

Elective Replacement of Peripheral Intravenous Catheters to Prevent Thrombophlebitis

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Summary and Conclusions

TECHNOLOGY AND TARGET GROUP A peripheral intravenous catheter (PIC) is a thin tube that is inserted via a cannula into a vein, usually in the hand or arm. PIC insertion is a common procedure used in health care to administer fluids, nutrients, blood products, and medications to patients. A complication related to the use of PIC is the development of thrombophlebitis, ie, a concurrent inflammation and blood clot in a peripheral vein. A positive correlation has been found between the indwelling time of a catheter and the risk for developing thrombophlebitis. Hence, one hypothesis is that thrombophlebitis rates can be reduced if catheters are replaced at regular intervals. The target group for this method includes all patients in need of peripheral intravenous catheters.

PRIMARY QUESTION Does elective replacement of peripheral intravenous catheters reduce the incidence and the severity of thrombophlebitis? The review concerns adult patients.

PATIENT BENEFIT Findings from three randomized controlled trials suggest that elective replacement of peripheral intravenous catheters can reduce the risk for and severity of thrombophlebitis. The intervals between replacement of PICs vary between 12 and 48 hours. However, the trials are small and offer limited scientific evidence.

ECONOMIC ASPECTS In Sweden, 5 million peripheral intravenous catheters are used annually at a cost of about 50 million Swedish kronor (SEK). The PIC replacement interval influences the number of PICs consumed, and hence the costs for this method. No studies were identified that thoroughly investigated the cost of elective replacement of peripheral intravenous catheters in relation to complications.

SBU's appraisal of the evidence

There is limited scientific evidence (Evidence Grade 3)* that elective replacement of peripheral intravenous catheters reduces the incidence and the severity of thrombophlebitis. The appropriate intervals for PIC replacement have not been adequately assessed. No scientific studies have investigated the cost effectiveness of this method.

**Grading of the level of scientific evidence for conclusions. The grading scale includes four levels; Evidence grade 1 = strong scientific evidence, Evidence grade 2 = moderately strong scientific evidence, Evidence grade 3 = limited scientific evidence, Evidence grade 4 = insufficient scientific evidence.*

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The complete report is available only in Swedish.