176

CLINICAL USEFULNESS OF THE GATED SCINTIGRAPHY BY SECOND HEART SOUND AND ELECTROCARDIOGRAPHIC R WAVE IN PATIENTS WITH ATRIAL FIBRILLATION. O.Tateishi, H.Watanabe, Y. Kubouti, T.Okamura, H.Hirasawa, H.Hashimoto, M.Mashima, K.Kawamura, S.Hayashi, H.Hattori, and H.Kawamura. Jikei University School of Medicine and The Kanagawa Prefectural Atsugi Hospital

To determine the clinical usefulness of the gated scintigraphy by second heart sound and electrocardiographic R wave in patients with atrial fibrillation, we examined the relationship between the ejection fraction (EF) calculated by this new method and the EF by the ordinary multigated scintigraphy. In patients with sinus rhythm, EF calculated by this new method was in close agreement with EF by multigated scintigraphy. On the other hand, in patients with atrial fibrillation, EF calculated by this method correlate well with EF by the ordinary method in patients whose cycle length varies between narrow limits, but correlate poor in patients whose cycle length varies between wide limits. It was suggested that EF calculated by this new method was in particular useful in patients with atrial fibrillation whose cycle length varies between wide limits.

177

EVALUATION OF THE VENTRICULAR FUNCTIONING OF PATIENTS WITH ATRIAL FIBRILLATION BY ECG GATED BLOOD POOL SCINTIGRAPHY -USING FRAME COUNT NORMALIZATION METHOD. Hiroshi Akanabe, Motoo Oshima,Sadayuki Sakuma. Department of radiology, School of Medicine, Nagoya University, Nagoya.

The assumption necessary to perform ECG gated blood pool scintigraphy (EGBPS) are seemingly not varid for patients with atrial fibrillation (af), since they have wide variability in cardiac cycle length. The data were acquired in flame mode within the limits of mean heart rate to fix the first diastoric volume, and were calculated by flame count normalization (FCN) method to correct total counts in each flame.
EGBPS were performed in twelve patients with af, who were operated against valvular disease. The data acquired within mean heart rate ±10% in flame mode were divided to 32 flames, and calculated total flame counts. With FCN method total flame counts from at 22nd to 32nd flame were multiplied to be equal to the average of total flame counts of the other flames.
FCN method could correct total flame counts at the latter flames. And there was good correlation between left ventricular ejection fraction calculated from scintigraphy and that from contrast cine angiography. Thus EGBPS with FCN method may be allow estimation of cardiac function even in subjects with atrial fibrillation.

179

RADIONUCLIDE ANGIOCARDIOGRAPHIC DETERMINATION OF THE LEFT VENTRICULAR VOLUME BY "SEMI-GEOMETRIC" METHOD. S.Kinoshita, K.Nishimura, O.Yamaki, T.Muramatsu, M.Ide, M.Mashimo, T.Suzuki, T.Kato, T.Miyamae and Y.Dohi. Saitama Medical School Saitama

Two methods are now clinically available for the determination of the left ventricular(LV) volume by radionuclide angiocardiography(RNA).But, both count based and geometric methods have some weak points.Semigeometric method originated by Nichols et al. has also some limitations. So we devised a new semi-geometric method in which tissue attenuation of photon might be almost negligible. Conventional equilibrium RNA(ERNA) was done from modified left anterior oblique(MLAO) position. And blood pool image was obtained from left posterior oblique(LPO) position accurately perpendicular to MLAO. The maximum counts of LV on the end diastolic (ED) flame in MLAO ERNA was divided by the maximum length of the LV expressed as numbers of pixels on the LPO image. So the counts per voxel were obtained. The LVED volume was calculated dividing the total LVED counts by it and multipling this quotient by the voxel size. Phantom study revealed excellent correlation of r=0.999. And on clinical study consisted of 19 patients, good correlation(r=0.92) was obtained between LVED volume derived from this method and that derived by dividing the thermodilution stroke volume by RNA ejection fraction.

180

THE SEQUENTIAL VARIABILITY OF LVEF AND RVEF MEASURED BY EQUILIBRIUM GATED BLOOD-POOL SCINTIGRAPHY. C.Kurata,K.Sakata,H.Hayashi, A.Kobayashi and N.Yamazaki. Hamamatsu University School of Medicine, Hamamatsu.

The sequential variability (S.V.) of EF measured by equilibrium gated blood-pool scintigraphy (EQ) using fully-automated computer program has been studied in only a few reports and the comparison between this method and manual tracing of ROI in S.V. of EF has not been reported. This study was undertaken to determine S.V. of EF and compare S.V. of EF by manual tracing with that by fully-automated technique. In 54 cases EQ was performed for 2 min twice with an interval of 30 sec. LVEF was computed by manual,fixed ROI(mf), automated,variable ROI(av) and automated,fixed ROI(af), and RVEF by mf. The correlation between two studies was good with r=0.97∿ 0.98 for LVEF and 0.93 for RVEF, but the ΔEF between two studies was not slight with -0.1±3.2, -0.4±3.9, -0.4±3.8 and -0.4±3.9% (m±SD) for mf, av, af in LVEF and for RVEF(mf), respectively. The 95% confidence limit of ΔEF predicted by linear regression analysis was 7, 8, 8 and 9% for mf, av, af in LVEF and for RVEF(mf), respectively. Because S.V. of automated technique not influenced by observers was insignificantly different from S.V. of manual tracing, we concluded that the assessment of S.V., rather than of intra- or inter-observer variability, is necessary for determining an effect of an intervention on EF in individual cases.