BLOOD PRESSURE, BUN, CREATININE, CONGESTIVE HEART FAILURE AND CARDIAC ARREST (B2C3 SCORE) PREDICTS PROCEDURE MORTALITY FOR ELECTIVE ICD IMPLANTATION: DATA FROM THE NATIONAL ICD REGISTRY (ICDR®)

ACC Poster Contributions
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Background: CMS policy denying routine inpatient status for elective ICD implantation is supported by the low complication rate in this group. Yet a subset of patients (pts) may remain at risk for poor outcome and may need higher level post-op care.

Methods: Records from 268,701 implantations from 1300 centers prospectively enrolled in the National ICDR database from 2006 through June 2008 were reviewed. Pts with thoracotomy lead implants were excluded. Thirty-six preimplant clinical variables were tested as predictors for any of 20 post implant adverse outcomes including bleeding, infection, pneumothorax, lead dislodgement and death. Of the overall cohort, 179,401 (66.8%) were coded as “admitted for this procedure”. Preimplant clinical factors were used to develop a simple predictive model for adverse outcome using randomly half of the data, and then verified with the remaining half. ROC curves were calculated.

Results: The overall rate of in-hospital complications or death for the elective ICD implant cohort was 2.51%, and risk of death was 0.12%. For endpoints of any in-hospital complication or death, 7 independent risk factors (RF) were identified (in order of weight): procedure not elective generator change, dual or biventricular device, NYHA class III or IV, previous valve surgery, atrial fibrillation/flutter, female sex, and chronic lung disease (ROC 0.651). Risk in the validation cohort increased from 0.22% (0 RF) to 8.14% (7 RF) in a linear fashion ~ 1% / RF. Pts with >3 RF (59.5% of pts) had a 3.4% complication rate. For endpoints of in-hospital death, 5 independent RF were identified (in order of weight): NYHA class III or IV CHF, history of Cardiac arrest, serum BUN >30 mg/dl, serum Creatinine >2.0 mg/dl, and systolic Blood pressure <100 mmHg (ROC 0.841). Mortality risk in the validation cohort increased from 0.02% (0 RF) to 1.27% (4 RF). Mortality was 0.35% for RF=2 (18.9% of pts), and 0.65% for RF=3 (5.2% of pts).

Conclusions: In a low risk population of patients admitted for the indication of ICD implant, in-hospital complication rate and risk of death is low. High risk pt subsets should be monitored carefully post implant, but a lower intensity care level would be appropriate for the lower risk cohort.