**1048-95**

**C-Reactive Protein Levels as an Early Predictor of 30-Day Mortality in Patients With Acute Myocardial Infarction**

**Method:** CRP was measured within 24 h of symptoms onset in a prospective series of 348 consecutive patients (mean age 62 ± 13 y, men - 76%) with AMI (280 with ST-elevation AMI). Echocardiographic examination was performed on day 2 or 3. Thirty-day mortality was evaluated using Cox proportional-hazards model with the following covariates: age, gender, prior aspirin use, Killip class, diabetes, peak CK, SBP < 100 mm Hg, echocardiographic wall motion score index (WMSI), and reperfusion therapy (primary angioplasty or thrombolytic therapy).

**Results:** Patients with CRP levels in the upper tertile (≥2.2 mg/dL) had higher peak CK (1999 ± 188 vs. 1173 ± 118, p = 0.01) and higher echocardiographic wall motion score index (1.9 ± 1.4 vs. 1.5 ± 0.9, p = 0.01). Kaplan-Meier survival curves illustrated that patients with CRP levels in the upper tertile at admission were at increased risk of 30-day mortality (Figure). In a Cox's multivariate analysis, CRP level in the upper tertile was a significant and independent predictor of 30-day mortality (Relative Risk = 3.2, 95% CI 1.2-8.2, p = 0.007).

**Conclusion:** CRP level on admission is a powerful predictor of 30-day mortality in patients with AMI independent of infarct size and other traditional predictors of outcome.

**1048-96**

**Hyponatremia Is a Powerful Independent Predictor of Short-Term Mortality in Patients With Acute ST Elevation Myocardial Infarction**

**Background:** Hyponatremia (HNa) is recognized as a predictor of adverse outcome in hospitalized patients (pts), especially in pts with heart failure. However, little is known about the prevalence and prognostic significance of HNa in pts with acute ST-elevation myocardial infarction (STEMI).

**Methods:** We studied 708 consecutive pts (age 62 ± 13, 75% male) with STEMI. Plasma sodium (Na) was measured at admission and at 24, 48, and 72 hours thereafter. 90-day mortality was evaluated using Cox proportional-hazards model, adjusting for important covariates including age, gender, diabetes, Killip class, peak CK, diuretic therapy, reperfusion therapy (thrombolysis or primary angioplasty), ejection fraction, heart rate > 100, and systolic blood pressure < 100 mm Hg on hospital admission.

**Results:** HNa (Na ≤ 135 mmol/L) developed during the first 72 h of hospital stay in 53% of pts. Na decreased to 126-130 mmol/L in 29 pts and to ≤ 125 mmol/L in 7 pts. Although pts receiving diuretics developed HNa more commonly compared to pts who were not (44% vs. 30%, p = 0.0001), the majority of pts (60%) who developed HNa were not receiving diuretics. Kaplan-Meier survival curves indicated that pts who developed HNa were at increased risk of 90-day mortality (Figure). In a Cox multivariate analysis, HNa remained a significant and independent predictor of 50-day mortality (RR 3.9, 95% CI 1.3-8.5, p = 0.009).

**Conclusion:** HNa occurs frequently during the acute phase of STEMI and is a strong independent predictor of increased short-term mortality.

**1048-97**

**Ischemia Modified Albumin: A New Biomarker of Myocardial Ischemia for Early Diagnosis of Acute Coronary Syndromes**

**Background:** Chest pain is one of the most common reasons for emergency department (ED) visits in the US, accounting for about 8% of all visits. Identifying the etiology of chest pain is challenging and resource-intensive. Although MI can be diagnosed using sensitive cardiac injury markers, currently no such marker is available for diagnosing ischemia. IL-6 diagnosis is based on the physician’s clinical judgment using tendons from the history, clinical exam, and diagnostic tests including the ECG and rest myocardial perfusion imaging (MPI). However, identification is limited by the sub-optimal sensitivity of the ECG. Although MI has higher sensitivity and negative predictive value (NPV), it is not widely used due to its cost and complexity. Ischemia Modified Albumin (IMA) is produced when circulating albumin comes in contact with ischemic myocardium. IMA increases with ischemia and is detectable in serum prior to necrosis markers. IMA utility and diagnostic accuracy compared to traditional methods for diagnosing myocardial ischemia in the ED has not been well described.

**Methods:** We are currently enrolling patients (pts) (target = 400) presenting to the ED with acute chest pain. Pts undergo rest MPI with either ongoing symptoms or within 1 hour of pain cessation. The ED ECG is recorded and serial sampling of IMA before and after rest MPI is performed. Diagnosis of ischemia is determined by expert cardiologists blinded to IMA values using all clinical data collected at presentation and during routine follow-up.

**Results:** Data from the first 127 patients was available for analysis; 54 males, 73 females; mean age 52 years (30-96). Final diagnosis was 14 positive and 113 negative for ischemia. Sensitivity of IMA was 72%, 51%, and 96%, respectively. NPV of IMA, ECG, and MPI was 90%, 91%, and 96%, respectively. Adding the ECG to IMA did not improve sensitivity over IMA alone, but combining results from IMA and MPI produced a sensitivity and NPV of 100%. Conclusions: These preliminary results suggest that IMA improves the ability to diagnose myocardial ischemia in pts presenting to the ED with acute chest pain.

**1048-98**

**Early Detection of Myocardial Ischemia by a Novel Blood-Based Biomarker: The Kinetics of Ischemia Modified Albumin**

**Background:** Quantifying subtle myocardial injury is now routine, however, early detection of myocardial ischemia using serum biomarkers remains elusive. Ischemia modified albumin (IMA) is a promising new serum test for detection of ischemia. We studied IMA in the setting of percutaneous coronary intervention (PCI) as a model of known transient ischemia.

**Methods:** Eleven patients (pts) (age 60±11, 7 males) without evidence of ischemia for > 7 days undergoing single-vessel PCI (8 RCA and 3 LAD) were enrolled. Blood was collected: pre-PCI at arterial access, < 10 minutes post initial balloon inflation (post-inf), and 2, 6, 9, 12, 18 hours (hr) post-PCI. Samples were tested for IMA, troponin T and CK-MB.

**Results:** All patients had successful PCI, with mean longest and total balloon inflation times of 2.5±1.1 and 4.3±1.9 minutes, respectively. Pre-PCI mean IMA levels (95±4.7 U/mL) increased in 10 of 11 pts post-inf (104±10±9 U/mL, p<0.001 versus pre-PCI) (Figure). IMA levels post-PCI at 2 hr (97±5±14 U/mL), 6 hr (91±0±12 U/mL), 9 hr, 12 hr and 18 hr were not significantly different from pre-PCI. Seven patients had ECG or echocardiographic evidence of ischemia with PCI, while 2 had post-PCI injury measured by troponin T or CK-MB.