RELATION OF REGIONAL WALL MOTION TO PERFUSION DEFECT ASSESSED BY SPECT IN MYOCARDIAL INFARCTION.

The relation of left ventricular regional wall motion to perfusion defect was assessed by SPECT in 9 patients with myocardial infarction (MI). SPECT data was collected for 32 views with gamma camera rotated from LPO to RAO position. Tomographic sections oriented perpendicularly and parallel to the long axis of left ventricle were reconstructed. The sections were divided into five regions, and perfusion defect was semiquantified by four-step scoring method (from 0: no defect to 3: perfect defect). Total defect score (TDS) was calculated as the sum of the points in each patients. On the other hand, planar imaging was obtained with gamma camera oriented in LAO 45° position. Left ventricular ejection fraction (EF), radial chord shortening and regional ejection fraction (REF) were calculated by computed analysis. In anteroseptal MI, reverse relation existed between TDS and EF (r=0.57, p<0.1). Moreover, there was a negative correlation between septal defect score and septal REF (r=0.72, p<0.05). In inferior MI, significant relation was not found as the cases were less. These results suggested that regional wall motion abnormality was quantitatively speculated by regional perfusion defect using SPECT.

A NEW METHOD EVALUATING INFARCT SIZE WITH SPECT: WITH SPECIAL REFERENCE TO THE INFARCT MAP WHICH WE DEVISED.

We devised the infarction map for evaluating infarct size in patients with myocardial infarction using SPECT. Following injection of 4 mCi of thallium, the gamma camera was rotated around the heart and 30 projections were obtained over 180° in 10 normal subjects and in 11 patients with myocardial infarction. Seven shortaxis sections in left ventricle were reconstructed continuously from apex to base with SPECT, and circumferential profile curve was created in each section. At first, normal limits values were derived from 36 points in each section, and every 7 sections in normal subjects were used. The infarction map was constructed with the infarct points defined above and the percent defect was calculated from the ratio of infarct area to total area in left ventricle. We conclude that this method with infarction map may be useful in assessing non-invasively the extent of myocardial infarction.

EVALUATION OF SPECT WITH ATTENUATION CORRECTION METHOD.

TI-201 myocardial perfusion scan with planar and SPECT images was evaluated for detecting myocardial infarction(MI) or fibrosis. SPECT images were generated using radial post correction method (RPC) developed by Tanaka(1984) and non-attenuation GE-STAR method. In patients, SPECT images with RPC(correction factor=0.18) showed disagreement from planar and non-attenuation correction images. False positive was frequently observed at anteroseptal portion of short axial images on SPECT with RPC. causing a trouble for clinical diagnosis of MI. The most appropriate value of attenuation correction of 0.14 was obtained by Hosoba using computer simulation. Therefore in human myocardium, SPECT images with RPC were evaluated with various correction values. High quality image, especially at posterobasal portion of left ventricle, was also obtained at correction value of 0.14. But images with complete uniformity could not be obtained by this method.