The present study was designed to determine risk factors associated with requirement of tPA for CVC dysfunction and to assess the clinical impact of CVC dysfunction in terms of CVC loss and venous thrombotic events (VTE)” MacLean et al (2018).

Abstract:

Background: Central venous catheter (CVC) dysfunction is a common complication among pediatric cancer patients. Tissue plasminogen activator (tPA) is administered to resolve CVC dysfunction. The present study was designed to determine risk factors associated with requirement of tPA for CVC dysfunction and to assess the clinical impact of CVC dysfunction in terms of CVC loss and venous thrombotic events (VTE).

Procedure: Case records of all pediatric patients with cancer from the Maritimes, Canada were reviewed following ethics approval. Data regarding demographics, clinical diagnosis, CVC dysfunction, characteristics of CVCs, and VTE were pooled from multiple data sources.

Results: Seven hundred and forty-one patients required ≥1 CVC. 26.3% of patients required tPA for ≥1 episodes of CVC dysfunction. Requirement of one or more doses of tPA for episodes of CVC dysfunction increased the odds of VTE by two times (95% confidence interval, 1.1–3.6). Patients that required ≥1 doses of tPA required significantly more CVCs (2.05 ± 1.29 per individual patient, 55% of the patients needed >1 CVCs) as compared to the remainder (1.52 ± 0.95 per individual patient, 32% needed >1 CVCs) (P = 0.0001). Multivariate analysis revealed age > 10 years, diagnosis of sarcoma, and tunneled line were independently associated with tPA requirement.

Conclusion: We determined independent risk factors associated with requirement of tPA for CVC dysfunction. Requirement of tPA for CVC dysfunction was associated with significantly increased risk of VTE and requirement of more CVCs. These observations can assist in identification of patients at increased risk of CVC dysfunction and inform approaches to reduce CVC loss and VTE.
Reference:


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