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DEAR SIR,

Some acutely psychotic patients have raised serum creatine kinase (CK) levels.

Is this finding of any significance in understanding the pathogenesis or course of acute psychosis?

Does it provide a useful diagnostic or predictive method?

I believe that the answer to both these questions is 'Probably, no', and none of Professor Meltzer's interesting observations convinces me otherwise. Cunningham *et al.* (1974) have also concluded that observed serum CK elevations are due to 'non-psychiatric factors' and that serum CK estimation was not useful as a diagnostic or predictive test.

Professor Meltzer refers to his earlier proposal that a similar mechanism underlies serum CK increases in patients with acute psychoses and patients with acute brain diseases. It may well be that similar non-specific factors operate. Serum CK elevations occur in unconscious patients without local brain disease, as in hepatic coma (Schiavone and Kaldor, 1965) and drug overdose (Wright *et al.*, 1971) when leakage of the enzyme from muscle due to local damage and catabolism is probably responsible. In acutely psychotic patients a number of non-specific factors may operate additively to produce such a rise. Hyperactivity is only one such factor; profound hypoactivity, change in appetite and many others should also be considered. Professor Meltzer's own observation that psychiatric patients with more 'florid psychotic symptoms' have higher serum CK levels would be in line with such a view and the fact that such patients require higher doses of medication is in itself hardly surprising. Serum CK levels are simply a reflection of the rate of leakage of the enzyme from striated and cardiac muscle where it is present in large amounts. Muscle diseases and myocardial damages are examples of conditions in which serum CK elevations are specifically related to

the underlying disease process. Acute cerebral diseases, drug overdose, walking from London to Brighton, deprivation of sleep and acute psychoses are probably conditions in which non-specific factors are responsible for increased release of the enzyme from muscle.

Professor Meltzer does not mention the possible diagnostic or predictive usefulness of serum CK estimations in his letter, although he has advocated it in the past (Meltzer, 1969). Even on the basis of the findings he quotes in his letter, the test would have insufficient sensitivity and his observation that raised serum CK levels are more likely in patients with florid psychotic symptoms confirms my own finding that those patients who do display such elevations pose few diagnostic problems as far as differentiating between psychotic and non-psychotic illness is concerned.

Finally, I must apologize for the drafting error to which Professor Meltzer has drawn attention. The finding of Smith *et al.* (1970) was that 25 out of 300 healthy ambulant males had serum CK levels above 100 I.U./L (not, as I wrote, 300 I.U./L, which is clearly inconsistent with the following sentence). The statistical comparison was not, of course, based on the findings of Smith and his colleagues but the fact that over 8 per cent of a group of healthy men had 'raised serum CK levels' is relevant to the discussion.

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#### EFFECTS OF SMALL ELECTRICAL CURRENTS UPON DEPRESSIVE SYMPTOMS

DEAR SIR,

We read with interest the paper of Nias and Shapiro in your issue for October 1974 on the effects of small electrical currents upon depressive symptoms. Their findings of similar effects produced by opposite