The study of ^{131}I -fibrinogen in humans

T. FREEMAN

From the National Institute for Medical Research, Mill Hill, London

The use of radioactive iodine as a trace label for plasma albumin and gamma globulin has been justified by comparing their behaviour in animals with similar proteins labelled biosynthetically with ^{14}C (Campbell, Cuthbertson, Matthews, and McFarlane, 1956; Cohen, Holloway, Matthews, and McFarlane, 1956). Recent work (McFarlane, 1963) has shown that fibrinogen can also be labelled with iodine in such a way that it still behaves like the native protein.

The iodination technique used (McFarlane, 1958; McFarlane, 1963) is based on three accepted minimum requirements for labelling, *viz.*, preparing a pure undenatured protein for labelling, avoiding over-iodination, and preventing self-radiation damage after iodination. In addition all manipulations must be performed in the presence of trisodium citrate to prevent clotting.

Results obtained using iodine-labelled fibrinogen in normal humans (McFarlane, Todd, and Cromwell, 1964) show that fibrinogen is catabolized in the intravascular space, or in close metabolic relationship to it, at a rate of 25 to 36% of the intravascular fibrinogen mass per day. Also that the fraction of total fibrinogen which is extravascular, as judged by

either the equilibrium time method (Matthews, 1957) or by extrapolating the plasma radioactivity to zero time (Sterling, 1951), is much smaller than the fractions for extravascular albumin or normal gamma globulin.

The same workers have also shown that where the circulating mass of fibrinogen has been greatly increased by disease the fraction which is catabolized per day remains sensibly constant, suggesting that modification of the rate of synthesis is the main means of regulating fibrinogen concentration.

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PROFESSOR DAVIDSON asked about the site of the fibrinogen pool.

DR. FREEMAN replied that most of the extravascular pool was associated with the viscera, but that there was also fibrinogen in the periphery and in the skeletal muscles.