In this study, we aim to identify the incidence of and risk factors for CVC-related DVT in this high-risk population, as its complications are highly morbid” Steen et al (2019).

Abstract:

BACKGROUND: Central venous catheter (CVC) use is common in the management of critically ill children, especially those with congenital heart disease. CVCs are known to augment the risk of deep vein thrombosis (DVT), but data on CVC-associated DVTs in the pediatric cardiac intensive care unit (CICU) are limited. In this study, we aim to identify the incidence of and risk factors for CVC-related DVT in this high-risk population, as its complications are highly morbid.

MATERIALS AND METHODS: The PC4 database and a radiologic imaging database were retrospectively reviewed for the demographics and outcomes of patients admitted to the Texas Children’s Hospital CICU requiring CVC placement, as well as the incidence of DVT and its complications.

RESULTS: Between January 2017 and December 2017, 1215 central lines were placed over 851 admissions. DVT was diagnosed in 8% of admissions with a CVC, 29% of which demonstrated thrombus in the inferior vena cava. The risk factors significantly associated with DVT included the presence of >1 line, higher total line hours, longer intubation times, and extended CICU stay. A diagnosis of low cardiac output syndrome, sepsis, central line-
associated bloodstream infection, and cardiac catheterization were also significant risk factors. Interestingly, cardiac surgery with cardiopulmonary bypass appeared to be protective of clot development. DVT was a highly significant risk factor for mortality in these patients.

CONCLUSIONS: CVC-related DVTs in critically ill children with congenital heart disease are associated with higher risks of morbidity and mortality, highlighting the need for well-designed studies to determine the best preventative and treatment strategies and to establish guidelines for appropriate monitoring and follow-up of these patients.

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