

Essential Emergency Critical Care (EECC) Related Research Articles: a Literature Review

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INTRODUCTION

The emergency department deals with many critical cases daily being surgical or medical based. Waiting times for intensive care patients in the emergency departments have been increasing because of surge capacities, especially during these challenging covid-19 times (Azhan, 2021). Applying an evidence-based approach to the resuscitation of emergency cases is important in ensuring the risk and benefit ratio of treating patients is preserved (Waydhas, 1999). Critical care evidence-based practice can be found via many resources and easily via the web-based in a computerized hospital management system (Kleinpell *et al.*, 2011). To transform the emergency department into an essential emergency critical care management center, it must also incorporate evidence-based practices to provide the best treatment to be implemented in our patients (Gurjeet Singh a/I Harvendhar Singh, 2022). Education also plays an important part in escalating the services in emergency departments making it evidenced-based and incorporating research-related evidence will help justify treatments and management of the critically ill. In this article, we discuss research articles that we believe can be essential to improving critical care services in emergency departments. The emergency department deals with many critical cases daily being surgical or medical based (Acob, 2018; Albougami, 2019 and Anal, 2021). Applying an evidence-based approach to the resuscitation of emergency cases is important in ensuring the risk and benefit ratio of treating patients is preserved (Azali, & Ludin, 2020 & Ludin, & Bajuri, 2020). In this article we discuss research articles that we believe can be essential to improving critical care services in emergency departments.

FLUID RESUSCITATION

First, the SPLIT trial of a buffered fluid vs saline on acute kidney damage among patients in the intensive care center: the SPLIT randomized clinical trial. Second, the SAFE study, which had tried to compare albumin and saline for sepsis patients in shock during resuscitation in the Intensive Care centers. Third, the ALBIOS trial which had used albumin as a replacement for patients in shock secondary to sepsis. Fourth, the SMART trial used a balanced solution against saline in adults who are critically ill. Fifth, SALT-ED study also compared balanced solution against normal saline in adult patients who were not in shock or requiring intensive care. Sixth the FEAST studied death with fluid bolus in African kids with a severe source of Infection. Seventh, 6S Hydroxyethyl Starch 130/0.42 against the Ringer's Acetate in patients with criteria meeting severe sepsis. Eighth, VISEP trial for severe sepsis patients with focused insulin therapy and Pentastar stabilization. Ninth, CHEST double-blinded trial of Hydroxyethyl Starch and Saline for Fluid administration in Critical Care. Tenth, CRISTAL study on death in patients presenting with a hypovolemic type of shock who required intensive care comparing colloids and crystalloids.

SEPSIS

First, Process: A Randomized Trial of Protocol-Based Care for Early Septic Shock. Second, Promise Trial of Early, Goal-Directed Resuscitation for Septic Shock. Third, ARISE Goal-Directed Resuscitation for Patients with Early Septic Shock. Fourth, TRISS Lower versus Higher Hemoglobin Threshold for Transfusion in Septic Shock. Fifth, CORTICUS CORTICUS: Hydrocortisone Therapy for Patients with Septic Shock. Sixth, ADRENAL Adjunctive Glucocorticoid Therapy in Patients with Septic Shock. Seventh, SEPSISPAM High versus Low Blood-Pressure Target in Patients with Septic Shock. Eighth, NICE-SUGAR Intensive versus Conventional Glucose Control in Critically Ill Patients. Ninth, VASST Vasopressin versus Norepinephrine Infusion in Patients with Septic Shock.

TRAUMA

First, the CRASH 2 trial was a randomized trial that studied the outcomes of tranexamic acid on mortality, thrombotic occurrences, and transfusion of blood products in trauma patients with serious hemorrhage. Second, the CRASH-3 trial studied the administration of tranexamic acid in the management of traumatic head injury. Third, NASCIS 1/2/3 Methylprednisolone in the treatment of spinal cord trauma. Fourth, REACT 2 study regarding the whole-body CT scan in trauma patients against routine imaging and focused CT scan in persons with high-grade trauma.

VENTILATION

First, the ARDSNet ARMA trial which studied the ventilation of intubated patients using a low tidal volume against normal tidal Volume for Acute Lung Inflammation and ARDS, Acute Respiratory Distress Syndrome (ARDS). Second, the LOVS (2008) study on ventilation management with low tidal Volume, lung recruitment methods, and high PEEP in patients with acute Lung Inflammation and Acute Respiratory Distress Syndrome ARDS. Third, ALVEOLI (2004) Higher versus Lower Positive End-Expiratory Pressures in Patients with the Acute Respiratory Distress Syndrome. Fourth, the EXPRESS trial was done in the year 2008 which studied the PEEP pressure in adults with acute lung inflammation and ARDS: Fifth, the 3CPO was also done in 2008 which studied the non-invasive ventilation usage in Acute Cardiac origin Pulmonary Oedema. Sixth, the ART in 2017 studied the outcome of Lung Recruitment Maneuver and Titrated Positive End-Expiratory Pressure (PEEP) vs Low PEEP on death in cohorts with Acute Respiratory Distress Syndrome (ARDS). Seventh is the HACOR score which predicted NIV failure in patients using NIV.

VASOPRESSOR

First, SOAP2 study discussed the use of Dopamine and Norepinephrine in the management of Shocked patients. Second, the VASST study discussed the addition of Vasopressin and Norepinephrine to improve survival in shocked patients

CONCLUSION

In this commentary, we have highlighted the important research articles to bear in mind when taking care of patients needing intensive care in the emergency department using evidence-based medicine. The author believes that using evidence-based medicine to support essential emergency critical care practices, especially in a resource-limited setting is essential in providing the best care for the critically ill, weighing the risk and benefit ratio.

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