

Device-related Adverse Events during Clinical use of Catheters for Venous Access

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Current treatment algorithms of cancer most often require repeated venous access for the delivery of various compounds. We may note chemotherapy, immune therapy, tracers for imaging purposes, supportive parenteral nutrition, antibiotics and more. Our group has chosen to study device-related adverse events during clinical use. Among those are infection and thrombosis. In addition, there might appear unwanted effects from interactions between the catheter material, infused compounds and the tissue during prolonged clinical use. We presently collected data on adverse effects during the first period of treatment with chemotherapy (4 months) of a malignant breast tumor, comparing the use of a subcutaneous venous port (Port-a-Cath) with the use of a PICC-line. We aim to randomize n=250 patients. In addition, we are ageing the same type of catheters in-vitro in a simulation chamber, where chemotherapy is given in accordance to current guidelines. Material analyses are performed on the catheter material and preliminary results show that significant degradation of the catheter material does take place over time¹. In other studies, coated central venous catheters (CVC) have been compared to a standard CVC². We propose that above mentioned interactions and the ageing process of catheter materials have to be taken into account when adverse events during oncology therapy are discussed.

References:

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2. Björling G, Johansson D, Bergström L et al. Evaluation of central venous catheters coated with a noble metal alloy - A randomized clinical pilot study of coating durability, performance and tolerability. *J Biomed Mater Res B Appl Biomater*. 2018 Aug;106(6):2337-2344. Epub2017 Nov. PMID: 29106034

Biography:

Claes Frostell, MD, is a Consultant in Anaesthesiology at the Department of Anaesthesia and Intensive Care, at Danderyd Hospital, one of the teaching hospitals in Stockholm. He has held the title of Professor in Anaesthesia and intensive care at Karolinska Institutet since 2001. His PhD thesis (1986) was focused on lung fluid balance during mechanical ventilation. Starting in 1989, he spent a postdoc period in Boston, researching effects of low doses of inhaled nitric oxide (iNO) on the pulmonary circulation together with the Zapol group. Prof. Frostell is presently involved in work on sepsis and device-related colonization and infection.