



# HYPERTHYROIDISM IN AN INFANT OF A MOTHER WITH AUTOIMMUNE HYPOTHYROIDISM WITH POSITIVE TSH RECEPTOR ANTIBODIES

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## Background:

- Neonatal hyperthyroidism is a rare condition seen in infants born to mothers with Graves disease, with transplacental transfer of TSH receptor antibodies (TRAb) to the baby.
- Some patients have been shown to swing from hypothyroidism to hyperthyroidism as TSH receptor blocking and stimulating antibodies may coexist.
- Graves disease following Hashimoto's hypothyroidism has previously been reported with one individual continuing to be hypothyroid even in the presence of thyroid stimulating antibodies.

## Objective:

To describe a rare clinical event of a neonate with severe Graves hyperthyroidism, born to a mother with autoimmune hypothyroidism .

## Patients and Methods:

A baby boy born preterm at 35 weeks gestation had significant irritability, tachycardia and a suspicion of proptosis 36 hours after birth.

The mother was known to have autoimmune hypothyroidism, diagnosed at age ten and was taking levo-thyroxine replacement with normal thyroid function throughout this pregnancy. She had never been thyrotoxic. She also had pernicious anaemia and extensive vitiligo.

The maternal grandmother had Graves disease and maternal aunt and great grandmother had a history of Hashimoto's thyroiditis.

The baby's mother therefore was tested for TRab .

## Results:

The baby's thyroid function on day 3 demonstrated gross thyrotoxicosis, TSH<0.01mU/l (NR day 3 <10 mU/l), FT4 >77pmol/L (20-35) and FT3 15.4 pmol/L. TRab was elevated at 18.4 IU/L (<1.8).

The mother's TRab was high at 24.7 IU/L.

The baby was commenced on propranolol on day 7, with some symptomatic improvement, however thyroid hormones continued to rise. After endocrine consultation, on day 17 carbimazole(CBZ) was commenced, at 0.3mg/kg/day. Thyroid function normalized within ten days, CBZ was gradually tapered and medication was weaned by 7 weeks.

He has remained euthyroid. His mother continues to require replacement thyroxine.

## Conclusion:

- **We hypothesize that the mother initially had Hashimoto's thyroiditis which damaged the thyroid to the extent that later Trab positive Graves disease was unable to elicit thyrotoxicosis**
- Rare cases of de novo development of TSH stimulating antibodies are described in patients on levothyroxine and might be an alternate explanation for our case.
- However, almost all infants reported with neonatal thyrotoxicosis were either de novo or associated with maternal history of active or treated Graves disease.
- **Our findings have important implications for future follow up of this family and for management of future pregnancies.**

Table 1: Hormonal profile of patient

Age	TSH (mIU/L)	FT4 (pmol/L)	FT3 (pmol/L)	TRab	Medication
D3	<0.01	>77	15.4	18.4	nil
D7	<0.01		18		Propranolol started 1mg 6 hourly
D17	<0.01	63	27.1		CBZ started @0.3mg/kg/d
4 weeks	0.01	24	7.4		CBZ tapered to 0.2mg/kg/d
7 weeks	0.01	13	5.6		CBZ stopped
10 weeks	0.86	11	5.2		nil
3 months	1.52	10.1	6.7		nil
7 months	1.52	15.3	7.6		nil
1 year	3.01			<0.3	nil

CBZ: Carbimazole. FT4:10-25 pmol/l, FT3- 4.2-83.pmol/L

## References:

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