Improving the Detection of Phlebitis in Hospitalized Children

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Peripherally inserted venous cannulation (PIVC) is one of the commonest procedures performed in hospitalized children. It is often a lifesaving procedure, enabling administration of various types of intravenous fluids, medications, and blood products. Like any procedure, PIVC is also associated with few complications; important ones include infiltration, extravasation, phlebitis, occlusion, accidental dislodgement, and infection. Phlebitis, i.e., irritation or inflammation of the vessel wall, is a frequent and distressing complication of PIVC.

A recent systematic review on PIVC failure and complications in children estimated the overall pooled incidence of catheter failure to be 38% and the total incidence of phlebitis to be 5% [1]. However, much higher rates of 25%–50% have also been reported [2].

Various factors affect the risk of development of phlebitis, including site of placement of PIVC, experience of healthcare worker inserting the device, cannula gauge, cannula materials, etc. [2]. Phlebitis may manifest with a variety of signs and symptoms such as pain, tenderness, swelling, erythema, warmth, leakage, palpable venous cord, and purulent discharge. A study on the incidence of various signs and symptoms of phlebitis found that tenderness was the commonest sign with an incidence of 5.7%, which was more than double that of swelling, and more than three times that of pain [3]. These results highlight the importance of inspection of the cannula site by a healthcare worker, instead of just relying on patient reporting.

Routine changing of PIVC every 72–96 h in the absence of a clinical indication has not been found to reduce the incidence of phlebitis [4]. Accordingly, the present recommendation is rotation of PIVC site based on clinical indications, rather than at pre-set intervals [5]. Therefore, it is all the more important to routinely inspect the cannula site for any complication. The Infusion Nurses Society has laid down specific recommendations

regarding the frequency of assessment of cannula site; for neonatal and pediatric patients, at least hourly assessment is recommended [6].

The recently published study by Robert et al. on the impact of physician inspection in the detection of phlebitis in children admitted to a tertiary care hospital adds to existing knowledge in this area [7]. This was a well-planned study in which thrombophlebitis events were independently recorded by physicians and nurses based on a uniform scoring system. Incidence of phlebitis was found to be 10.3% and of the total 35 events, 55% were picked by routine nursing observations, whereas physicians picked up the additional 45%. Additional physician inspection of PIVC almost doubled the detection rate of phlebitis as compared to observation by nurses alone. This increase in the detection rate may be because of increase in number of observations, and not specific to observations by a cadre of healthcare professionals.

Prompt detection of phlebitis and timely corrective measures can save patient discomfort and dissatisfaction to a large extent. Apart from the precautions to be taken during the placement of PIVC, frequent observations by the nursing staff and the doctors to detect phlebitis promptly are important. All cannula sites should be covered with a transparent dressing to allow frequent evaluation. Standard operating procedures should be formulated in all units regarding the frequency of assessment of cannula site.

Declarations

Conflict of Interest None.

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