Letters to the Editor

Clinical features versus laboratory values. An infant with transient neonatal hypothyroidism.

Sir,

A 2-month-old male infant was referred to the high-risk neonatal follow up clinic from the general pediatric clinic for further evaluation for his unusual inactivity. The parents gave the history that the infant was sleeping excessively and that he had staring eyes. The birth history and postnatal period was unremarkable. On examination the infant was noted to have wide anterior fontenalle, macroglossia and umbilical hernia. Severe head lag was noted. The rest of the physical examination was normal. In view of his clinical features, thyroid function tests (TFT) were carried out which were within the normal reference ranges of our laboratory (Table 1). However, the infant was started on oral thyroxine supplementation (50μg daily dose). On the follow up visit after 2 months, he was noted to have normal appearance with good head control, no macroglossia and normal anterior fontanalle. His repeat TFTs showed a very low TSH (<0.30 miu/L), suggesting suppression response to the negative feedback of supplemented thyroxine. Thyroxine was discontinued and he was managed clinically. On his next visit, 3 months later, he was noted to have normal growth and development. His repeat TFTs were within normal limits (TSH has risen up from <0.30 to 2.90 miu/L, Table 1).

Transient neonatal hypothyroidism is a well known entity.[1] The causes can be environmental (iodine deficiency), maternal (immunological, drugs, antithyroid iodine disinfectant) or neonatal (use of contrast media, iodine disinfectant).[2] The incidence reported from Europe ranged from 1 in 700 to 1 in 8400.[3,4]

Table 1 - Summary of the findings.

Thyroid function test Normal ranges	**TSH (0.32-5.00 miu/L)**	**T4 (9.2-23.9 pmol/L)**
At 2 months of age	1.9	15.3
Thyroxine supplementation started		
At 4 months of age	<0.03	18.9
Thyroxine supplementation stopped		
At 7 months of age	2.90	13.3
Follow up, off thyroxine supplementation		

As the case was overlooked at birth, it pointed out towards the need for a neonatal screening program for hypothyroidism.[5] The case highlighted on the role of good clinical examination. Infant had most of the signs of congenital hypothyroidism (macroglossia, wide anterior fontanella, umbilical hernia, head lag). The decision of starting thyroxine was based on the clinical findings, as laboratory values of TSH and T4 were normal (Table 1). Infant improved dramatically on oral supplementation. The very low TSH (assistance from the laboratory) on the follow up visit lead to the stoppage of supplementation. Infant remained stable with good growth and development and with normal TFTs.

In summary, a good clinical assessment and appropriate laboratory assistance go hand in hand. The infant was started on medication based on clinical features while it was stopped based on laboratory values. A fine interpretation of clinical signs and laboratory values with early treatment remains the mainstay of management of transient neonatal hypothyroidism. However, the need for neonatal screening program should not be overlooked.

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References

1. Foley TP Jr, Morishima A. Thyroid disorders. In: Fanaroff AA, Martin RJ (eds). Neonatal-perinatal medicine: Diseases of the fetus and infant. 6th edition, Mosby, St. Louis 1997; 1476-1500.
2. Weber G, Vigone MC, Rapa A, Bona G, Chinmello G. Neonatal transient hypothyroidism: aetiological study. Arch Dis Child Fetal Neonatal Ed 1998; 79: F70-F72.
3. Gruters A, Kohler B, Schnabel D, Helge H. Follow up of thyroid function, thyroid size, and development in children with transient neonatal hypothyroidism up to the age of 14 years. Jour Endocrinol Invest 1994; 17: 59.
4. Delange F, Dodion J, Walter R, et al. Transient hypothyroidism in newborn infant. Jour Pediatr 1978; 92: 974-976.
5. American Academy of Pediatrics. Newborn screening for congenital hypothyroidism: recommended guidelines. Pediatrics 1993; 91: 1203-1209.