APPLICATION OF TOPICAL HEMOSTATIC AGENT TO TREAT ECMO CANNULA SITE BLEEDING

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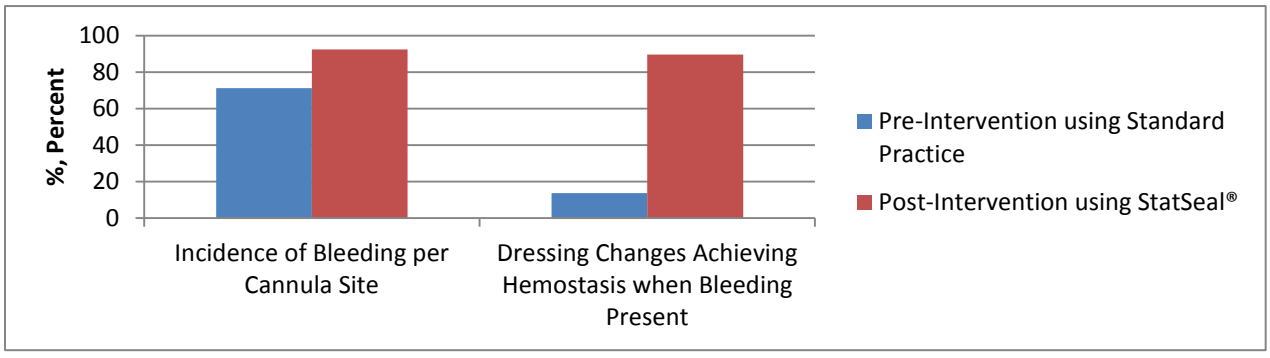
INTRODUCTION: Bleeding from ECMO cannula sites may result in significant morbidity including persistent daily blood product transfusion requirements and even hemorrhagic shock. A retrospective review of 34 ECMO patients in 2014, excluding transthoracic and open chest cannulations, showed an incidence of bleeding in 71.1% of cannula sites but only achieving hemostasis with standard practice (Surgicel® and/or infrequent dressing changes to avoid disturbing a developing clot) in 13.7% of dressing changes. The purpose of this project was to identify and implement a more effective topical hemostatic strategy for ECMO cannula sites.

METHODS: An in-depth literature review and a survey of ELSO centers were performed to identify topical hemostatic strategies in vascular access catheters. Based on this review, StatSeal® was selected as an alternative hemostatic agent and included in institutional cannula site dressing change guidelines. ECMO specialists were trained in its use and guideline compliance was tracked prospectively. Data on effectiveness of achieving hemostasis pre-intervention (pre) was collected retrospectively by chart review, and post-intervention (post) was collected prospectively.

RESULTS: There were 46 total patients (34 pre, 12 post) with 51 cannula sites (38 pre, 13 post). The incidence of bleeding per cannula site was 71.1% in the pre-intervention group and 92.3% in the post-intervention group. Hemostasis was achieved in 13.7% of cannula dressing changes in the standard intervention group compared to 89.5% with dressing changes with Statseal® (Figure 1). There were no significant differences in the two groups with respect to mode, cannulation site, cannulation technique, or systemic anticoagulation management. The trial topical hemostatic agent was ineffective at achieving hemostasis when not applied per guideline with pressure over bleeding site or for serous drainage. In four patients, initial hemostasis was achieved, but bleeding resumed following patient movement or cannula repositioning. In three of these patients, hemostasis was achieved following reapplication of StatSeal®; one awake patient received a local injection of lidocaine with epinephrine at a bleeding distal suture.



CONCLUSIONS: Statseal® is effective as a topical hemostatic agent for ECMO cannula site bleeding. Proper application, including applying pressure for the appropriate period of time, is essential to achieving hemostasis.