Abstract:

Background: Use of Central Venous Catheters (CVC) can be associated with increased incidence of Catheter-Related Bloodstream Infections (CRBSI). The present study assessed the impact of open versus closed catheter access system of CVC on infection prevention in critically sick patients admitted in the Intensive Care Unit (ICU).

Materials and methods: After obtaining ethical clearance and consent of relatives of the patients admitted in ICU of our institute, the present study was carried out as a randomized, prospective, double-blind trial with parallel group design (of 200 patients in each group). In study group (Group I), closed catheter access system (Luer access split septum) was used, while open access (three-way) system was used in the control group. Among clinical parameters, if any patient developed fever, his/her blood, urine, and tracheal secretions were sent for culture and sensitivity. Collected data were analyzed using descriptive and inferential statistics.

Results: Demographic profile was similar in both the groups. Significant clinical and statistical differences were observed in blood culture values ($\chi^2 = 58.30$, df = 1, $p < 0.001$) as well as Total Leukocyte Counts (TLC) on day 1, 4, and 8 ($F_{2,260} = 80.61$, $p < 0.001$). However, no statistically significant ($t_{390} = 0.90$, $p = 0.367$) difference was found in the duration of hospital stay among patients in both the groups despite significant differences in various clinical parameter.

Conclusion: Luer access split septum connectors along with appropriate training of the nursing personals decrease CRBSI.

Reference: