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Recommendations for the diagnosis and followup of the foetus and newborn child born to mothers with autoimmune thyroid disease☆

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Abstract The objective of this document is to review the current recommendations in the management of the foetus and the newborn child born to mothers with autoimmune thyroid disease. In 2017, the American Thyroid Association published guidelines for the diagnosis and management of thyroid disease during pregnancy and post-partum. In this guide, 97 recommendations were made, and an algorithm for the diagnosis and treatment of gestational hypothyroidism was proposed. Also, in the last year, a wide review was published on the foetal and neonatal approach of the child of a mother with Graves' disease.

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Grave's disease;
Thyroid antibodies in pregnancy

The importance of the determination of maternal antibodies against thyrotropin receptor in the second half of pregnancy is stressed, in order to adequately stratify the risk in the neonate.

PALABRAS CLAVE
Recién nacido;
Patología tiroidea autoinmune gestacional;
Tiroiditis de Hashimoto;
Enfermedad de Graves;
Anticuerpos antitiroideos en el embarazo

Recomendaciones para el diagnóstico y seguimiento del feto y del recién nacido hijo de madre con patología tiroidea autoinmune

Resumen El objetivo de este documento es revisar las recomendaciones actuales en el manejo del hijo de madre con patología autoinmune tiroidea. En este 2017 se ha publicado la guía de la Asociación Americana de Tiroides para el diagnóstico y manejo de la enfermedad tiroidea durante el embarazo y el posparto. En dicha guía se establecen 97 recomendaciones y se propone un algoritmo de diagnóstico y tratamiento del hipotiroidismo gestacional. También en este último año se ha publicado una amplia revisión sobre el abordaje foetal y neonatal del hijo de madre con enfermedad de Graves. Se insiste en la trascendencia de la determinación de anticuerpos maternos frente al receptor de TSH en la segunda mitad del embarazo para estratificar adecuadamente el riesgo en el neonato.

Introduction

In the last few years, there have been significant advances in our knowledge of thyroid disorders during pregnancy, which have resulted in the recent publication of clinical practice guidelines by the American Thyroid Association (ATA),[1] European Thyroid Association (ETA)[2] and the Sociedad Española de Endocrinología y Nutrición (Spanish Society of Endocrinology and Nutrition, SEEN).[3] Since 2012, the ATA, the ETA and the Working Group on Iodine Deficiency and Thyroid Dysfunction of the SEEN recommend screening for thyroid dysfunction in nearly all pregnant women.[1–3] This recommendation has led to an increase in the detection of thyroid disorders during pregnancy, which in turn has resulted in an increase in the treatment and followup of pregnant women and their newborns.

The development of healthy thyroid function in the foetus requires normal embryogenesis, differentiation and maturation of the thyroid gland, and also the integrity of the hypothalamic–pituitary–thyroid axis and the mechanisms that regulate the metabolism of thyroid hormones. The normal unfolding of all these processes depends on multiple foetal and maternal factors, with maternal thyroid function, thyroid autoantibodies and iodine intake playing key roles.

During pregnancy, the passage of thyroxine (T4) from the mother to the foetus protects the developing brain. Even in the early stages of pregnancy, T4 can be found in embryonal fluids, and later in pregnancy, when hormone secretion by the foetal thyroid has already started, maternal hormones continue to contribute to neurologic development.[4–6]

In areas where severe iodine deficiency is endemic, women may not have sufficient iodine stores and already have hypothyroxinaemia in the critical early stage of foetal neurodevelopment. Women with adequate iodine intake before and during pregnancy have sufficient intrathyroidal iodine stores and can adapt to the increasing requirements of pregnancy without difficulty. Although there is evidence that iodine supplementation may trigger thyroid autoimmunity in a small percentage of women, ensuring adequate iodine intake in pregnant women is a health priority. At present, a daily iodine intake of 250 μg is recommended in all pregnant women, excepting those with hyperthyroidism or currently in treatment with levothyroxine.[7]

When we speak of maternal thyroid autoimmunity, we refer to the detection of thyroid autoantibodies in the pregnant women. In women of childbearing age, the prevalence of anti-thyroid peroxidase antibodies (TPOAb) and/or anti-thyroglobulin antibodies (TgAb) ranges between 8 and 14% depending on the study. Its presence in pregnant women is associated with an increased risk of maternal hypothyroidism during pregnancy.[4,8–10] There are multiple studies in the literature on their presence and analysing the impact on the thyroid function of the foetus and newborn. Both TPOAb and TgAb of the IgG type can freely cross the placental barrier, which explains why more than 95% of newborns of mothers with Hashimoto thyroiditis (HT) have circulating autoantibodies.[10]

The prevalence of maternal hyperthyroidism due to Graves disease during pregnancy is much lower, ranging between 0.1 and 2.7%. The long-acting thyroid-stimulating hormone (TSH) receptor antibodies (TRAb) that cause this disease freely cross the placenta in the second half of pregnancy and have been shown to cause transient neonatal Graves disease in up to 2–20% of the offspring in cohort studies.