Serum Versus Urinary Trace Elements (Copper, Zinc, Manganese, Cobalt, Aluminium) In Epileptic Children

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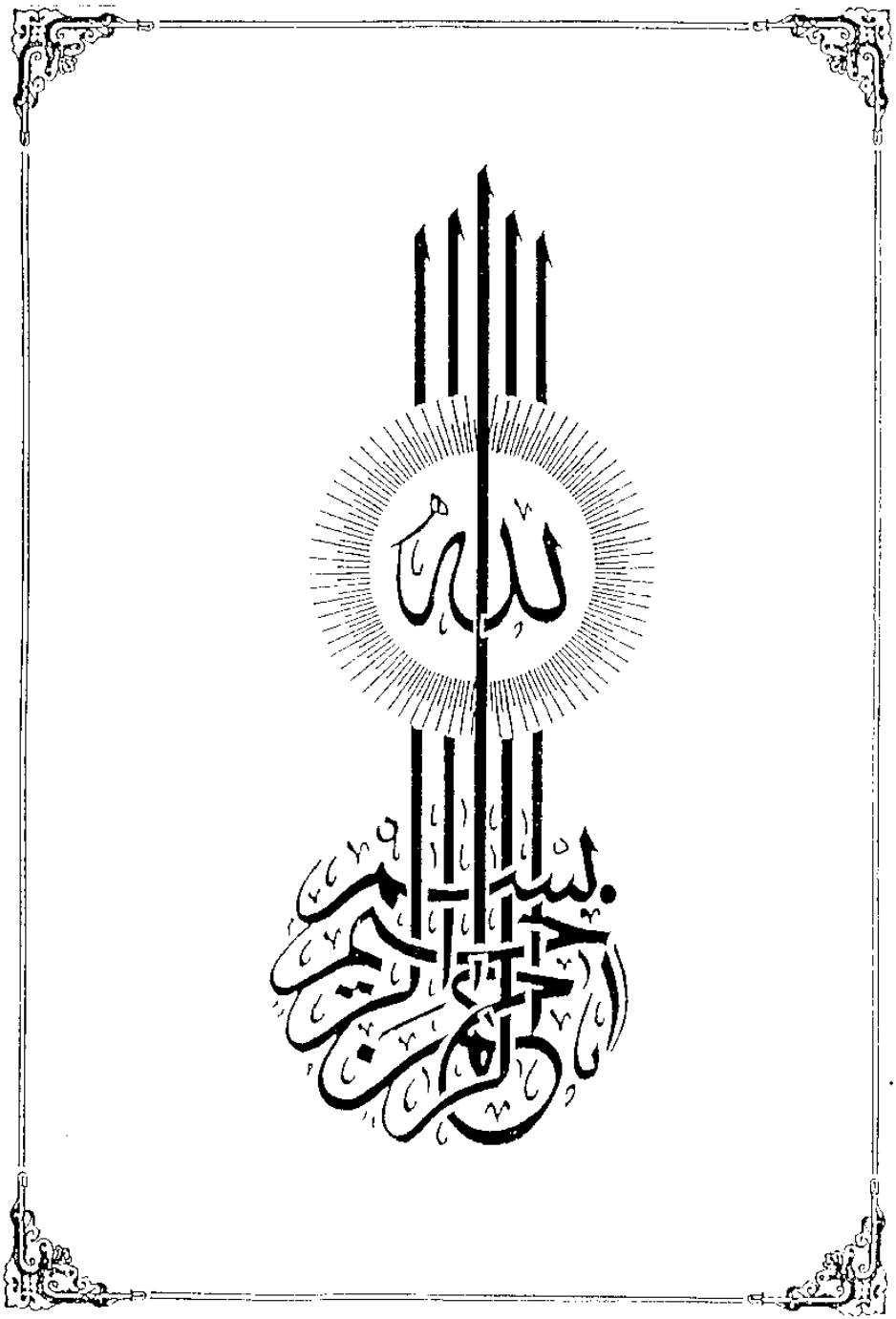

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ABSTRACT

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"SERUM VERSES URINARY TRACE ELEMENTS (COPPER, ZINC, MANGANESE, COBALT, ALUMINIUM) IN EPILEPTIC CHILDREN"

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Convulsion are among the most common and potentially life-threatening events in infants and children. The possible involvement of trace elements in convulsive disorders has been given more attention in recent years. Therefore , this study aimed at evaluation of the state of aluminium , cobalt , copper , manganese and zinc in convulsive disorders affecting children and evaluation of the effect of antiepileptic therapy on these elements.

Regarding serum copper level , it was significantly lower among all primary epileptics compared to controls, however , significant increase was noticed after AED.

Urinary copper level was significantly higher among all primary epileptics than controls when each AED was studied separately. There was no significant difference among epileptics before and after therapy .

As regards serum manganese, epileptics (as a whole) had lower serum manganese than controls.

Primary epileptics prior to therapy had lower manganese level than primary epileptics under therapy or secondary epileptics under therapy but still statistically non significant.

There were no significant correlation between duration of epilepsy and serum and urinary level of manganese among primary epileptics prior to start therapy .However it was found that duration of epilepsy lower serum manganese level and this was statistically significant.

Serum zinc levels was lower in primary epileptics , while were still lower than that of the controls when each antiepileptic drug was considered separately . We found that primary epileptics receiving CBZ had no significant difference before and after therapy, while there was significant difference between them and controls. Patients receiving VPA had significant difference before and after therapy.

Regarding urinary zinc level , it was significantly lower among all primary epileptics than controls. When each AED was considered separately, we found that primary epileptics receiving CBZ and VPA had no significant difference before and after therapy .

Both serum and urinary levels of zinc in secondary epileptics showed no significant difference between cases and controls .

As regards serum and urinary levels of both aluminium and cobalt , there were no statistically significant difference between epilptics (primary prior to therapy , primary under therapy and secondary under therapy) and controls. Age, sex, duration of therapy and duration of epilepsy had no effect .

Anticonvulsant drugs does not affect serum or urinary levels of both aluminium or cobalt. Type, etiology or frequency of seizures had no effect on levels of aluminium and cobalt .

We can come to the conclusion that trace elements, namely copper, manganese and zinc are significantly altered with epilepsy with further alteration after AED, however, being a cause or a result waits for further elucidation .

Key words: Epilepsy – Convulsions – Trace elements – Copper – Zinc – Manganese – Cobalt - Aluminium - Antiepileptic drugs.

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