specificity was 85.05%, the positive predictive value was 67.35%, and the negative predictive value was 96.91%. Cancer patients were scored from 2 to 12 points using PICC-VT RAT, 49 cases had a score higher than 6.5 points. The risk of thrombosis of high-risk patients was 21.102 (RR=21.102, $P < 0.05$, 95%CI: [6.814-65.346]) times higher than that of low-risk patients.

Conclusion

Our study preliminarily suggests that this PICC-VT risk assessment tool is an effective tool to assess the risk of PICC-VT among Chinese patients. However, future studies with larger samples and variety types of tumors are needed.

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