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Neonatal Thyrotoxicosis in a Newborn Child of a Mother with Graves' Disease: A Case Report

Neonatal Thyrotoxicosis in a Newborn Infant of a Mother with Severe' Disease: Case Report

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Summary

This report describes the case of a late preterm male newborn, small for gestational age, born to a mother with Graves' disease, who presented with clinical and laboratory findings consistent with neonatal thyrotoxicosis. The diagnosis was confirmed by laboratory tests, and treatment with an anti-thyroid drug showed a good clinical response. This case emphasizes the importance of screening and monitoring newborns exposed to maternal thyroid disease, since early recognition and management are crucial for a favorable prognosis.

Keywords: Neonatal thyrotoxicosis; Graves' disease; Newborn; Congenital hyperthyroidism.

Abstract

This is a case report of a late preterm, small-for-gestational-age male newborn, born to a mother with Graves' disease, who presented with clinical and laboratory findings consistent with neonatal thyrotoxicosis. The diagnosis was confirmed through laboratory evaluation, and therapeutic management with antithyroid medication led to a favorable clinical response. This case reinforces the importance of screening and monitoring newborns exposed to maternal thyroid disease, as early recognition and management are crucial for a good prognosis.
Keywords: Neonatal thyrotoxicosis; Graves' disease; Newborn; Congenital hyperthyroidism.

Introduction

Neonatal thyrotoxicosis is a rare condition resulting from the transplacental passage of TSH receptor-stimulating antibodies (TRAb) from mothers with Graves' disease.

Recent studies indicate that the assessment of maternal serum TRAb levels in the third trimester...

Pregnancy is the main predictive factor for the occurrence of neonatal thyrotoxicosis, allowing to identify high-risk pregnant women and plan immediate neonatal management (WATANABE et al., 2022).

This condition affects approximately 1 to 5% of newborns of mothers with active disease. (VELASQUE; SAAB; LORENZI, 2023) (FREIRE et al., 2023). The development of

Fetal ultrasound and Doppler velocimetry enabled the early diagnosis of fetal goiter and Intrauterine thyroid dysfunction (CHEN et al., 2021). Furthermore, recent research has highlighted...

the need to distinguish transient thyrotoxicosis from permanent congenital forms, since

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Clinical management and prognosis improve considerably (KASSIM et al., 2020).

Although transient in most cases, it can present with serious manifestations such as tachycardia, irritability, failure to thrive, and heart failure, requiring clinical abortion and early treatment (TEIXEIRA et al., 2012), due to its high mortality rate (10-12%) (CALABRIA et al., [n.d.]). Diagnosis and immediate initiation of antithyroid therapy significantly reduced morbidity and mortality (TEIXEIRA et al., 2012).

Based on this, the importance of joint monitoring between obstetrician, Endocrinologist and neonatologist to reduce neonatal mortality and neurocognitive sequelae. (MATSUMOTO et al., 2022).

Case Report

Newborn male, JAAL, born on 06/02/2025, vaginal delivery, ruptured membranes. 16 hours, APGAR 8/9, gestational age of 35 weeks and 3 days (dated by the Capurro method), weight Birth weight 1,670 g, height 42.5 cm and head circumference 28.5 cm, classified as small for age. Symmetric gestational age (SGA). Child of a 36-year-old mother with Graves' disease who was using tapazole before. from the pregnancy, interrupted in the first trimester, and a history of treated gestational syphilis. Especially. In the first hours of life, it presented with tremors in its extremities and irritability. Laboratory tests were requested, revealing hypoglycemia (56 mg/dl in capillary blood glucose) and Polythemia, requiring partial exchange transfusion. On 07/02, she presented with vomiting after a meal. Tachycardia, relief, tremors in the extremities, and fever (axillary temperature: 38.8ºC). Tests Laboratory tests revealed elevated free T4 and suppressed TSH, confirming neonatal thyrotoxicosis. Methimazole (1 mg/kg/day dose) was started under the supervision of pediatric endocrinology. During hospitalization, the patient presented with transient cholestasis, and infectious causes were ruled out. Metabolic symptoms, Ursacol was taken until the condition resolved. Echocardiogram showed foramen ovale. patent, without other structural changes. The child continued outpatient follow-up, with Progressive weight gain, without new episodes of clinical decompensation. Subsequent examinations Hormone levels were adjusted to normalize them, allowing for a gradual reduction in methimazole. under medical supervision until its complete cessation.

