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Permalink
https://escholarship.org/uc/item/3r86v9jx

Journal
ANNALS OF NEUROLOGY, 30(3)

ISSN
0364-5134

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Publication Date
1991-09-01

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Peer reviewed
132. Brain-Adrenal Axis Hormones Are Altered in the Cerebrospinal Fluid of Infants with Massive Infantile Spasms
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Massive infantile spasms (MIS) is a seizure disorder unique to infants. It is thought to be an age-dependent response of the immature brain to various insults and stressors. MIS responds poorly to conventional anticonvulsants but improves with adrenocorticotropic hormone (ACTH) and glu-corticoids, both major components of the brain adrenal axis. We set out to test the hypothesis that infants with MIS have abnormal central nervous system (CNS) levels of brain-adrenal axis hormones. Cerebrospinal fluid (CSF) was obtained from 14 infants with MIS and 12 age-matched controls, and subjected to analyses of corticotropin-releasing hormone (CRH), ACTH, cortisol, and interleukin-1. Levels of ACTH in CSF of infants with MIS were significantly lower than those of controls (31.1 ± 3.0 vs 59.8 ± 7.1, p = 0.01). Cortisol levels also differed between patients and controls (p = 0.027); however, after exclusion of the 2 febrile control infants, this difference was not statistically significant (p = 0.188). CRH levels did not differ between groups. CRH levels covaried with age, and fluctuated diurnally, with afternoon and evening levels (55.5 ± 3.8 pg/ml) significantly higher than those obtained earlier in the day (35.4 ± 3.8 pg/ml; p = 0.002). Interleukin-1 levels, in the few samples analyzed, were low or undetectable in both infant groups. These results indicate an alteration of specific CNS components of the brain-adrenal axis in infants with MIS. This is in line with the response of the seizures to ACTH and glucocorticoids, and suggests further lines of research into the patho-physiology of MIS.