
Abstract:

Thrombotic occlusion of central venous catheters (CVCs) is a common problem in newborns. There is no guideline that systematically addresses the diagnosis, management, and prevention of this complication. The objective of this review is to establish evidence-based guidance for the management of CVC-related thrombosis. A comprehensive search of the scientific literature was conducted from 1948 to 2012. Twenty-six articles fulfilling four criteria – humans, neonates aged below 28 days, CVC insertion, and English language – were included for analysis. The incidence of thrombosis was 9.2% (308/3332). Singly inserted umbilical venous catheters (UVCs) and peripherally inserted central catheters accounted for over 80% of all CVCs. Frequently reported thrombotic sites were the hepatic vein, right atrium, and inferior vena cava. Symptoms included distal swelling of affected areas and thrombocytopenia. Increased length of catheter stay, infusion of blood products and malpositioned UVCs were identified as risk factors. The commonest diagnostic investigations to confirm thrombosis were echocardiography and ultrasonography. Spontaneous resolution may occur in UVC-related thrombosis, but this warrants close monitoring. Thrombolysis with urokinase alone or combined with low-molecular-weight heparin might be effective and well tolerated as treatment strategies. Prophylactic heparin increases the duration of catheter usability (P<0.005, 95% confidence interval 0.35-0.81), decreases catheter occlusion, but may not uniformly prevent thrombosis. CVL-related thrombosis is an underreported complication because events in the majority occur silently. Currently, solid evidence-based recommendations for diagnosis and treatment are not possible. Well designed prospective studies are urgently required to establish a concrete investigational approach to CVC-related thrombosis and to institute safe therapeutic modalities.

Other intravenous and vascular access resources that may be of interest (External links – IVTEAM has no responsibility for content).

Guide for intravenous chemotherapy and associated vascular access devices from Macmillan. An example of peripheral cannulation OSCE from OSCE Skills.