

ZINC CONCENTRATION IN SERUM AND CEREBROSPINAL FLUID SIMULTANEOUSLY DECREASE IN CHILDREN WITH FEBRILE SEIZURE: FINDINGS FROM BANGLADESH

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Objective: Since the underlying mechanisms of febrile seizure (FS) having multi-factorial etiology yet remains unclear, we conducted this prospective study to determine if zinc (Zn) conc. in serum & cerebrospinal fluid (CSF) change simultaneously in children with febrile seizure (FS) in comparison to their matched non-seizure febrile (NSF) peers.

Methods: Zn concentration (level) in both serum (intravenous blood) and CSF (lumbar puncture: LP) of 50 children with FS and 30 NSF-peers (to serve as control) were measured employing Graphite Furnace Atomic Absorbance Spectrophotometer following standard procedure. Data were analyzed to compare Zn level between these two groups using appropriate statistical tools in SPSS/Windows 12.5.

Results: Mean Zn conc. in both serum and CSF were less among children having FS (464.60±64.57 and 46.28±7.46, respectively) than their matched NSF peers (749.33±73.19 µg/L and 111.28±19.11 µg/L, respectively) which shows a significant difference both for serum (p< 0.001) and CSF (p< 0.001). However, none of serum or CSF Zn conc. differed significantly with age, gender, degree and duration of fever both among FS and NSF peers; while CSF zinc among these children showed an upward trend in LP-specimen (CSF) taken beyond 12 hours following FS.

Conclusion and recommendation: Zinc level in both serum and CSF simultaneously decreased in children with FS than their matched NSF peers. We strongly recommended further prospectively designed multi-central studies to conduct in geographically diverse regions involving larger sample size prior to confirm or refute our findings- which remain crucial in standardizing or strengthening national seizure prevention protocol with adequate Zn supplementation.