

RESULT

We obtained the values of M.B.F. (ml/100gm. min.) in 7 subjects. Their M.B.F. were 92 and 84 in 2 normal subjects, 148 and 104 in 2 subjects with hyperthyroidism, 93 and 53 in 2 subjects with coronary in-

sufficiency, and 82 in one subject with heart failure, respectively.

The method presented in this report is relatively simple and little troublesome to patients, so that its use may prove of interest in the clinical evaluation of myocardial blood flow.

Evaluation of Cardiac Reserve by Means of Externally Monitored Radio Iodinated Serum Albumin in Conjunction with the Master Test

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Estimation of cardiac output from pre-cordial dilution curves following intravenous injection of a radiiodinated human serum albumin was presented.

In 14 cases with hyperthyroidism the values of cardiac output and stroke volume were 87 per cent and 27 per cent higher than those in healthy individuals. The decreases in cardiac output and stroke volume to 45 per cent and to 53 per cent were observed in 6 cases with cardiac failure. Patients with congenital heart diseases showed the decrease in them to 50 per cent and 42 per cent. In many cases of hyperthyroidism, diabetes mellitus and coronary arterial diseases these values remained within normal range.

In an effort to add parameter of cardiac function to the battery of diagnostic methods, the clinical applicability of a cardiac output test in response to exercise was tried. Pulse, blood pressure, electrocardiogram, blood volume and cardiac output were determined before, immediately, 3 minutes and 8 minutes after the standard 2-step exercise test as described by Master.

In 10 normal subjects pulse rate was increased to 19 per cent, 5 per cent and 2 per cent at these times. The increases in cardiac

output at these times after exercise were 67 per cent, 29 per cent and 2 per cent. A stroke volume was increased to 46 per cent, 32 per cent and 4 per cent.

These values rised sharply in the order of 1.5 times the resting level immediately following the end of exercise. At 8 minutes after exercise these values returned approximately to control levels. External cardiac work per stroke and external cardiac work per minute altered similarly after exercise in normal subjects. The 5 patients with positive Master test showed lower response and retarded restoration in these values after exercise.

In 3 cases of 6 hyperthyroidism, 1 case of 3 diabetes mellitus 1 case of 2 hypert, ension and 1 neurocirculatory asthenic patient with negative Master test, lower response to exercise and retarded restoration to control levels which were considered as reduction of cardiac reserve were observed.

The measurement of cardiac output by means of externally monitored radiiodinated serum albumin in conjunctin with the Master test may be useful in clinical evaluation of boundaries of normal and disordered cardiac function.