Neonatal And Pediatric Extravasation: An Overview And Algorithm For Evidence-based Treatment.

Neonates and children are more susceptible to skin injury and complications from PIV extravasation injury than adults. Their immature and small skin structures, flexible subcutaneous tissue, small blood vessels and poor venous integrity increase the risk of complication from venipuncture and peripheral intravenous (PIV) therapy.

Infiltration and extravasation can result in serious complications in young children. These injuries can be destructive, causing localized tissue damage from pressure on internal structures and in severe cases can result in compartment syndrome. Extravasations which are infiltrations of vesicants can result in peripheral tissue damage, necrosis, scarring, nerve damage and amputation. The severities of the complications are dependent on the type of vesicant, concentration of vesicant, location, amount, and duration of exposure to the vesicant.

Once an extravasation is discovered, immediate treatment is the key to preventing progressive damage from the vesicant. Treatment decisions are based on the size and appearance of the injury, type of solution infusing, duration of exposure and location. Nurses have mounting challenges of not only replacing the failed PIV; they must notify the family of the injury and call doctor or LIP to assess the site and plan for pharmacologic treatment if indicated. Pharmacologic treatment that improves tissue perfusion and prevents progressive tissue necrosis has been shown to be most effective if initiated within one hour of the injury. Instituting pharmacologic

intervention is a whole process in its self once physician orders are obtained and medication is received from pharmacy. The medication antidote will need to be reconstituted, drawing up into 5 different syringes attached to the smallest needle possible and then injected subcutaneously around the extravasation site. This procedure requires assistance and if nurses have not been exposed to this process, following a detailed protocol can be overwhelming and may not be administered in the time frame recommended.

Goals: Neonates and pediatric patients will receive timely interventions from prepared knowledgeable nurse and physician staff; utilizing handy evidence-based resources to treat and minimizing the injury from PIV infiltration and/or extravasation.

Problem statement: Children with infiltrations and extravasation injuries need immediate intervention to prevent and/or minimize cutaneous compromise that can lead to underlying structural defects, necrosis and sequelae. An evidenced-base algorithm can be used to promote timely interventions.

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