Vascular Access | A New Approach for Early Recognition of Peripheral Intravenous (PIV) Infiltration: A Pilot Appraisal of a Sensor

Evaluation

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Number of subjects: 15

Number of IV sites: 15

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Abstract/Informational Paragraph:

Due to their unique developmental characteristics, preterm infants are more susceptible than most to iatrogenic harm arising from vascular cannulation and infusate infiltration or extravasation. It is therefore widely accepted that healthcare staff should take measures to prevent, detect, promptly treat, and mitigate these risks. Internationally, most neonatal units have implemented bundles of measures to reduce and manage risks associated with vascular access. One key element of these 'care bundles' is directed towards early detection of infiltration/extravasation events, often using a variety of visual assessment tools. The aim of this pilot product evaluation was to explore the feasibility of using a particular novel optical sensor-based infiltration detection technology (ivWatch®) in a neonatal unit. The device was used on 15 preterm infants receiving short-term vesicant infusions while awaiting placement of central lines. Infiltration notifications were issued by the technology for 14 out of the 15 infiltrations confirmed by visual inspection. This corresponded to a sensitivity of 93.3% and, importantly, in all cases was detected earlier than was detected by staff using an hourly documented visual inspection tool. This pilot found that the technology was easy to use and apply, with only minor additions to existing intravenous (IV) access practice. Continuous IV site monitoring using optical sensor technology offers the potential to detect infiltration and extravasation events earlier than when using intermittent observational tools alone. Further study is required on larger neonatal study populations with a broader range of gestational ages, weights and IV site locations.