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CORRESPONDENCE

Correspondents are asked to be brief

Treatment of Myocardial Infarction

SIR,—It was wise to publish in the same issue (7 August, p. 325) the European multicentre trial of streptokinase and the results obtained by Dr. H. G. Mather and others in home versus hospital treatment of myocardial infarction (p. 334). The overall mortality rate of the English series was 15%, whereas in the European trial the patients treated with streptokinase plus oral anticoagulants had a majority of 18·5% compared with a mortality of 26·3% in the patients treated with heparin plus oral anticoagulants. This difference is statistically significant and the authors cautiously suggest that streptokinase may be of value in this condition and urge "further extensive trials."

It is, of course, possible that myocardial infarction carries a lower death rate in the West of England than in European countries, and no doubt the two trials differ in other respects. Nevertheless, the mortality rate of hospital-treated patients over the years, treated or untreated, has varied between 10 and 30%. Dr. Mather's mortality rate falls below the middle of this range, and since overall home treatment appeared to be as effective as hospital treatment, it would seem at present to be the treatment of choice for most patients. So far as I know 10% is about the minimal mortality rate yet achieved, and until and unless some form of treatment is discovered which can be shown to reduce this figure to 5% or less in a large number of patients, it is doubtful whether considerable sums of money should be expended on further trials of thrombolytic agents in this condition. We have had a wearisome 20 years of dispute over the value of anticoagulants in myocardial infarction which has ended—in Britain at any rate—in complete uncertainty. Is it really worth starting all over again with an expensive thrombolytic agent in a situation in which by the time treatment is started the damage has been done?

Heart muscle dies within a few hours of being deprived of its blood supply and it is hard to see how dissolving a coronary occlusion after death of tissue has occurred can achieve very much. (On the venous side of the circulation, of course, the situation is quite different, and here thrombolytic agents are promising both in theory and in practice.) I am aware that suggestions have been made that a thrombolytic agent may halt retrograde spread of a thrombus and improve the microcirculation around the infarcted area, but such claims, based mainly on artificial experiments in animals, are rather speculative when applied to humans. Surely the outcome of a myocardial infarction depends primarily on its site and its size. The former may be important in "electrical" death; and the latter in death from shock, heart failure, and myocardial rupture. And, of course, site and size may interact.

It has long seemed to me that anticoagulant therapy, on the one hand, and thrombolytic therapy on the other, whether or not they may confer marginal benefits in some patients, are not really rational forms of treatment for myocardial infarction. The one diminishes fibrin formation, the other removes fibrin. In occluded arteries we are faced with thrombi not clots, which have caused death of tissue before treatment can be started; whereas in veins more or less the reverse obtains. Both forms of therapy carry the risk of haemorrhage and thus both may result in a "swings and roundabouts" situation when given to patients with myocardial and cerebral infarctions. There is a further point which may be relevant. Following any form of injury there is a biphasic response of natural fibrinolysis, consisting of a short period of increased activity followed by a lengthy period of reduced activity. This was first shown by Innes and Sevitt[1] to follow trauma, and my colleagues and I[2] have found it to be non-specific and to occur after surgery, myocardial infarction, and electroconvulsive therapy. The duration of this fibrinolytic "shut-down" seems proportional to the severity of the damage and lasts about 9-12 days after a myocardial infarct. On the assumption that the body may know best, we feel that measures directed to altering this shut-down might interfere with healing. Admittedly, this is a very theoretical objection, but there are plenty of examples of how Man's attempts to oppose the reactions of the body have been shown to be harmful.

Coronary artery disease is indeed a major problem, but the juxtaposition of Dr. Mather's results and those of the European workers questions the need for years of trials of thrombolytic agents in a situation where the thrombus, once it has formed, may no longer matter. Should we not instead be concentrating available resources on the investigation of risk factors other than fats, and on prophylactic measures other than clofibrate?—I am, etc.,

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1 Innes, D., and Sevitt, S., *Journal of Clinical Pathology*, 1964, **17**, 1.
2 Chakrabarti, R., Hocking, E. D., and Fearnley, G. R., *Journal of Clinical Pathology*, 1969, **22**, 659.