

Fewer patients dislodged peripheral intravenous catheters with transparent dressings than with gauze dressings

Tripepi-Bova KA, Woods KD, Loach MC. A comparison of transparent polyurethane and dry gauze dressings for peripheral IV catheter sites: rates of phlebitis, infiltration, and dislodgment by patients. *Am J Crit Care* 1997 Sep;6:377-81.

Question

Compared with gauze dressings, can transparent polyurethane dressings (TPDs) reduce patient dislodgment of peripheral intravenous (IV) catheters, phlebitis, and insertion site infiltration?

Design

Randomised controlled trial.

Setting

6 units (medical and surgical) in a 1000 bed national referral centre in Cleveland, Ohio, USA.

Patients

229 adult patients admitted between January 1994 and June 1995 with a physician prescription for initiation of peripheral IV treatment in a forearm vein. Exclusion criteria were <18 years old, evidence of thrombocytopenia or immunosuppression, or pregnancy.

Intervention

108 patients were allocated to TPDs (Opsite, Smith and Nephew, Quebec, Canada) and 121 were allocated to gauze dressings (5 x 5 cm Mirasorb Sponges, Johnson and Johnson Medical Inc, Arlington, Texas). To ensure standardisation of insertion and dressing techniques, nurses attended mandatory training sessions, received written instructions, and had access to diagrams. In addition, an assigned shift research coordinator monitored patients daily. Patients were followed up until the IV catheter (for the specific insertion site) was discontinued.

Main outcome measures

Nurse documentation of catheter dislodgment (purposeful or accidental) by the patient, phlebitis (redness, pain, warmth, or swelling), and infiltration (tissue swelling around the insertion site).

Main results

Fewer patients who had TPDs dislodged the IV catheter compared with patients who had gauze dressings ($p < 0.05$) (table). Rates of phlebitis and infiltration did not differ, although there was a trend toward a lower frequency of phlebitis and infiltration in patients assigned to TPDs (table).

Conclusions

Transparent polyurethane dressings on peripheral IV sites resulted in fewer catheter dislodgments by patients than did gauze dressings. Non-significant trends for lower rates of phlebitis and IV site infiltration were found for patients who had transparent polyurethane dressings.

*Transparent polyurethane dressings (TPDs) v gauze dressings**

Outcome	TPD	Gauze	RRR (95% CI)	NNT (CI)
Catheter dislodgment	5.6%	14.9%	62.7% (12.6 to 84.3)	11 (6 to 67)
Phlebitis	1.9%	3.3%	44.0% (-156 to 87.9)	Not significant
Infiltration	17.6%	20.7%	14.9% (-44.4 to 50.1)	Not significant

*Abbreviations in table defined in glossary; RRR, NNT, and CI calculated from data in article.

Source of funding: The Cleveland Clinic Foundation.

For article reprint: InnoVision Communications, 101 Columbia, Aliso Viejo, CA 92656, USA. Fax +1 714 362 2022.

Commentary

IV access devices are known to cause adverse effects, and efforts to reduce complications should be commended. Peripheral IV treatment is associated with a high incidence of morbidity, in particular sepsis and peripheral vein thrombophlebitis. Effective securement of the IV device may reduce complications, and controversy persists about the optimum type of dressing.

This study by Tripepi-Bova *et al* evaluates the effectiveness of 2 frequently used dressings in a randomised controlled trial. The authors measured adhesive properties, reduction in peripheral vein thrombophlebitis, dislodgment by patients, and infiltration. Because of the cost implications of analysis, the study did not consider catheter related sepsis, which is a recognised complication and would have been a

useful outcome measure. Nevertheless, the authors designed this study to consider their own clinical needs, choosing to concentrate on factors which were problematic to their own practice rather than those of practitioners elsewhere.

When recommending changes based on research carried out in other units it is important to consider one's own local policies and practices. This study design was suitable for Tripepi-Bova *et al* because their sepsis rates for peripheral IV devices were low and they appeared to have effective policies for site care which included rotation of catheter insertion sites every 72 hours. If peripheral sepsis is a problem, or if procedures for peripheral IV treatment are not clearly defined, it would be inappropriate to accept their results without considering other research.

The 2 types of dressings which were considered in this study are commonly used in clinical settings. More detail about the type of TPD used would have been helpful because many different varieties are available, often from the same manufacturer.

No reference is made to cost differences between the two dressings, which is a factor controlling the use of some products for many nurses. However, the conclusions drawn from this study could have implications for practice because time can be saved if the improved security provided by TPDs results in the insertion of fewer cannulas.

Diane Palmer, RN, BSc(Hons), PGCE
Lecturer, School of Nursing
The University of Hull
Willerby, Hull, UK