ANGIOGRAPHIC ANALYSIS OF LEFT VENTRICULAR MECHANICS IN YOUNG PATIENTS WITH ATYPICAL CHEST PAIN AND ISCHEMIC HEART DISEASE

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Isovolumic and ejection phase measures of left ventricular (LV) contractility were compared in 26 patients utilizing micromanometry and biplane LV cineangiography. Nineteen patients were normal and 7 were abnormal by all standards, hemodynamic and volumetric analyses. An average LV pressure (P) curve was constructed from digital data at 5 msec intervals in 25 or more cardiac cycles. The following were derived: V max using total P ($V_{max_{tp}}$) by linear extrapolation to zero P; V max using developed P ($V_{max\ dp}$) by expotential extrapolation for dp $\geq$ 5 mm Hg; peak dp/dt/tp (Vpm); peak dp/dt; and mean velocity of circumferential shortening (Vcf) by cineangiography. Vcf separated normal from abnormal with no overlap: normal = 1.75, abnormal = 0.69 circ sec, $p < .01$. Average Vmax tp for normal = 47.5, abnormal = 31.8, $p < .01$. Average Vmax dp for normal = 147, abnormal = 122, $p < .20$. Average Vpm for normal = 41.5, abnormal = 27.1, $p < .01$. Average peak dp/dt for normal = 1691, abnormal = 1346 mm Hg sec., $p < .10$. Broad overlap occurred between normal and abnormal patients with all the isovolumic indices. While several isovolumic indices yielded significant separation in groups of patients, they were not as reliable as Vcf for identifying abnormality in the individual subject.

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