

Serum and hair trace element levels in patients with epilepsy and healthy subjects: does the antiepileptic therapy affect the element concentrations of hair?

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Abstract

In this study, hair magnesium (Mg), zinc (Zn), copper (Cu), and manganese (Mn) levels, and serum Zn and Mg levels were measured by atomic absorption spectrophotometer in patients with epilepsy (n = 33) and healthy subjects (n = 21), and results obtained were statistically compared. The mean hair Cu, Mg, and Zn levels of epileptic patients were significantly lower than the levels of control subjects. There was no significant difference between epileptic patients and control subjects in respect to the mean Mn levels. Mean serum Mg levels in epileptic patients showed significant difference, but serum Zn levels were similar among both groups. When the effects of anticonvulsant therapy on Cu, Zn, Mn, and Mg in the hair, and Mg and Zn in the serum were analyzed in epileptics, there was no significant difference between the patients with or without therapy. Likewise, the mean trace element levels in epileptics showed no significant difference according to the type of antiepileptic drug and seizure, and gender. We suggest that the changed element status (Zn, Mg, and Cu) in hair play an indicator role in the diagnosis of epileptic patients.

Diese Studie untersuchte Haarmagnesium- (Mg), Zink- (Zn), Kupfer- (Cu) und Mangan- (Mn) Werte via Atomabsorptionsspektroskopie von 33 (N=33) epileptischen Patienten und 21 (N=21) gesunden Personen. Resultate wurden statistisch miteinander verglichen. Die durchschnittlichen Werte für Kupfer, Magnesium und Zink waren bei den epileptischen Patienten deutlich niedriger als bei der Kontrollgruppe. Manganwerte waren statistisch nicht signifikant. Die durchschnittlichen Serum Magnesiumwerte der epileptischen Patienten waren signifikant unterschiedlich; Serum Zinkwerte waren bei beiden Gruppen ähnlich. Die Untersuchung ergab, dass der Einfluß der antikonvulsiven Therapie auf Cu, Zn, Mn und Mg der Haare, und Mg und Zn im Serum nicht signifikant war. Es scheint als ob ein veränderter Elementstatus (Zn, Mg, und Kupfer) der Haare ein Indikator bei der Diagnose epileptischer Patienten ist.