Title: Cardiovascular Hemodynamics of Hospitalized Patients with Congestive Heart Failure

Abstract:

Background: Patients with congestive heart failure are often hospitalized for critical illness with cardiogenic shock, kidney injury, arrhythmias and other complications requiring invasive pressure measurements, mechanical ventilatory and circulatory support, and strong medications. While invasive pressure measurements are often used to direct individual patient care[1,2], there is limited efforts to aggregate and analyze this collected data for clinical research. Even small cohort studies based on hemodynamic measurements can provide significant insight into the management of critically ill hospitalized patients [3]. Invasive hemodynamic measurements are already tabulated and recorded in the electronic medical record, and we hope to use this dataset to perform exploratory data analysis and regression analysis to predict mortality.

Expected Results:

Potential Impact: We will look at the hemodynamic measures including central venous pressure, pulmonary vascular pressure, pulmonary artery pressure, systemic blood pressure, pulmonary wedge pressure, right atrial pressure, and other measures of cardiac output inputted into Epic. We will correlate such hemodynamic measures and lab values with patient status, frequency of hospitalization, and mortality. Such analysis can help provide insights into how to avoid rehospitalizations and evaluate optimal hemodyanmic management.

Project Timeline:

Budget:

STRIDE technical support

Summary of Student Role:

Citations:

* Hadian M, Pinsky MR. Evidence-based review of the use of the pulmonary artery catheter: impact data and complications. Crit Care. 2006;10 Suppl 3:S8.
* Payen D, Gayat E. Which general intensive care unit patients can benefit from placement of the pulmonary artery catheter? Crit Care. 2006;10 Suppl 3:S7.
* Mullens W, Abrahams Z, Importance of Venous Congestion for Worsening of Renal Function in Advanced Decompensated Heart Failure. Journal of the American College of Cardiology Vol. 53, No. 7, 2009 doi:10.1016/j.jacc.2008.05.068