

Needleless closed catheter access systems or not?

The following question was answered by a systematic review of the literature: Should needleless closed catheter access systems be recommended or not in patients with vascular devices?

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Is there evidence for recommending needleless closed catheter access systems in guidelines? A systematic review of randomized controlled trials.

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Abstract

A systematic review was conducted to determine whether certain vascular access policies are better than others in terms of prevention of catheter-related infections. Publications were retrieved by a search of Medline, the Cochrane Library and Embase up to May 2005. All randomized trials and systematic reviews/meta-analyses of randomized trials evaluating the effect of vascular access policies (i.e. needleless closed systems, conventional closed systems or conventional open systems) on catheter-related infection in hospitalized patients with intravascular catheters in situ were selected. Two reviewers independently assessed trial quality and extracted data. Data from the original publications were used to calculate the relative risk or the incidence-density relative rate of catheter-related infection. Data for similar outcomes were combined in the analysis where appropriate using a random-effects model. Of the six studies reviewed, one was excluded. Five randomized controlled trials were included in the review. The quality of the trials and the way they were reported were generally unsatisfactory. Four trials compared needleless closed systems with conventional open systems. There was a trend for an advantage of the needleless closed devices in terms of less catheter-associated bloodstream infection, less catheter tip colonization and less hub inlet colonization. There were no possibilities for combining data because of clinical heterogeneity. One trial compared needleless closed systems with conventional closed systems and the evidence was inconclusive. From the point of view of infection prevention, there are no objections to use these new systems. However, there is insufficient evidence at this stage to recommend the needleless closed vascular devices.