

**Abstract:**

**Background/aim:** Prolonged maintenance of central venous catheters, including peripherally inserted central catheters (PICCs), is a major risk factor for central line-associated bloodstream infection (CLABSI). This study was conducted to evaluate the appropriate duration of PICC maintenance to prevent CLABSI.

**Methods:** A single-center retrospective study was conducted at an 824-bed tertiary hospital in Korea between January 2010 and December 2017. All hospitalized patients who underwent ultrasound-guided PICC insertion were enrolled. CLABSI was diagnosed according to the definitions of the National Health Safety Network. CLABSI caused by PICC was defined as PICC-associated bloodstream infection (PABSI). To identify statistical correlations between catheter days and PABSI, the odds ratio for PABSI on the basis of the continuous value of catheter days was analyzed using restricted cubic spline splits with five knots. The optimal cut-off value for catheter days was identified by maximizing the area under the receiver operating characteristic (ROC) curve (AUC).

**Results:** A total of 1,053 patients underwent ultrasound-guided PICC insertion during the study period. Among them, 36 were confirmed as having a PABSI (3.5%, 36/1014; 1.14 per 1000 catheter days). In the restricted cubic spline regression, catheter days showed a dose-dependent relationship with the risk of PABSI. The AUC of the ROC curve for developing a PABSI according to the duration of catheter maintenance was 0.715 (95% CI, 0.639-0.790); the calculated optimal cut-off value was 25 days.

**Conclusion:** The incidence of PABSI was 1.14 per 1000 catheter days and the optimal cut-off value of catheter days to avoid a PABSI was 25 days.

**Reference:**

Park, S., Moon, S., Pai, H., & Kim, B. (2020). Appropriate duration of peripherally inserted central catheter maintenance to prevent central line-associated bloodstream infection. *PLoS one*, 15(6), e0234966. <https://doi.org/10.1371/journal.pone.0234966>.

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