Hypothyroidism Review And Update

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Abstract

Objective: review of scientific literature of a descriptive nature that provides an update on useful concepts for the diagnosis and timely treatment of Hypothyroidism. Brief description: Hypothyroidism in the United Kingdom presented 2%, in the United States it has a prevalence of 1.3% and in Latin America its incidence is up to 10% of the population, the most affected age group are women, the Secondary hypothyroidism and subclinical hypothyroidism affects older women between 60 and 65 years of age, unlike secondary hypothyroidism that harms women between 30 and 50 years of age more, this higher prevalence is associated with physiological and hormonal changes, on the contrary, Congenital Hypothyroidism It commonly harms neonates, in conclusion, each of these categories generate alterations in the hypothalamic-pituitary axis, which leads to a low production and secretion of Thyrotropin (TSH), and simultaneously decrease its biological activity in the thyroid gland. Conclusions: hypothyroidism is a pathology that may or may not present symptoms, if a long-term constant examination is not carried out, it can affect the life of the individual, therefore, it is important to keep updated in order to detect it in time for its correct treatment in patient benefit. The population most likely to develop it is from developing countries due to the lack of iodine in the diet, hypothyroidism can be classified into four categories, congenital hypothyroidism, primary hypothyroidism, secondary hypothyroidism, subclinical hypothyroidism and each of them reduces biological activity in the thyroid gland. Through this review, the incidence and prevalence of hypothyroidism in recent years was disclosed, the age group prevalent in people over 70 years of age, especially in the female gender, as far as its treatment depends on the type of hypothyroidism diagnosed.

KEY WORDS: Hypothyroidism, Latin America, female, subclinica

RESUMEN:

Objetivo: Realizar una revisión de literatura científica de carácter descriptiva que proporciona actualización sobre conceptos útiles para el diagnóstico y tratamiento oportuno del Hipotiroidismo. **Descripción breve**: El Hipotiroidismo en Reino unido presento un 2%, en Estados Unidos tiene una prevalencia del 1,3 % y en América Latina su incidencia es de hasta un 10% de la población, el grupo etario más afectado son las mujeres, el Hipotiroidismo secundario e Hipotiroidismo subclínico afecta a mujeres mayores de entre 60 a 65 años, a diferencia del Hipotiroidismo secundario que perjudica más a mujeres de entre 30 a 50 años, esta mayor prevalencia se asocia a cambios fisiológicos y hormonales, por lo contrario el Hipotiroidismo Congénito perjudica comúnmente a neonatos, en conclusión, cada una de estas categorías generan alteraciones en el eje hipotálamo-hipofisiario, que conlleva a una baja producción y secreción de Tirotropina (TSH), y simultáneamente disminuyen su actividad biológica en la glándula tiroides. **Conclusiones**: el hipotiroidismo es una patología que puede o no presentar síntomas, sino se realiza un examen constante a largo plazo puede afectar la vida del individuo, por lo tanto, es importante mantenerse

actualizados a fin de poder detectarla a tiempo para su correcto tratamiento en beneficio del paciente. La población más propensa a desarrollarla es de países en vía de desarrollo debido a la escasez de yodo en la dieta, el hipotiroidismo se puede clasificar en cuatro categorías, el hipotiroidismo congénito, hipotiroidismo primario, hipotiroidismo secundario, hipotiroidismo subclínico y cada una de ellas reduce la actividad biológica en la glándula tiroides. Mediante esta revisión se dio a conocer la incidencia y prevalencia del hipotiroidismo en los últimos años, grupo etario prevalente en mayores a 70 años, especialmente en el género femenino, en cuanto a su tratamiento depende del tipo de hipotiroidismo diagnosticado.

PALABRAS CLAVES: Hipotiroidismo, América latina, femenino, subclínico, actualizacion.

INTRODUCTION

The thyroid is the main gland responsible for metabolic control in the body, since it releases hormones capable of increasing protein synthesis in tissues and tissue oxygen consumption and is essential for fetal growth and development (2). Hypothyroidism is one of the most frequent endocrinological pathologies in our usual clinical practice, both in Primary Care and in specialized care. It is important to understand the pathophysiology and natural history of these alterations in order to know how to distinguish between those in which a self-limited course is expected. or indolent and those that do require greater attention and closer management, especially in patients with multiple pathologies, in the elderly or in pregnant women. (1). According to the World Health Organization, thyroid pathologies have a prevalence of 10% and is increasing in people over 70 years of age. Hypothyroidism is the clinical and biochemical syndrome resulting from a decrease in the hormonal production of the thyroid gland.

Diagnosis and treatment are simple in most cases, although different differential diagnoses must be considered, it is of crucial importance to inform the patient about their condition, reassure and answer their questions, as well as give the most appropriate recommendations in each case from the beginning of the painting.(4).

Methodology: A review of scientific literature of a descriptive-explanatory nature was carried out, this provides the reader with an update on useful concepts in areas of constant evolution and that answers a specific, very concrete question about etiological, diagnostic, clinical or therapeutic aspects. To search for scientific studies, class words such as Hypothyroidism, Latin America, female, subclinical, update were implemented. This article brings together various studies published in a period of 8 years from 2015 to 2022 and collects updated data on hypothyroidism such as diagnostic tests, treatments and prevalence

DEVELOPING

Symptoms of Hypothyroidism include fatigue, impaired heart rate, tiredness, hypersensitivity to cold and, in women, menstrual disturbances, constipation, dry skin and unexplained weight gain, which is more common in older women (3). . We will briefly describe the different types of hypothyroidism and their characteristics.

