Abstract:

Objective: The primary purpose of this study was to explore the safety of peripheral intravenous catheter (PIVC) replacement every 96 h compared to that of clinically indicated catheter removal.

Methods: A prospective, single-blind, randomized controlled trial was conducted. A random number table method was used. Six hundred patients treated with PIVC intravenous infusion in 10 nursing units of a hospital from September to October 2019 were selected. Sixty were collected from each nursing unit, including 30 in the clinically indicated replacement group and 30 in the routine replacement group. The incidence of phlebitis, catheter-related infection (CRI), occlusion, infiltration, and any form of infusion therapy failure were compared between the two groups. SPSS 23.0 software was used.

Results: The dwelling times of PIVC in the clinically indicated replacement group and routine replacement group were significantly different (hours) (83.62 ± 50.08, 69.75 ± 25.54, t = 3.021, p = 0.003). The incidence of any form of infusion therapy failure (RR = 4.448, 95% CI: 3.158-6.265, p < 0.001), phlebitis (RR = 2.416, 95% CI: 1.595-3.660, p < 0.001), occlusion (RR = 6.610, 95% CI: 3.062-14.268, p < 0.001), infiltration (RR = 2.607, 95% CI: 1.130-6.016, p = 0.020), accidental dislodgement (RR = 2.027, 95% CI: 1.868-2.200, p = 0.013), and pain at the insertion site (RR = 2.521, 95% CI: 1.742-3.649, p < 0.001) was higher in the clinically indicated replacement group than that in the routine replacement group. The overall survival curve of PIVC was drawn with Kaplan-Meier survival analysis. The median survival time of intravenous infusion was 59.58 h; the cumulative survival rates of 48 h, 72 h, and 96 h were 77.00%, 51.33%, and 20.33%, respectively.

Conclusion: Replacement of PIVC every 96 h is safer than clinically indicated.

Reference: