IMAGING AND DIAGNOSTIC TESTING

CORONARY COMPUTED TOMOGRAPHY ANGIOGRAPHY DECREASES LENGTH OF STAY IN PATIENTS WITH ACUTE CHEST PAIN COMPARED TO STRESS TESTING: DOES TIME OF PATIENT PRESENTATION AFFECT THIS RELATIONSHIP?

ACC Poster Contributions
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Background: Coronary computed tomography angiography (CCTA) can reduce length of stay (LOS) relative to stress testing for Emergency Department (ED) patients with acute chest pain. It is unclear if this relationship differs based on time of day of patient presentation.

Methods: We examined a cohort of low risk chest pain patients evaluated in an ED based chest pain unit (CPU) using prospective and retrospective CPU registry data elements. Stress testing and CCTA were available Monday-Thursday 8am-5pm and Friday 8am-noon. Limited stress testing was available on weekends. LOS was measured from time of ED presentation to CPU disposition. Patients were categorized based on initial cardiac imaging modality (stress test or CCTA), time of presentation (in 4-hour periods), and weekend versus weekday. LOS for CCTA and stress testing was compared with linear regression. The predictor variable of primary interest was the interaction between imaging modality and presentation time. Plausible covariates and interactions with imaging modality were examined. The final model was constructed from 721/996 patients with complete covariate data using backward elimination based on the lowest BIC. The final model, tested in the entire cohort, contained imaging modality, presentation time, weekend arrival, and interaction between presentation time * imaging modality.

Results: From 1/2008-4/2010, 1070 patients were evaluated, 996 of which received cardiac imaging (stress testing n=653, CCTA n=343) and were included in this analysis. All 996 patients had complete data for the final model. In unadjusted linear regression, CCTA was associated with shorter LOS compared to stress testing by 3.6 hrs (95% CI 2.9-4.4). Imaging modality significantly interacted with time of presentation (p<0.001). LOS was shorter for CCTA than stress testing at all time intervals. Reduction in LOS from CCTA ranged from 10.4 hrs at 8am-noon to 0.1 hrs at 8pm-midnight.

Conclusions: Time of presentation modifies the association of CCTA with LOS in patients with acute chest pain. CCTA was associated with shorter LOS across all time periods, with the greatest difference observed among patients presenting to the ED from 8AM to noon.