Comparison of the Clinical Characteristics of Apical and Non-apical Variants of 'Broken Heart' (Takotsubo) Syndrome in the United States

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Objectives: The present study was designed to delineate and compare the clinical characteristics of patients with apical and non-apical Takotsubo syndrome in a high-volume U.S. hospital.
Background: A comparison between apical and non-apical variants of the 'Broken Heart' or Takotsubo syndrome has not been performed in the United States.
Methods: From 2004 through 2007, patients with Takotsubo syndrome were identified according to the following criteria: acute chest pain with electrocardiographic changes or elevation of cardiac enzymes, absence of significant coronary narrowing, left ventricular (LV) segmental akinesia ("ballooning"), with or without antecedent stressful events. Based upon the location of LV ballooning, the patients were divided into 2 subgroups: apical and non-apical.
Results: Of 38 patients (age 64±12 years) fulfilling inclusion criteria, 84% were women; 79% had documented stressors, 76% had apical and 24% non-apical LV ballooning. When compared to non-apical subjects, apical patients presented predominantly with ST-elevation, had a higher incidence of hypertension, had significantly higher levels of Troponin T (8.5±6.7 ng/ml vs. 3.4±2.1 ng/ml, respectively, P=0.032), and lower ejection fraction (31±9% vs. 43±5%, respectively, P<0.001). Severe complications occurred only in apical subjects: pulmonary edema (10.3%), ventricular tachycardia (6.9%), cardiogenic shock (6.9%), LV apical thrombus (3.4%), transient LV outflow tract obstruction (3.4%), and death (3.4%).
Conclusions: Apical and non-apical ballooning subgroups may represent different manifestations of a single syndrome. When compared with non-apical ballooning, the apical ballooning group may represent a more severe subset, characterized by more heart failure and increased rate of cardiac complications.