PREDICTORS OF DOBUTAMINE AND RBC ADMINISTRATION AMONG PATIENTS TREATED WITH EARLY GOAL DIRECTED THERAPY IN THE EMERGENCY DEPARTMENT

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Study Objectives
To examine the frequency and predictors of dobutamine administration and/or red blood cell (RBC) transfusion among sepsis patients meeting criteria for "advanced" central venous oxygen saturation (ScvO2)-guided therapies as recommended by the original EGDT protocol, namely the administration of dobutamine and/or transfusion of RBCs if ScvO2 remains less than 70% once CVP and MAP targets have been reached. Additionally, it is unclear how often patients who qualify for these interventions actually receive them.

Methods
Retrospective review of a prospectively collected database of patients with severe sepsis or septic shock treated with EGDT in one of 21 Northern California Kaiser Permanente EDs between March 2010 and September 2012. Patients who simultaneously achieved both a CVP of 8 mmHg or greater, in addition to standardized central venous pressure (CVP) and mean arterial pressure (MAP) targets. However, in contemporary studies and clinical practice, few patients meet indications for "advanced" ScvO2-guided therapies as recommended by the original EGDT protocol, namely the administration of dobutamine and/or transfusion of RBCs if ScvO2 remains less than 70% once CVP and MAP targets have been reached. Additionally, it is unclear how often patients who qualify for these interventions actually receive them.

Results
2894 patients underwent EGDT during the 31-month study period. 440 (15%) patients met study inclusion criteria. A total of 202/440 (46%) of patients had septic shock at EGDT initiation and 171/440 (39%) had bacteremia. 94/440 (21%) required invasive mechanical ventilation (AOR 3.5, 95% CI 2.0-6.2) independently predicted dobutamine administration.

Conclusions
In this retrospective cohort, patients undergoing EGDT with ScvO2 values less than 70% despite meeting CVP and MAP goals were not treated with dobutamine and/or red cell transfusion. These findings suggest specific barriers to therapy implementation. Of note, lactate clearance, which has been proposed as a surrogate resuscitation endpoint for ScvO2, was not identified as an independent treatment predictor. Patients were significantly more likely to be treated with dobutamine if they required vasopressor therapy or if they lacked an indication for red blood cell transfusion (i.e. had a hemoglobin of 10 g/dL or greater). The observed association with vasopressor use may indicate greater perceived severity of illness and clinical concern for suboptimal ScvO2 values by treating clinicians.

About CREST Network
The Clinical Research in Emergency Services & Treatments (CREST) Network is a multi-center, collaborative network at Kaiser Permanente that encourages, enables and executes research in Emergency Medicine. www.kpcrest.net