



The incidence of peripherally inserted central catheter (PICC)-related adverse events has been uncertain in the setting of acute myeloid leukemia (AML) compared with the incidence of centrally inserted central catheter (CICC) adverse events” Picardi et al (2018)

Abstract:

BACKGROUND: The incidence of peripherally inserted central catheter (PICC)-related adverse events has been uncertain in the setting of acute myeloid leukemia (AML) compared with the incidence of centrally inserted central catheter (CICC) adverse events.

PATIENTS AND METHODS: We conducted a monocentric, randomized trial of patients with previously untreated AML. Of the 93 patients, 46 had received a PICC and 47 had received a CICC as frontline intravascular device. Thereafter, all patients underwent intensive chemotherapy for hematologic remission induction. The primary endpoint was catheter-related (CR)-bloodstream infection (BSI) and venous thrombosis (VT) rate. The secondary endpoints catheter malfunction, catheter removal, and patient overall survival.

RESULTS: The CR-BSI and CR-VT rate in the PICC and CICC groups was 13% and 49%, respectively, with a difference of 36 percentage points (relative risk for CR-BSI or CR-VT, 0.266; $P = .0003$). The CR-BSI incidence was 1.4 and 7.8 per 1000 catheters daily in the PICC

and CICC groups, respectively. Among the CR thromboses, the symptomatic VT rate was 2.1% in the PICC group and 10.6% in the CICC group. In the CICC group, 16 of the 47 patients (34%) had the catheter removed for BSI (n = 5), septic thrombophlebitis (n = 4), VT (n = 2), or malfunction (n = 5) a median of 7 days after insertion. In the PICC group, only 6 of the 46 patients (13%) required catheter removal for VT (n = 2) or malfunction (n = 4). At a median follow-up of 30 days, 6 patients in the CICC group died of CR complications versus none of the patients in the PICC group (P = .012). Using PICCs, the reduction in BSI and symptomatic VT decreased mortality from CR infection and venous thromboembolism. In contrast, the CICC approach led to early catheter removal mostly for difficult-to-treat infectious pathogens.

CONCLUSION: Our data have confirmed that BSI and symptomatic VT are the major complications affecting frontline central intravascular device-related morbidity in the leukemia setting. The use of a PICC is safer than that of a CICC and maintains the effectiveness for patients with AML undergoing chemotherapy, with an approximate fourfold lower combined risk of infection or thrombosis at 30 days.

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Reference:

Picardi, M., Della Pepa, R., Cerchione, C., Pugliese, N., Mortaruolo, C., Trastulli, F., Giordano, C., Grimaldi, F., Zacheo, I., Raimondo, M., Chiurazzi, F. and Pane, F. (2018) A Frontline Approach With Peripherally Inserted Versus Centrally Inserted Central Venous Catheters for Remission Induction Chemotherapy Phase of Acute Myeloid Leukemia: A Randomized Comparison. December 20th. .

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