Discussion

Neonatal thyrotoxicosis is a transient manifestation of maternal autoimmunity, and its The course depends on the concentration and duration of fetal exposure to stimulating antibodies (FREIRE et al. al., 2023). The main cause is maternal Graves' disease with transplacental passage of TSH receptor-stimulating antibody (TRAb). Elevated levels of TRAb result in

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Hyperthyroidism in the fetus from the 2nd trimester of pregnancy onwards, when the fetus has receptors for the TSH in the thyroid gland responds to maternal TRAb, resulting in its hyperfunction.

Obstetric ultrasound can detect changes suggestive of thyroid dysfunction, being It is possible to identify the presence of goiter, fetal tachycardia (>160 beats per minute), and fetal heart rate deficit. Intrauterine growth and changes in bone age. In more severe forms, there may be Heart failure with fetal hydrops and CNS abnormalities. In addition, it may be responsible for... due to premature labor (GIORDANI; BIANCHI; RIZZOLLI, 2013) (CALABRIA et al., [sd]).

In the first month after birth, clinical signs include irritability, low mood, and sleepiness. Dietary accessibility, hypertension, tachycardia, exophthalmos, goiter, microcephaly, hypoglycemia. Early clinical findings include vomiting, diarrhea, poor weight gain, and tremors. extremities. The onset and severity of symptoms vary depending on maternal treatment. being earlier and more serious in its absence or in case of alternative implementation (CALABRIA et al., [sd]).

Initial laboratory evaluation includes measuring the total concentration of triiodothyronine (T3). and free thyroxine (T4L) with increased levels, in addition to thyroid-stimulating hormone (TSH) with suppressed values, in order to perform the diagnosis and monitor the effectiveness of the treatment.

According to Smith et al. (2022), treatment should be individualized, taking into account birth weight, gestational age, and severity of clinical symptoms. Methimazole continues being the drug of choice, as it presents a better safety profile (LEE et al., 2023) and acts as an antithyroid drug restoring the synthesis of T3 and T4 in the follicular cells of the thyroid. Another An alternative would be the use of propylthiouracil, however this medication presents more side effects. frequent and severe (FREIRE et al., 2023).

Beta-adrenergic blockers, such as propranolol, can be used. as a complementary therapy for the control of neuromuscular and cardiovascular hyperactivity. For In refractory cases, corticosteroids are indicated due to their anti-inflammatory action and inhibition of... peripheral conversion of T4 to T3 (HIGUCHI et al., 2021).

In neonates whose initial treatment is ineffective, iodine may be added to the treatment. with the aim of inhibiting the release of thyroid hormones.

The prognosis is generally favorable when there is early diagnosis and appropriate treatment. with spontaneous resolution in 2 to 3 weeks, although persistent cases may require follow-up. for up to six months (FREIRE et al., 2023). Furthermore, recent research indicates that newborns Individuals with a history of thyrotoxicosis may be at higher risk of neurocognitive disorders. reinforcing the importance of prolonged multidisciplinary follow-up (PEREIRA et al., 2023).

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Conclusion

The case presented reinforces the importance of specialized prenatal care for pregnant women with endocrine autoimmune diseases, as well as clinical and laboratory surveillance of the neonate in the first few months. hours and weeks of life. Treatment with methimazole is considered the gold standard for its effectiveness. and safety in newborns. Most cases evolve to remission occurring between 3 and 12 weeks after birth (TEIXEIRA et al., 2012). However, there is a need for further monitoring. prolonged, due to the risk of long-term complications (FREIRE et al., 2023). Furthermore, This exemplifies the need for integration between obstetrics, neonatology, and pediatric endocrinology. ensuring better prognoses and proper neurological development.

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