Abstract:

Objectives: This systematic review aims to assess the quality of literature supporting surgical interventions for paediatric extravasation injury and to determine whether there is sufficient evidence to support invasive techniques in children.

Methods: We performed a systematic review by searching Ovid MEDLINE and EMBASE as well as AMED, CINAHL, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews and clinicaltrials.gov from inception to February 2019. Studies other than case reports were eligible for inclusion if the population was younger than 18 years old, if there was a surgical intervention aimed at treating extravasation injury and if they reported on outcomes. Study quality was graded according to the National Institutes of Health study quality assessment tools.

Results: 26 studies involving 728 children were included—one before-and-after study and 25 case series. Extravasation injuries were mainly confined to skin and subcutaneous tissues but severe complications were also encountered, including amputation (one toe and one below elbow). Of the surgical treatments described, the technique of multiple puncture wounds and instillation of saline and/or hyaluronidase was the most commonly used. However, there were no studies in which its effectiveness was tested against another treatment or a control and details of functional and aesthetic outcomes were generally lacking.

Conclusion: Surgical management is commonly reported in the literature in cases where there is significant soft tissue injury but as there are no comparative studies, it is unclear whether this is optimal. Further observational and experimental research evaluating extravasation injuries, including a centralised extravasation register using a universal grading scheme and core outcome set with adequate follow-up, are required to provide evidence to guide clinician decision-making.

Reference: