ABSTRACT

Background
Extensive annual global use of peripheral arterial catheters (ACs) for BP monitoring and blood sampling in critical care: Australia 160,000, USA 8 million, & Europe 2.5 million. Catheter complications associated with catheter dressing/securement → failure from accidental dislodgement, occlusion, thrombosis or bloodstream infection. Up to 25% of ACs fail during treatment → significant morbidity, patient suffering, prolong hospitalisation and increase costs. Looking back at literature reveals a lack of research on this topic.

Objective
To perform a review of the literature about dressing and securement of peripheral ACs.

Methods
A literature search of the Cochrane Central Register of Controlled Trials, Ovid MEDLINE, Ovid EMBASE, and EBSCO CINAHL, as well as Google and Google Scholar was executed and systematic review and meta-analysis performed on the scarce literature.

Results

- Only two pilot randomized controlled trials were suitable for inclusion. These studied 138 (123/195) surgical patients with arterial catheters, with the same 4 interventions: control standard polyurethane, integrated device Tegaderm™ Advanced, the securement device StatLock® and tissue adhesive Histoacryl®.

- All methods were superior to control standard care polyurethane and the processes were feasible.

- Incidence of catheter failure overall was: occlusion 12%; dislodgement 2%; thrombosis %. Pooled failure was 11% (27/241).

- Pilot economic analyses indicated newer products were more cost-effective, and the most economical way for further testing was a large 4-arm trial.

Conclusions

- Both trials: robust methodology. Overall 11% catheter failure rate unacceptably high.

- Both trials show standard care dressings inadequate.

- Observed effect sizes support more research as the way to the future.

- Nil Disclosures.

References