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Assessment of Coronary Flow Reserve in Patients With Angina

COMPARISON OF EJECTION FRACTION CHANGES DURING AND AFTER ATRIAL PACING IN CORONARY ARTERY DISEASE

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Pacing induced tachycardia is useful in evaluating the functional significance of coronary artery lesions. However, it is not clear whether maximum changes in ejection fraction and wall motion occur at peak pacing or immediately after pacing. To evaluate this question, digital subtraction left ventriculograms were obtained in 11 patients (pts) at rest, at peak atrial pacing, and 30 seconds after atrial pacing when the heart rate (HR) had returned to the baseline level. LV studies were obtained with Vascoray diluted to 50% and injected at 8 ml/sec for 3 sec. Atrial pacing was begun at 90 beats/min and increased 10 beats/min every minute until chest pain or 85% of maximum predicted HR was achieved. Peak paced heart rate averaged 135 beats per minute in the 11 pts. Eight pts had 75% or greater cross-sectional stenosis of at least one coronary artery. In these 8 pts, 7 had no change or a fall in ejection fraction (EF) at peak pacing (59% pre vs 54% paced) and 6 had the development of a new wall motion abnormality. In the digital angiograms performed 30 sec. after pacing was stopped, only 4 of 8 pts showed no change or a fall in EF compared to rest (59% pre vs 59% post). All 3 pts with less than 75% stenosis had at least a 4% increase in EF at peak pacing but only one had an increase of at least 4% in the LV study performed 30 seconds after pacing. We conclude that 1) ischemia induced by atrial pacing is best detected by left ventricular angiography at peak heart rate, and 2) evaluation of ventricular function 30 seconds after pacing is a less sensitive and specific method for detecting myocardial ischemia.