



Peripheral intravenous catheter securement: An integrative review of contemporary literature related to medical adhesive tapes and supplementary securement products

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Purpose

To synthesize evidence related to medical adhesive tapes and supplementary securement products for peripheral intravenous catheters (PIVCs) in adults, to prevent complications and device failure.

PIVC failure affects around 50% of catheters and results in patient distress and financial burden on healthcare institutions.

Methods

Integrative review informed by Whitmore and Knafl¹.

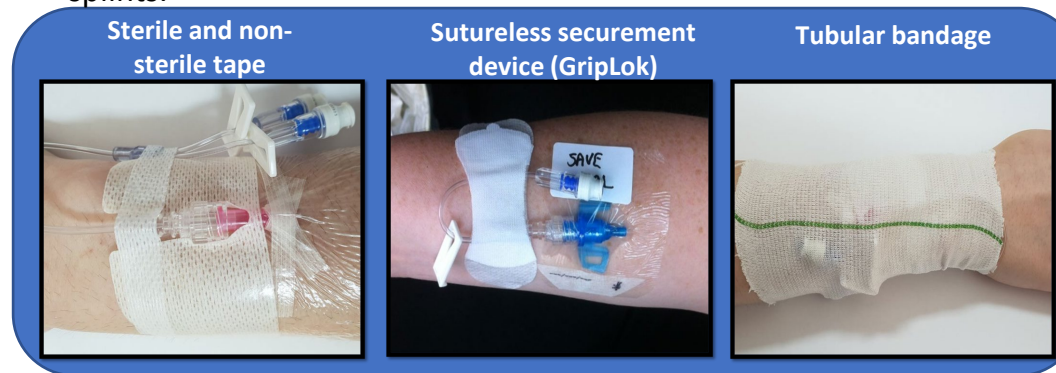
Prospective or retrospective studies enrolling hospitalized participants >16 years with PIVCs secured by medical adhesive tapes, or supplementary securement products (bandage, splint, sutureless securement device [SSD]) were eligible.

Quality appraisal was performed using Critical Appraisal Skills Program checklists.

The Cochrane CENTRAL, US National Library of Medicine National Institutes of Health, EMBASE/MEDLINE, and CINAHL were systematically searched from year 2000 - 21 September 2020.

Results

- 19 studies met criteria, including 43,683 PIVCs.
- Quality appraisal identified high or unclear risk of bias in 58% of studies.
- Non-sterile tape directly over insertion sites was associated with increased PIVC failure and complications.
- SSDs potentially reduce failure and complications.
- Multi-product combinations were very common.
- Significant evidence gaps exist particularly regarding bandages and splints.



Conclusions

Tapes and supplementary securement product evidence is limited and over half of studies are of low methodological quality.

Non-sterile tape directly over PIVC insertion sites increases device complications and failure and should not be used.

Practice recommendations for other interventions are challenging, due to conflicting, or lack of, evidence.

Large rigorous randomized controlled trials assessing multiproduct interventions are needed to add to current evidence to reduce unacceptably high failure and complication rates.

References

1. Whittemore, R., & Knafl, K. (2005). The integrative review: updated methodology. *Journal of Advanced Nursing*, 52(5), 546-553.