
Abstract:

Aims and objectives - This article presents a systematic review of the evidence for the optimal interval for replacement of administration sets for peripheral arterial catheters.

Background - Peripheral arterial catheters are attached to administration sets, including transducers, which are changed routinely in some hospitals on the understanding that prolonged duration of administration sets use may cause a higher incidence of infection.

Design - Systematic review.

Methods Medline, CINAHL, Scopus and the Cochrane Library were searched to access relevant studies published between 1966 and 2011. Inclusion criteria were quantitative studies of critically ill patients with peripheral arterial catheters that required administration sets for intra-arterial pressure monitoring and had a focus on administration sets duration of use. Studies were assessed for quality using either methodological quality assessments from Cochrane guidelines for systematic reviews for randomised controlled trials or with the Newcastle-Ottawa quality assessment scale for cohort studies.
Results – Six studies were selected for review. These included three randomised controlled trials (226 patients) and three cohort studies (219 patients). Cohort studies reported 1–4% catheter-related bloodstream infection and 0–8% infusate-related bloodstream infection when administration sets were changed every 48 hours. Two randomised controlled trials found no difference in infusate-related bloodstream infection (two days: 0%; four to eight days: 1·7%) and found no cases of catheter-related bloodstream infection in any group when administration sets were replaced every 24 or 48 hours.

Conclusion – There is limited evidence on the optimum duration of administration sets used for peripheral arterial catheters. Large randomised trials of high quality are needed.

Relevance to clinical practice – This review provides clinicians with comprehensive information about the state of the evidence in relation to the duration of administration sets for peripheral arterial catheters to inform decision-making and further research.