Preventing peripheral venous catheter problems

Peripheral venous catheters (PVCs) are used to deliver short-term intravenous therapy. However, insertion requires successful venipuncture which, for some patients, can be challenging due to fragile or difficult-to-locate veins. Removal and replacement of a PVC that has failed due to a preventable complication – such as dislodgement, infiltration, phlebitis or infection – affects patients and may delay therapy. Dressings and securement devices have evolved to prevent these complications but each dressing is associated with varying costs and complexity.

A Cochrane review (Marsh et al, 2015) was undertaken to provide guidance for clinicians when choosing a PVC securement method. It aimed to assess the effects of PVC dressings and securement devices on the incidence of PVC failure.

Intervention
The review included six randomised controlled trials comparing PVC dressings and securement devices. The following comparisons were made:

- Transparent and gauze dressings;
- Borderer transparent dressings and tape;
- Borderer transparent dressing and adhesive sutureless securement device;
- Transparent dressing and sticking plaster.

Primary outcomes were PVC failure and adverse events. Inclusion criteria were broad, allowing for studies with patients of any age in any setting where a PVC was required, and studies comparing any dressing or securement device used for PVC stabilisation, made from any type of product. Two of the study authors independently reviewed the selected studies.

Results
None of the three studies comparing transparent dressing with gauze reported on the author’s primary outcomes. A study comparing a bordered transparent dressing to a securement device included the primary outcome of PVC failure, as did a study comparing a bordered transparent dressing to tape. Neither of the primary outcomes was present in the study comparing a transparent dressing to sticking plaster.

There was no evidence of a difference between the bordered transparent dressing and securement device groups for PVC failure.

In the comparison of a bordered transparent dressing to tape, PVC failure occurred less frequently in the tape group than the bordered transparent dressing group. There were concerns about the difference in group sizes for this study (68 in the bordered transparent dressing group and 85 in the securement device group), so it was rated as at high risk of bias.

The study comparing a transparent dressing with sticking plaster did report on the primary outcome of adverse events associated with PVC; there were five cases of allergic reaction reported (three in transparent dressing group and two in sticking plaster group) but the results was not statistically significant. No further information about allergy presentation or follow up was available.

Conclusions
Among the studies compared, there was a lack of definitive evidence to support the use of one dressing or securement over another, with narrow evidence suggesting transparent dressings were less likely to lead to PVC failure when compared to gauze. The studies included in this review were not sufficiently powered, were single studies, or had high or unclear risk of bias. Further research is needed to confirm the findings of the current body of evidence.

Implications for Practice
Due to the small number of studies available and the high risk of bias and limitations in study designs, there is little to offer as recommendations for practice.

The most recent Infusion Nurses Society (2016) Infusion Therapy Standards state that catheters should remain in place until it is clinically indicated to remove them. Therefore, additional studies investigating newer or novel methods for preserving PVCs are needed to support the currently body of evidence.

Further research would aid clinicians in choosing an effective device for maintaining PVCs for durations sufficient to support the therapy that necessitates them (Infusion Nurses Society, 2016).

References


Author
Lindsay B Bolt, a clinical nurse educator at the Institute for Nursing Excellence, a member of the Cochrane Nursing Care Field, and a corporate social responsibility trainer for the University of California San Francisco (UCSF) and Joanna Briggs Institute Centre for Synthesis and Implementation, UCSF Medical Centre and Benioff Children’s Hospital, San Francisco, California.

For more on this topic go online...

- Care of peripheral venous cannula sites
- Bit.ly/NTVenousCannula

www.nursingtimes.net / Vol 112 No 33/34/35 / Nursing Times 10.08.16 15