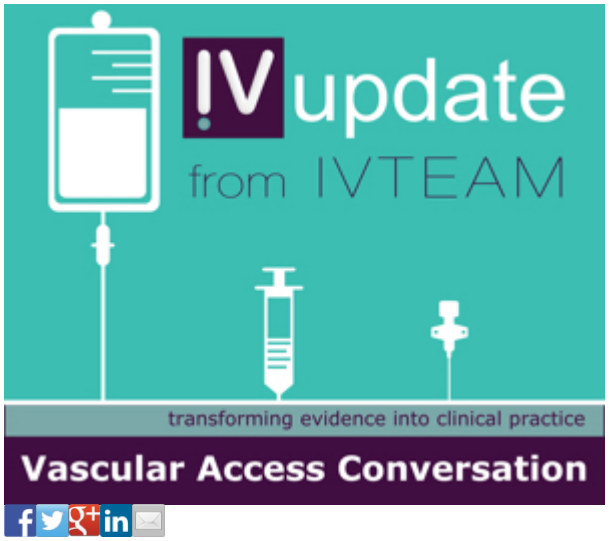

Our primary aim was to evaluate the feasibility of a large randomized controlled efficacy trial of PICC materials and design to reduce PICC complication in pediatrics" Kleidon et al (2018).

Abstract:

BACKGROUND: Despite the popularity of peripherally inserted central catheters (PICCs), recent literature highlights their potential injurious complications. Innovative PICC materials have been developed to prevent thrombosis and infection formation (Endexo®) and antireflux valves to prevent occlusion (pressure-activated safety valve®). No large randomized controlled trial has assessed these technologies. Our primary aim was to evaluate the feasibility of a large randomized controlled efficacy trial of PICC materials and design to reduce PICC complication in pediatrics.

METHODS: A randomized controlled feasibility trial was undertaken at the Lady Cilento Children's Hospital in South Brisbane, Australia, between March 2016 and November 2016. Consecutive recruitment of 150 pediatric participants were randomly assigned to receive either (1) polyurethane PICC with a clamp or (2) BioFlo® PICC (AngioDynamics Inc, Queensbury, NY). Primary outcomes were trial feasibility, including PICC failure (thrombosis, occlusion, infection, breakage, or dislodgement). Secondary outcomes were PICC complications during use.

RESULTS: Protocol feasibility was established, including staff and patient acceptability, timely

recruitment, no missing primary outcome data, and 0% attrition. PICC failure was 22% (16 of 74, standard care) and 11% (8 of 72, BioFlo®) corresponding to 12.6 and 7.3 failures per 1000 hours (risk ratio 0.58; 95% confidence interval, 0.21-1.43; P = .172). PICC failures were primarily due to thrombosis (standard care 7% versus BioFlo® 3%) and complete occlusion (standard care 7% versus BioFlo® 1%). No blood stream infections occurred. Significantly fewer patients with BioFlo® had PICC complications during use (15% vs 34%; P = .009).

CONCLUSIONS: BioFlo® PICCs appear potentially safer for pediatrics than traditional standard care PICCs with a clamp. Further research is required to definitively identify clinical, cost-effective methods to prevent PICC failure and improve reliability.

Reference:

Kleidon, T., Ullman, A.J., Zhang, L., Mihala, G., Chaseling, B., Schoutrop, J. and Rickard, C.M. (2018) How Does Your PICCOMPARE? A Pilot Randomized Controlled Trial Comparing Various PICC Materials in Pediatrics. Journal of Hospital Medicine. February 8th. .

doi: 10.12788/jhm.2911.