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Utilization of a Silver-plated Dressing on Extracorporeal Membrane Oxygenation Cannulation Sites to Reduce Frequency of Insertion Site Exposure and Associated CLABSI Incidence

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Abstract

Significance: Cannulas for adult patients with extracorporeal circuits cannot be easily removed or exchanged when suspicion of contamination arises. Central Line-Associated Blood Stream Infections (CLABSI's) can be detrimental, increasing Length of Stay (LOS), mortality rates, and institutional financial burden. Prevention of bacteremia is crucial in the management of the ECLS patient population.

Background: Currently, there is no industry standard for dressing ECMO cannulation sites. In recent years, an academic medical center employed Chlorhexidine Gluconate (CHG) dressings to provide antimicrobial and occlusive coverage of cannula sites. The multidisciplinary team observed concerns with this dressing, including nursing time spent changing dressings, subsequent superfluous exposure of cannula sites, and incidence of CLABSI infection.

Intervention: Silver ions are clinically proven to be effective in combatting a wide spectrum of microorganisms and are continuously delivered at an effective level for up to seven days. The team adopted silver-plated dressings as a new standard of care, replacing CHG dressings.

Methods: A registered nurse fellow implemented and tracked this practice change. The RN evaluated CLABSI incidence, number of dressing changes, and financial impact after a three-month pilot period.

Results: Nurses utilized the silver-plated dressings for at least 50% of cannulation time on twenty-two patients from March 2024-May 2024. When compared to the previous standard of care, the silver-plated dressings demonstrated significant reduction in frequency of dressing changes without increase in cost of dressings or CLABSI incidence.

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Fibrinogen Concentrate Dosing Guidelines to Treat Acquired Hypofibrinogenemia in Pediatric ECMO

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Abstract

Introduction: Acquired hypofibrinogenemia may occur in patients supported with ECMO. It is commonly treated using cryoprecipitate or fibrinogen concentrate. There is very limited data on the use of fibrinogen concentrate in children on ECMO. We developed a guideline for replacement using fibrinogen concentrate.

Methods: We developed and deployed an institutional guidelines for the administration of fibrinogen concentrate. All administrations were evaluated to measure the efficacy in increasing fibrinogen activity levels.

Results: Between April 2022 to February 2024, 22 patients received fibrinogen concentrate (RIASTAP®). The indication for ECMO was for cardiac support in 11, pulmonary support in 4, and ECPR in 7. Median age was 2.3 m (IQR: 72 days, 1-549 days), weight 3.9 kg (IQR: 3.4-10.6kg), and first dose was 50 mg/kg (range 31-70 mg/kg). Three potential types of membranes and circuit volumes (250 ml, 320 ml, 600 ml) were used. The median increase in fibrinogen activity following the first dose was 0.4 g/L (IQR: 0.1-0.7). No thrombotic nor circuit complications were reported attributable to the delivery of the product.

Conclusion and future directions: Clinicians chose to deliver the dose calculation option per weight over a target level option. The increase in fibrinogen activity achieved was modest. Given the safety profile of the current dosage, we propose to increase the dose. We will evaluate the impact on the co-administration of other replacement products and on the magnitude of bleeding. As there was no uptake of the target-based dose calculation, this option will be removed to minimize confusion.