## Abstract:

**Background:** Acute myocardial infarction (AMI) is an acute stress state in which plasma copeptin rises. The combination of a marker of endogenous stress (copeptin) and a marker of cell necrosis (troponin) has been suggested to improve the diagnostic performance of acute MI in chest pain patients at time of presentation in the emergency department.

**Objective:** The aim of the work is to investigate the correlation of plasma copeptin levels for early diagnosis of acute myocardial infarction in combination with troponin-I.

**Methods:** This study was conducted in Cairo University hospitals on 40 patients presented to the critical care department with chest pain within 6 hours of pain onset as a primary symptom of acute coronary syndrome. Baseline demographic characteristics and clinical data were collected prospectively. Plasma copeptin levels and cTnI were measured by ELISA technique. The primary outcome was diagnosis of AMI.

**Results:** A negative copeptin and cTnI at baseline ruled out AMI with a negative predictive value of 100%. AMIs not detected by the initial cTnI alone were picked up with copeptin >15.6 pg/ml in first 6 hours from onset of chest pain which was confirmed by repeated troponin within 12 hours from onset of chest pain.

**Conclusion:** Combined determination of troponin and copeptin on admission in patients early after onset of chest pain provides a high NPV. This combination might aid in early and safe rule-out of AMI and makes copeptin an ideal candidate to complement troponin in point-of-care testing.

**Key wards:** copeptin, troponin-I and acute myocardial infarction