

LETTER TO THE EDITOR

EFFECT OF PREDNISOLONE ON SERUM CREATINE PHOSPHOKINASE

Sir,

( Received on April 2, 1984 )

Determination of serum creatine phosphokinase (CPK; EC 2.7.3.2.) is important in laboratory diagnosis of myocardial infarction (MI) and skeletal muscle disorders (7). Two recent reports suggest that administration of corticosteroids decreases serum CPK activity (1,5). If patients with MI and myopathies are given corticosteroids - as some of them are - the corticosteroids may prevent the expected rise in serum CPK, or the rise may be much less than anticipated. This will adversely affect the reliability and sensitivity of serum CPK in the diagnosis of these diseases. We have reported earlier that short-term administration of a corticosteroid (prednisolone) in the usual dosage (15 to 40 mg/day) does not affect serum CPK activity (2). We have now found that a longer administration of prednisolone has no major effect on serum CPK activity.

The material of the study included 8 patients (6 males and 2 females; age 15-48 years) suffering from diseases which are unlikely to affect serum CPK *per se* (viz. allergic rash, urticaria, contact dermatitis, bronchial asthma and nephrotic syndrome). Factors that can affect serum CPK activity, such as intramuscular injections, injury and severe exercise (6), were carefully avoided.

The patients were given 15-40 mg of prednisolone orally everyday in 3-4 divided doses. In a given case, the dose selected was not altered throughout the treatment period. Serum CPK was measured as described earlier (2) before and 3 weeks after starting prednisolone administration. Statistical analysis was done by Student's t-test for paired data.

The results of the present investigation (Table I) show that administration of 15-40 mg of prednisolone everyday to patients with MI and myopathies for periods up to 3 weeks will not affect the diagnostic reliability of serum CPK. Our results differ from those of Fraser (1) and Hinderks and Frohlich (5). Many of their patients suffered from chronic wasting diseases which might have played a role in lowering serum CPK. Additionally, presence of CPK inactivators in the plasma of patients with various types of cancer has been reported (1). This might have lowered the serum CPK in Fraser's patients who were all suffering from cancer (1).

TABLE I : Serum CPK before and after administration of prednisolone.

	Serum CPK (Units/100 ml)*		P Value
	Range	Mean $\pm$ SD	
Before starting prednisolone	19.2 - 65.2	48.2 $\pm$ 14.3	—
Three weeks after starting prednisolone	16.0 - 63.8	37.3 $\pm$ 16.1	>0.05

\*Normal range of authors' laboratory : 15-80 units/100 ml.

It has been reported that administration of one combination-type contraceptive steroid (Primovlar; Schering) for nine months lowered serum CPK (3), while that of another (Ovulen; Searle) did not (4). Possibly, different corticosteroids may also have a different effect on serum CPK. The effect of corticosteroids other than prednisolone on serum CPK needs to be investigated.

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#### REFERENCES

1. Fraser, A.D. Chemotherapy as a cause of low serum creatine kinase activity. *Clin. Chem.*, **26** : 1629-1630, 1980.
2. Gupta, R.C., A. Goyal and P.P. Singh. Serum creatine kinase and corticosteroids. *Clin. Chem.*, **28** : 1979, 1982.
3. Gupta, U. Low serum creatine kinase values in contraceptive steroid users. *Clin. Chem.*, **27** : 1624, 1981.
4. Gupta, U. and R.C. Gupta. Effect of contraceptive steroids on creatine kinase activity in serum. *Clin. Chem.*, **28** : 1402-1403, 1982.
5. Hinderks, G.J. and J. Frohlich. Low serum creatine kinase values associated with administration of steroids. *Clin. Chem.*, **25** : 2050-2051, 1979.
6. Kachmar, J.F. Enzymes. In "Fundamentals of Clinical Chemistry" by Tietz, N.W., Philadelphia, W.B. Saunders Company, p 466 and 469, 1970.
7. Varley, H., A.H. Gowenlock and M. Bell. Practical Clinical Biochemistry. London, William Heinemann Medical Books Ltd., p. 752, 1980.

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