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**SERUM AND URINARY LEVELS OF  
ALUMINIUM, COBALT AND  
MANGANESE IN EPILEPTIC CHILDREN.**

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## **LIST OF ABBRIVIATIONS**

<b>CNS</b>	<b>Central nervous system</b>
<b>Co</b>	<b>Cobalt</b>
<b>CPS</b>	<b>Complex Partial Seizure</b>
<b>CSF</b>	<b>Cerebrospinal fluid</b>
<b>EEG</b>	<b>Electroencephalogram</b>
<b>GABA</b>	<b>Gamma-aminobutyric acid</b>
<b>Mn</b>	<b>Manganese</b>
<b>n</b>	<b>Number of subjects</b>
<b>S.Al</b>	<b>Serum aluminium</b>
<b>S.Co</b>	<b>Serum Cobalt</b>
<b>SD</b>	<b>Standard deviation</b>
<b>S-Mn</b>	<b>Serum manganese</b>
<b>SPS</b>	<b>Simple partial seizure</b>
<b>T.S</b>	<b>Tuberous sclerosis</b>

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## **INTRODUCTION AND AIM OF THE WORK**

### **Introduction**

The minerals required for physiologic functions may be divided into 2 groups:

- **Macrominerals** which are required in amounts greater than 100 mg/day. They are calcium, chloride, magnesium, phosphorus, potassium and sodium.
- **Microminerals (trace elements)** which are required in amounts less than 100 mg/day. They are chromium, copper, iodine, iron, manganese, molybdenum, selenium, zinc, cobalt, silicon, vanadium, nickel, arsenic, fluoride, and tin. They have been shown to be essential in various species and may be required in humans (**Mayes, 1988**).

The possible involvement of trace elements in convulsive disorders has been given more attention in recent years (**Pei and Koyama, 1986**). The relation between some trace elements and convulsion was studied before as in manganese (**Carl et al., 1986**), cobalt (**Craig and colasanti, 1986**) and aluminum (**Bishop et al., 1989**).

### **Aim of the work**

Our aim is to evaluate the serum and urinary levels of cobalt, aluminum and manganese in different convulsive disorders affecting children, and to evaluate the effect of anticonvulsant therapy on these elements.



# Chapter 1



