



Neonatal thyrotoxicosis: a case series

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Introduction

Neonatal thyrotoxicosis is a rare and life-threatening condition caused by transplacental transfer of maternal thyroid stimulating immunoglobulins in mothers with autoimmune thyroid disease¹.

Clinical features of neonatal thyrotoxicosis include tachycardia, goitre, prominent eyes and poor weight gain².

Presenting symptoms may be non-specific, particularly in the premature or intrauterine growth retarded infant and clinical features may mimic other conditions such as neonatal sepsis³.

Early diagnosis and treatment of affected infants is critical

Methods

We report 4 cases of neonatal thyrotoxicosis occurring in two tertiary paediatric hospitals. Information on maternal thyroid disease, perinatal history, clinical features, diagnostic testing and management of infants is presented

Clinical features

Infants

2 females and 2 male infants.
Mean gestational age was 36 weeks
Mean birthweight was 3.14kg
Mean age at diagnosis was 6 days (range 2 to 10 days)
Mean serum thyroxine at diagnosis was 53.5pmol/L (range 35.0-77.0pmol/L)

Mothers

4 of 4 infants had a maternal history of Graves' disease.
3 of 4 mothers required antithyroid medications during their pregnancy
3 out of 4 mothers had positive TRAB antibodies

On clinical examination

All infants had tachycardia
2 of 4 infants had significant weight loss and failure to thrive
No infant had eye signs or goitre

Diagnosis

The diagnosis of neonatal thyrotoxicosis was confirmed with thyroid function testing and measuring thyroid receptor binding antibodies (TRAB) levels

Case	Age at diagnosis	T4 (pmol/L)	TSH (mU/L)	TRAB	Thyroid US
1	10 days	35	<0.01	Positive	Not performed
3	9 days	>77	z	Positive	Not performed
3	2 days	40	<0.01	Positive	Not performed
4	3 days	62	<0.01	Positive	Normal

Treatment and follow up

All infants were treated with anti-thyroid drugs for a mean of 10 weeks. 2 infants required thyroxine replacement during therapy

Case	Agent used	Duration of therapy	Thyroxine replacement required during treatment
1	Carbimazole	6 weeks	No
2	Propylthiouracil Propranolol Iodine	6 months	Yes
3	Carbimazole	4 weeks	No
4	Carbimazole	9 weeks	Yes

Take home messages

- Neonatal thyrotoxicosis is a rare condition affecting 2-3% pregnant women with Graves' disease
- The most important maternal risk factors are elevated maternal TRAB titres in pregnancy and need for maternal anti-thyroid medication.
- Classic features such as goitre and prominent eyes may be absent.
- In high risk infants, isolated tachycardia must alert the physician to the possibility of neonatal thyrotoxicosis
- Follow up is essential to ensure normal thyroid function, growth and developmental outcomes

References

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