

First paper

Impact of Primary Hypothyroidism on Electroencephalography in Infants

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Background: Thyroid hormones are essential for brain maturation and function. Conditions associated with impaired action of thyroid hormones to the brain during development may lead to various degrees of mental retardation and neurological impairment.

Objectives: To assess the impact of hypothyroidism on electro-encephalography in infants with primary hypothyroidism before and during replacement therapy with thyroid hormone.

Subjects and methods: this study included 55 infants with primary hypothyroidism during regular follow up in pediatric endocrinology outpatient clinic in Minia University Children Hospital. They were subjected to electroencephalography (EEG) before and after 8-12 weeks of replacement therapy with thyroid hormone at a dose of 10-15 ug/Kg/day. In addition, thyroid function was assessed (TSH and Free T₄).

Results: Infants with hypothyroidism before replacement therapy had significant higher frequency of abnormal EEG than after replacement with thyroid hormone where (P=0.0001). There was a significant association between electro-encephalographic changes and Free T₄.

Conclusion: EEG is potentially useful in the detection of central nervous system effects of thyroid deficiency and in monitoring the efficacy of hormonal replacement therapy. Therefore, early and proper replacement therapy with thyroid hormone in infants with hypothyroidism is very essential to prevent and eliminate any electro-encephalographic changes.

Key Words: Infants, Primary hypothyroidism, EEG.