Abstract:

OBJECTIVES: Parenteral nutrition is essential for the growth and nutrition of patients with intestinal failure (IF). Catheter related blood stream infections (CRBSI) are a major complication of parenteral nutrition use. Few retrospective studies have shown that 70% Ethanol lock (ETL) therapy for central lines can reduce the infection rate. Studies assessing line breakage, thrombosis and replacement with the use of ETL are lacking in the pediatric literature.

METHODS: This is a retrospective chart review, with a primary outcome of CRBSI rate per 1,000 catheter days, and secondary outcomes of line thrombosis, line breakage requiring repair, and line replacement rates with use of ETL compared to heparin locks. Rates were compared using the Wilcoxon signed rank test for paired non-parametric data.

RESULTS: Seven patients satisfied the inclusion criteria that included having a single lumen silicone central line exposed to both heparin and ETL therapy during the study period. There was a statistically significant decrease in overall and gram negative CRBSI rates per 1000 catheter days with a use of ETL therapy (10.3 to 1.4 per 1000 catheter days for overall CRBSIs, p = 0.02; 6.7 to 0 per 1000 catheter days for gram negative CRBSI, p = 0.03). However, there was an increasing trend in line thrombosis and repair rates with ETL therapy. Logistic regression analysis evaluating the impact of line luminal size on line repair rate showed a reduced risk of line repair when using larger central lines.

CONCLUSIONS: ETL therapy is an effective method for decreasing CRBSI in IF patients, however it may have a negative impact on line integrity. Patients should be carefully selected when deciding on ETL therapy use for central line care. Studies are still needed on the effect of different ethanol concentrations on infection rate as well as line integrity to optimize the outcome in this high risk population.
Other intravenous and vascular access resources that may be of interest (External links – IVTEAM has no responsibility for content).