

PLASMA CREATINE PHOSPHOKINASE IN SCHIZOPHRENIA

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SUMMARY

Plasma creatine phosphokinase (CPK) was estimated from unmedicated schizophrenics to evaluate its significance in the diagnosis. The mean value of CPK in schizophrenics is 78.41 ± 5.78 IU/L (n=49) as against control value of 27.45 ± 2.27 IU/L (n=36). The statistical analysis showed significance ($p < 0.05$). The study finds its importance in view of the earlier reports suggesting the diagnostic value of C.P.K.

Creatine phosphokinase is an enzyme which converts creatine phosphate to creatine and in turn releases the energy necessary for muscular action. CPK association has been demonstrated in muscular dystrophies, in particular to the Duchenne type, where it is elevated and has been one of the clinical parameters studied. The significance of CPK in schizophrenia was first suggested by Schiavone and Kaldore (1965). Subsequent studies on the subjects derived significant observations. No such study seems to be undertaken in Indian subjects. Hence the CPK estimations were undertaken in schizophrenia patients.

MATERIALS AND METHODS

49 schizophrenic patients from Hospital for Mental care Hyderabad, were chosen as subjects for the study. Cases were diagnosed by a psychiatrist and care was taken to include unmedicated patients. Controls were selected from Institute staff. CPK was estimated by the method of Forter *et al.* (1974).

RESULTS AND DISCUSSION

The mean CPK values in schizophrenic patients and controls are shown in Table No. 1.

The mean plasma CPK is found to be 86.09 IU/L for schizophrenics as against 30.905 IU/L in controls for males and

TABLE 1—Mean distribution of Plasma Creatine Phosphokinase activity in Schizophrenics and Control Groups

	N	Mean \pm S. E.		t
		IU/L		
Schizophrenic-Males	34	86.0 ± 7.02		5.91*
Control Males ..	21	30.905 ± 3.32		
Schizophrenic-Females	15	63.06 ± 9.3		3.99*
Control females ..	15	24.0 ± 3.124		
Total Schizophrenics	49	78.41 ± 5.78		4.60*
Controls ..	36	27.45 ± 2.27		

63.06 IU/L for schizophrenics as against 24.0 IU/L in controls for females. The activity for total schizophrenics Vs controls is 78.4 IU/L and 27.45 IU/L respectively. The results are statistically significant ($p < 0.05$.)

The observations are in accordance with the findings of Meltzer (1969) and Meltzer *et al.*, (1968, 1969) in a series of studies found elevations of CPK in 40-65% of psychotics. Meltzer estimated serum CPK from homozygote twins discordant for schizophrenia and suggested genetic control of CPK. But Cunningham *et al.* (1974) and Handing (1974) failed to confirm the findings of Meltzer and others. Handing

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suggested that the raised levels reflect the increased motor activity and not the psychotic illness.

The etiological significance of elevated CPK in blood is still obscure and the relevance of the elevation is yet to be studied. In a study, Meltzer and Engel (1970) have reported histological abnormalities such as 'Z' band spreadings in skeletal muscles from acute schizophrenics. They interpret the alterations as secondary consequences of an abnormality in nervous system factors (Meltzer and Crytous, 1974). It is still unknown whether histological differences are specific to schizophrenia.

Thus owing to the above controversies about plasma CPK, our present study only confirms the elevated levels as reported by earlier workers, the significance of the elevation can be evaluated by undertaking the studies in the family members of the effected and the isozyme pattern studies of CPK.

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