

Coronary arteriography and ventriculography in survivors of acute myocardial infarction

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In 100 patients under age 65 who were admitted to the Johns Hopkins Hospital for the treatment of acute myocardial infarction, coronary arteriography and left ventriculography were obtained 2 weeks after admission. In addition to routine laboratory studies, 24-hour electrocardiographic tape recordings and special radionuclide studies were obtained. The patients have been followed at 3-month intervals.

As expected, morbidity and mortality were directly related to the severity of the obstructive coronary artery disease and extent of left ventricular functional abnormality. The worst prognosis was demonstrated by patients with significant obstruction of the left main coronary artery. This was encountered in five patients.

The detection of serious ventricular arrhythmias by 24-hour electrocardiographic recordings weeks after hospital admission predicts the presence of severe left ventricular functional abnormality. Sudden cardiac death is especially common in the group of patients with serious ventricular arrhythmias.

The development of a new Q wave on the electrocardiogram during the hospitalization is seen more commonly in patients without a his-

tory of previous infarction. The peak creatine phosphokinase is considerably higher in patients who develop a new Q wave as compared to patients with S-T and T wave changes only (so-called subendocardial infarction). However, the extent of obstructive coronary disease and damage to the left ventricle is equal in the two groups of patients. The prognosis is expected to be the same.

"Risk Segment Analysis" has proved to be the most reliable method of predicting subsequent morbidity and mortality. A "risk segment" is identified as a segment of the left ventricle with retained motion on the ventriculogram which is perfused by a coronary artery with a significant obstruction. An akinetic or dyskinetic

ventricular segment is not considered a risk segment even if there is severe obstruction of the coronary artery supplying the segment. All cardiac morbidity and mortality occurred in patients identified to have one or more risk segments.

Arteriography and ventriculography in the 100 patients were associated with one myocardial infarction, one cerebral vascular accident, and two femoral artery occlusions that required surgery to reestablish adequate blood flow. Coronary artery bypass surgery has been performed subsequently in eight patients (three of whom died perioperatively). Ten patients have died and six have experienced recurrent myocardial infarction.