Supplementary Online Content


eMethods

This supplementary material has been provided by the authors to give readers additional information about their work.
eMethods

We utilized the Deyo-Charlson index to assess the burden of chronic illness with higher scores indicating more comorbidity, via International Classification of Disease, 9th Edition, Clinical Modification (ICD-9-CM) coding algorithms which are well studied and validated. Intensive care unit admission was determined by Current Procedural Terminology (CPT) code 99291 (critical care, first 30-74 minutes) assignment during hospital admission, a previously validated approach in the RPDR database (1). Race was designated by the patient or by a patient representative. All CPT or ICD-9-CM codes were derived from daily billing charges from individual physicians.

Sepsis was defined by the presence of any of the following ICD-9-CM codes: 038.0-038.9, 790.7, 117.9, 112.5, or 112.81 (2), 3 days prior to critical care initiation to 7 days after critical care initiation a definition validated in our administrative data (3). Using electronic pharmacy records, exposure to inotropes and vasopressors was determined for dopamine, dobutamine, epinephrine, norepinephrine, phenylephrine, milrinone and vasopressin. Inotropes or vasopressors were considered to be present if prescribed 3 days prior to critical care initiation to 7 days after critical care initiation (4, 5). Acute kidney injury was defined as RIFLE class Injury or Failure occurring between 3 days prior to critical care initiation and 7 days after critical care initiation (6). We classified patients according to the maximum RIFLE class (class Risk, class Injury or class Failure) defined as a fold change in serum creatinine from pre-admission serum creatinine (3, 6). Noncardiogenic acute respiratory failure was identified by the presence of ICD-9 codes for respiratory failure or pulmonary edema (518.4, 518.5, 518.81, and 518.82) and mechanical ventilation (96.7×), excluding congestive heart failure (428.0-428.9) following hospital admission (7). Emergency General Surgery (EGS) was defined as CPT codes related to previously defined diagnoses classes of EGS (8) and dated within 48 hours of ICU admission. The number of packed red blood cells (PRBC) transfused in the 48 hours prior to ICU admission and up to 48 hours following ICU admission was determined by blood bank records (4).

We calculated survival risk ratios by dividing the number of patients who survived to 30-days following ICU admission with a specific traumatic ICD-code (ICD-9 800.00-959.9) by the total number of patients with the same ICD-code. We determined the traditional ICD-9 derived Injury Severity Score (ICISS) via the product of all survival risk ratios for an individual patient's traumatic ICD-9 codes (10-12). ICISS can derive good quality severity estimates for large databases with high quality ICD-9-CM coding (13). The trauma related ICD-9 diagnosis codes were grouped into Nature and Body Region of Injury categories based upon the Barell matrix (14).
eReferences


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