Abstract:

Objectives: In children, peripheral intravenous catheters (PIVs) are maintained by either a continuous infusion of fluid “to keep vein open” (TKO) or a saline lock (SL). There is a widespread perception that TKO prolongs PIV patency, but there is a lack of evidence for this. We hypothesized that there would be no significant difference in duration of PIV patency between TKO and SL.

Patients and methods: This prospective, time-allocated study included patients from newborn to 17 years of age admitted to our pediatric ward. Patients enrolled in the first 3 months were assigned to TKO, and patients in the latter 3 months were assigned to SL. Primary outcome was duration of functional patency of the first PIV during the time of TKO or SL. Secondary outcomes included PIV-related complications and patient and caregiver satisfaction.

Results: Complete PIV data were available on 172 (n = 85 TKO, n = 87 SL) of 194 enrolled patients. The mean (SD) duration of PIV patency was 41.68 (41.71) hours in the TKO group and 44.05 (41.46) hours in the SL group, which was not significantly different (P = .71). There were no significant differences in complication rates or overall patient and caregiver satisfaction. One patient in the TKO group had their PIV removed because of risk of strangulation from tubing.

Conclusion: There were no significant differences between TKO and SL in the duration of PIV patency, complication rates, and overall patient and caregiver satisfaction in our pediatric population. Overall, SL is a safe and reasonable alternative to TKO in maintaining PIV patency in children.

Reference: