

Title: predictors of early rehospitalization in patients with acute coronary syndrome

Purpose:

To analyze early rehospitalisation rate (defined as 90 days after the acute event) in patients with ACS, and to identify predictors of risk for readmission.

Methods:

463 randomly selected patients with ACS, were retrospectively analyzed. Analyzed variables: type of ACS (STEMI/NSTEMI/APNS), location of MI, gender, age, risk factors and comorbidities: HTA, HLP, DM, COPD, CAD, PVD, CVD, LV, EF %, type of treatment (PCI versus noninvasive), extensiveness of coronary disease, GRACE and TIMI risk score, type of morbidity, and reason for rehospitalization (ischemic events, heart failure, malignant arrhythmias etc.). Comparative analysis was performed between patients with early rehospitalisation and others. Statistical analysis: t-test, Chi square, univariate and multivariate linear regression.

Results:

463 patients were enrolled: 68.9% males mean age 60.4 ± 10.9 , and 31.1% females mean age 64.94 ± 12.0 y (p 0.000). MI type: STEMI 75.8%, NSTEMI 11.2%, APNS 13%; MI location: 40.2% anterior, 39.7% inferior, 3% lateral and 3.7% multiple locations (p 0.000). Risk profile: 15.3% HCAD, 27% HF symptoms, 62% HTA, 28.1% diabetes, 5.8% PVD, only 2.6% COPD. Mean BMI was 27 ± 2.9 , mean SBP 138.8 ± 28.5 mmHg, mean HR 84.3 ± 24.2 , mean EF (in 208 pts.) mean $50.2 \pm 10.4\%$, mean GRACE score (in 72 pts.) was 148.9 ± 60.6 , mean TIMI score (in 263 pts.) was 3.9 ± 2.2 . 87.5% were treated with PCI procedure, with mean disease's CA 1.84 (range 1-5), median 1 (p 0.000). Hospital morbidity was present in 16% of pts., 6.9% minor, 3% major bleeding complications, 2.4% acute HF, 1.9% pericardial effusions, and 1.1% early stent thrombosis. Early rehospitalisation rate was 6.3% (29/463pts): 14 ischemic/thrombotic event, 9 acute heart failure, 3 malignant arrhythmias, and three fatal events.

Univariate predictors of RH: HR (R square 0.014, p 0.014, beta .116, r -.217, p 0.002); EF (%) (R square 0.055, p 0.001, beta -.234, r -.231, p 0.001). HTA was significantly associated with reduced hospitalization risk (Chi square 4.28, p 0.039, exp B .405, p 0.054), diabetes (Chi square 10.04, p 0.002, exp B 3.45, p 0.001), PVD (exp B 2.85, p 0.070), early in-hospital morbidity (exp B 2.12, p 0.084), and NSTEMI pts. had OR 1.3, and APNS pts. OR 1.16 for rehospitalization (higher but not significantly in comparison to STEMI pts.).

Multivariate model with variables that were found significantly associated with HR, identified two strong independent predictors of early rehospitalization (mean square .424, sig 0.000), identified two independent predictors EF (beta -.220, p 0.001), and diabetes (t 2.52, p 0.012).

Conclusion:

LV systolic dysfunction was again proven to be a strong predictor of clinical outcome in terms of early hospital readmission in ACS patients no matter how they were treated for ACS, and diabetes was the single strong independent predictor-risk factor for this event.