A REPORT ON THE FOLLOW UP OF INFANTS WITH MARGINAL HYPERTHYROTROPINEMIA IN EARLY INFANCY

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Congenital hypothyroidism (CH) is a treatable deficiency of thyroid hormones that causes irreversible brain damage and growth retardation if not detected and treated early. It occurs on the average in 1:3000 births around the world. However, it could be as high as 1:700 in iodine deficient areas. Furthermore 1:10 neonates will have transient hypothyroidism. Serum TSH levels are accepted as the first line test in the diagnosis of CH. A TSH level between 5-20 mIU/L with normal FT4 is considered as marginal hyperthyrotropinemia. However marginally elevated TSH is associated with iodine deficiency and certain hypometabolic conditions. One of our previous studies showed that nearly 30% of children showed marginal hyperthyrotropenemia in early infancy. There is no agreed strategy to follow up of asymptomatic infants with marginal hyperthyrotropinemia. Aim of this study is to determine the two year outcome of children who had marginal hyperthyrotropinemia in early infancy (4-14 weeks).

Asymptomatic infants who had normal FT4 and marginal hyperthyrotropenemia at the first postnatal visit were recalled for repeat tests within two weeks and at 4, 6, 12 and 24 months of age. Infants who had repeat TSH value above 10 mix/L had Tc^{99m} pertechnetate scan to see the gland morphology and function. A Pediatrician closely monitored their growth and development.

Of 724 babies screened for CH there were 219 (30 %) infants with mild to moderate increase in TSH (5-20 mIU/L) with normal FT4 levels. Of them 75 attended regular follow up clinics. Eighteen infants with TSH (10-20 mIU/L) had Tc ^{99m} thyroid scans. Sixteen had normal scans. One had no gland uptake. One showed a small bi-lobed gland with repeat TSH 10 mIU/L. Thyroxine replacement was started on these two in view of the marginal risk. One infant who had pyogenic meningitis followed by mental retardation was also started on thyroxine in spite of a normal scan and subsequently normal TSH. Of the 72 remaining babies who were not treated, 32 were low birth weight, 11 were with intrauterine growth retardation and 21were pre-term. One has had birth asphyxia. Incidentally four had febrile fits and two babies have had blood transfusions for anemia. However all these infants showed normal growth and development up to 2 years of age.

This study showed that 72/75 babies with marginal hyperthyrotropinemia and normal FT4 who were elected not to be treated based on clinical grounds and thyroid scanning, showed normal thyroid function on follow up. It shows that Tc ^{99m} thyroid scans, careful clinical monitoring and repeated biochemical thyroid function tests can play an important role in identifying infants who can be spared unnecessary replacement therapy. The presence of a disproportionate number of babies with adverse perinatal events (64/75) in this group suggests an association between adverse perinatal events and marginal hyperthyrotropinemia.