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REPRODUCIBILITY OF LEFT VENTRICULAR EQUILIBRIUM ANGIOSCINTIGRAPHY AT STRESS

This report deals with angioscintigraphic results obtained at stress in a group of normal volunteers. They were recruited for a clinical pharmacology study and had normal clinical examination, ECG and echocardiogram. They were studied independently 4 times, before and after administration of the medication or placebo. No difference was found between any group; hence, all studies were pooled to obtain reference values.

After injection of 740 MBq of Tc-99m HSA, equilibrium imaging was obtained in the LAO 40° projection and in the 30° LPO projection at each patients'visit, permitting volume calculations (*). Images were obtained with the patients sitting on an ergometric bicycle. First, two successive groups of 24 images were acquired at rest, followed by 2 or 3 stress groups, depending on the patient's physical condition. All groups had a fixed acquisition time of 2 minutes.

Beside the mean value of each rest or stress parameter, normal limits are reported as the 5 and 95 percentiles in all acquisitions. The reproducibility of any parameter is the average of its standard deviation (SD) calculated from the four patient's studies.

Results:

	STRESS				REST		
	Mean	Limit	SD		Mean	Limits	SD
REF (%)	65	> 52	5.1	S-R EF (%)	8.0	-1.5/ 20	5.0
RDV (CC)	153	<183	7.3	S-R DV (CC)	4.8	-22 / 28	11.8
RSV (CC)	99	<130	7.4	S-R SV (CC)	16.0	-6.5/ 41	12.5

Rest Ejection Fraction (REF), Rest Diastolic Volume (RDV), Rest Systolic Volume (RSV); Stress-Rest Variation of Ejection Fraction (S-R EF), of Diastolic Volume (S-R DV), and of Systolic Volume (S-R SV).

These data suggest that the results of an equilibrium stress study should be interpreted with caution regarding the fairly wide range of expected stress changes in normal subjects, as well as of the apparent variability of changes induced at stress in the same subjects studied at different instances.

(*) Delcourt E, Franken P, Lenaers A: Measurement of left-ventricular volumes using an internal standard; Eur. J. Nucl. Med. 11: 123-126 [1985]