Near infrared (NIR) technology is a noninvasive method that reveals vessels that are otherwise not visible to the eye” Barreras and Chang (2017).

Abstract:

Background: Children with special health care needs (CSHCN) are predicted to be at particular risk for difficult peripheral venous access (PVA). Near infrared (NIR) technology is a noninvasive method that reveals vessels that are otherwise not visible to the eye. Our primary objective was to determine whether PVA success improved with NIR when compared with traditional visualization/palpatation, specifically in CSHCN.

Methods: A retrospective analysis of all patients requiring PVA insertions by the vascular access team at a 350-bed tertiary children’s hospital from July 2013 until June 2014 were included. Independent variables included age, gender, ethnicity, CSHCN status and modality used (NIR, ultrasound guidance, transillumination, or none). The primary outcome was subjective difficulty, PVA success, and number of attempts required. The effect of NIR and CSHCN was analyzed using χ2 test.

Results: Data were gathered on 7896 PVA placements in children. Out of these, 6071 children were deemed to have special health care needs. CSHCN had subjectively difficult access 88% of the time compared with non-CSHCN at 74.7% (P < 0.0001). CSHCN status lowered intravenous access success rates from 91.4% to 87.5% (P < 0.0001). The use of NIR significantly increased intravenous access success rates when compared with visualization or palpation (26% vs 19.6%; P < 0.0001). Modality had a statistically significant effect on the number of attempts (P < 0.0001), but only a slight clinical significance (NIR, up to 1-4 attempts and ultrasound or transillumination combined, 1-6 attempts).

Conclusions: NIR decreases the number of attempts and improve overall success rates in acquiring PVA in CSHCN. Further studies on maximizing PVA success in this patient
population are warranted.

Reference:


DOI: http://dx.doi.org/10.1016/j.java.2016.12.005

Thank you to our partners for supporting IVTEAM