

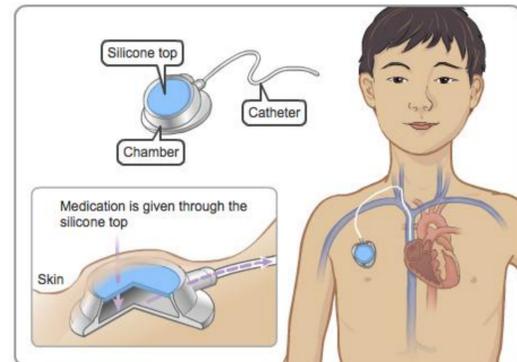
Subcutaneously implanted port-chamber central venous catheters: prevention and care of occlusion

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Evidence summary

A port is a special intravenous (IV) line that is placed completely inside the body. A port provides a more comfortable and convenient way to receive medicines such as chemotherapy, IV nutrition, fluids and from which to have blood samples taken.

Occlusion of subcutaneously implanted port-chamber central venous catheters (CVAD) is a commonly occurring problem in cancer patient care. A change of port-chamber catheter model in our institution was the opportunity to review nursing care techniques.



Method

We carried out a structured literature review (Medline/Embase) and a manual search for non-indexed information sources up to February 2013. The keywords used were "central venous catheter", "peripherally inserted central venous catheter" and "catheter occlusion". Only publications presenting concrete facts on nursing care were included (drug volumes administered, exact durations of drug delivery, care techniques, written protocols). General recommendations were excluded. The criteria identified were: study methodologies, occlusion prevention techniques, definition and diagnosis, clearance techniques, effectiveness and safety.

Occlusion prevention techniques

10 mL minimum



NaCl 0.9%



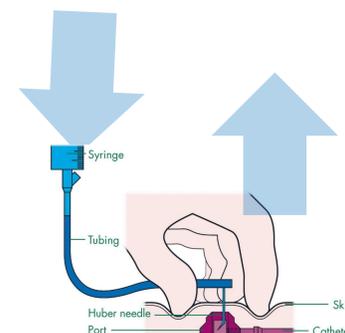
20 + 20

20 mL flush before and after use

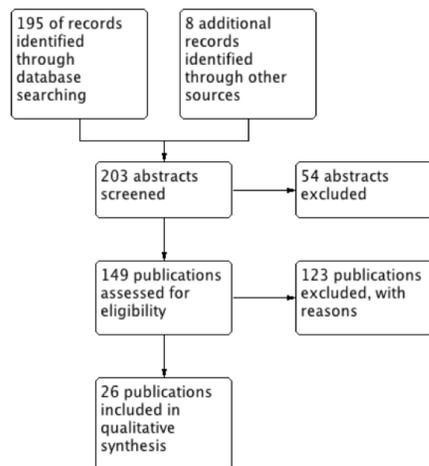
pulsatile flush



positive pressure



lock!



Results

26 publications were included: 14 studies (6 prospective, 8 retrospective), 9 review articles, 1 case study series, 1 survey and 1 reference book. Eleven publications concerned adult patients, 9 children and 4 both. Only 6 contained information with all the identified criteria. Fifteen only concerned occlusion prevention techniques, 14 concerned identification of blockages and 22 concerned blockage clearance techniques (17 thrombotic occlusion, 1 non-thrombotic lipid occlusion, 4 for both types). Highlighted points included: minimum 10 ml syringe volume use, using NS (normal saline) for flushing and positive pressure filling (pulsed flux technique), thrombotic occlusion treatment using alteplase, the lack of validated, risk free treatment for non-thrombotic occlusion, and cost considerations.

Thrombotic occlusion?

alteplase



Discussion-conclusion

Few studies of good methodological quality exist, with wide heterogeneity in types of catheter devices and occlusions evaluated. This renders comparison of preventive practices and occlusion treatment difficult. Literature review revealed a variety of useful insights for the interdisciplinary working group. The costs and risks of occlusion and the repeated use of alteplase call for good quality quantitative and qualitative prospective studies.

