Comparative effectiveness of fibrin sealants in cardiac surgery.

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Abstract:

Objectives: While effectiveness of fibrin sealants for controlling bleeding in cardiac surgery has been demonstrated, there is a paucity of research on other clinical outcomes of fibrin sealants. In this retrospective observational study we analyzed the clinical outcomes of two different fibrin sealants in a population of patients undergoing cardiac surgical procedures. Methods: Data from patients undergoing coronary artery bypass grafting (CABG), valve and valvular procedures with CABG during the years 2008 - 2012 were extracted from Premier's Hospital Database. The Premier Hospital Database is a comprehensive database containing data from over 6 million US hospital discharges annually. Only surgeries in which a fibrin sealant was utilized were included; all other hemostatic agents were excluded from the study. The following clinical outcomes were assessed: major and minor complications, transfusions, surgical revisions for bleeding, operative mortality (hospitalization), OR time and hospital and ICU length of stay (LOS). Logistic regression analyses were performed on categorical outcome variables and GLM regression analyses were performed on continuous outcome variables. Study covariates included: age, primary procedure, Charlson Co-morbidity Index (CCI) score, heparin use, protamine use, admission type, gender, race, teaching hospital, bed size and region. Results: A total of 2,560 inpatient cardiac procedures using fibrin sealant with synthetic aprotinin (FS-apr) were compared to 1,019 procedures using fibrin sealant without aprotinin (FS). Results suggested that FS-apr was associated with significantly lower rates of minor complications (21.1% vs. 27.1%, $p = 0.002$), Day 1 Transfusions (28.6% vs. 36.8%, $p = 0.015$) and ICU LOS (4.7 days vs 7.1 days, $p < 0.0001$) as compared to FS. No significant differences were found between FS-apr and FS on the other clinical outcomes. Conclusions: FS-apr

was associated with signficantly lower rates of Day 1 Transfusions, avoidable minor complications and lower average ICU LOS as compared to FS.