

To assess the effects of peripheral venous catheter dressings and securement devices on the incidence of peripheral venous catheter failure” Marsh et al (2014).

Abstract:

**BACKGROUND:** Peripheral venous catheterisation is the most frequent invasive procedure performed in hospitalised patients; yet over 30% of peripheral venous catheters fail before treatment ends.

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**OBJECTIVES:** To assess the effects of peripheral venous catheter dressings and securement devices on the incidence of peripheral venous catheter failure.

**DATA SOURCES:** We searched the Cochrane Wounds Group Register, The Cochrane Central Register of Controlled Trials, MEDLINE; EMBASE and CINAHL for any randomised controlled trials comparing different dressings or securement devices used to stabilise peripheral venous catheters. The reference lists of included studies were also searched for any previously unidentified studies.

**RESULTS:** We included six randomised controlled trials (1539 participants) that compared various dressings and securement devices (transparent dressings versus gauze; bordered transparent dressings versus a securement device; bordered transparent dressings versus tape; and transparent dressing versus sticking plaster). Trial sizes ranged from 50 to 703 participants. The quality of evidence ranged from low to very low. Catheter dislodgements or accidental removals were lower with transparent dressings compared with gauze (two studies, 278 participants, risk ratio (RR) 0.40; 95% confidence interval (CI) 0.17-0.92, P=0.03%). However, the relative effects of transparent dressings and gauze on phlebitis (RR 0.89; 95% CI 0.47-1.68) and infiltration (RR 0.80; 95% CI 0.48-1.33) are unclear. A single study identified less frequent dislodgement or accidental catheter removal with bordered transparent dressings compared to a securement device (RR 0.14, 95% CI 0.03-0.63) but more phlebitis with bordered dressings (RR 8.11, 95% CI 1.03-64.02). A comparison of a bordered transparent dressing and tape found more peripheral venous catheter failure with the bordered dressing (RR 1.84, 95% CI 1.08-3.11) but the relative effect on dislodgement was unclear.

**CONCLUSIONS:** There is no strong evidence to suggest that any one dressing or securement product for preventing peripheral venous catheter failure is more effective than any other product. All of the included trials were small, had high or unclear risk of bias for one or more of the quality elements we assessed, and wide confidence intervals, indicating that further

randomised controlled trials are necessary. There is a need for suitably powered, high quality trials to evaluate the newer, high use products and novel - but expensive - securement methods, such as surgical grade glue.

Reference:

Marsh, N., Webster, J., Mihala, G. and Rickard, C.M. (2016) Devices and dressings to secure peripheral venous catheters: A Cochrane systematic review and meta-analysis. *International Journal of Nursing Studies*. 67, p.12-19. .

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