H. Congenital: defined as the insufficiency of thyroid hormones T4 and T3 in newborns, it is one of the main causes of preventable mental retardation (8). Diagnosis is made by monitoring the TSH hormone in the first 48 hours of life, this can be done through neonatal systematic screening to detect whether or not there is congenital hypothyroidism. TSH results should be 7 TSH in case that these are >10, an urgent consultation is needed to carry out the proper follow-up (11). The treatment in newborns is conducive to start a treatment with levothyroxine, unlike the cases in which the newborn has an iodine deficiency, in these cases this component must be incorporated into the mother's diet, since, through During lactation, it is possible to achieve an improvement in the endogenous production of HT and try to avoid neurological damage generated by its deficiency (10).

Primary Hipotiroidism: it is defined as the reduction in the production of thyroid hormones, associated in 95% of cases with an increase in cardiovascular risk and dyslipidemia. The global prevalence of HP ranges between 3.8 and 4.6% of the population (4). On the other hand, the normal level of Hypothyroidism is; TSH (0.47-4.64 µIU/mL) and T4 (0.71-1.85 ng/dL), however, when TSH levels are higher than normal and T4 levels lower, HP is considered (7), the Diagnosis is established in the detection of these antithyroid

antibodies, with anti-TPO being more clinically useful, it can also be performed using the chemiluminescence technique (8). Treatment can be done through hormone replacement with levothyroxine, usually prescribed at an initial dose of 1.6 µg/kg/day, depending on the therapeutic objective. However, the consequences of untreated or undertreated HP can lead to cardiovascular diseases and increased mortality (9).

Secondary hypothyroidism, also called central, is found in less than 1% of the causes of hypothyroidism, it may be due to a pituitary disorder or a hypothalamic disorder, this makes central hypothyroidism less severe than primary hypothyroidism (11), pituitary disorders -hypothalamic produce a decrease in the synthesis of bioactive TSH which can be caused by biological factors such as pituitary or hypothalamic tumors, infiltrative and inflammatory diseases of the pituitary gland, postpartum hemorrhagic necrosis, physical factors such as surgical injuries and taking drugs such as bexarotene , glucocorticoids, dopamine and cocaine (12). The diagnosis can be combined with other deficiencies of pituitary hormones or congenital defects that cause functional disorders of the pituitary gland and the diagnosis is suspected when a low level of FT4 is associated with a low level of TSH (13), the distinction between central hypothyroidism and non-thyroid disease is difficult to diagnose and in these cases the measurement of total serum T3 and inverse T3 is taken. The treatment for any variant of hypothyroidism is the treatment through the administration of levothyroxine which allows maintaining the level of free T4 in the upper half of the range of the reference norm and thus returning the euthyroid state to the patient (7)

Subclinical hypothyroidism: it is defined as normal values of T4 and T3 with high concentrations of TSH, in most cases this is so mild that it does not present symptoms (14). This pathology is more incident to a large extent to the aging of the population, for which it is estimated to be present in more than 10% of the elderly, and more frequent in populations of women over 40 years of age since factors influence this. hormonal. The diagnosis is based on the control of TSH, that is, if the TSH level is very high, considering its range from 4 to 10 IU/ml with a normal FT4, subclinical hypothyroidism will be determined (6). Sodium levothyroxine "LT4" will be indicated for its treatment, when the TSH exceeds 10mcg, the treatment can be administered in low doses of 25 to 50 mcg/day until the TSH is normalized.

• Subclinical hypothyroidism is defined as an elevated TSH with normal thyroxine.

• Its prevalence is 4-20%, it increases with age, it is more frequent in women and in the white race.

• There is no evidence that subclinical hypothyroidism has clinical manifestations.

• The progression to clinical hypothyroidism is 2-4% per year. About 65% of cases normalize TSH in one year.

• Its treatment is indicated when TSH levels are higher than 10 mU/L due to the high risk of transition to clinical hypothyroidism.

• Treatment with levothyroxine should be started at low doses (25-50 mcg/d) and titrate the dose based on TSH levels.

• The interval between TSH determinations must be at least 6 weeks, which is the TSH feedback time

Results

Hypothyroidism can be classified depending on the cause of its appearance, which leads to the patient having low thyroid hormone levels than normal, which causes a compensatory increase in TSH, unlike secondary hypothyroidism, which is caused by pituitary disorders that cause a decrease in the release of TSH and a decrease in the levels of T3 / T4, can appear in any age group, however the most common is between 40 to 60 years of age, with a predominance of the female gender due to the hormonal component to which it is associated. women are subjected to during periods of menopause. Both Primary and Secondary Hypothyroidism affect approximately 3 to 4% of the adult population, in addition to the fact that, like CAH, most of it is diagnosed in women between the ages of 30 and 50 with an incidence of 3.5 per 1000 and of 0.6 per 1000 men (12). Other of the methods used is through the discovery of anti-TPO antibodies, which

is an enzyme that acts in the production of thyroid hormones, and Ig inhibitors of TSH fixation, which are found in 10 to 20% of patients. (10).

The main treatment is given by the administration of levothyroxine medicine selected by the WHO, given in low doses, it is usually prescribed at an initial dose of 1.6 µg/kg/day, depending on the therapeutic objective, to achieve symptomatic health and restore levels. of TSH to the normal range, these doses or concentrations depend on the age of the patient, which means that the treatment varies with doses ranging from 1.6 to 25 µg/kg/day (36), the purpose of the treatment is to normalize TSH levels in most patients. However, in a study carried out by Sánchez and López in 2015, a 33.8% therapeutic failure rate for levothyroxine was reported, caused in part by pharmacokinetic characteristics, interactions and special conditions for taking the drug (13)

Conclution

Hypothyroidism is a chronic disease of gradual onset. Early diagnosis contributes to reducing mortality from circulatory and cardiovascular disorders. Treatment is lifelong and the prognosis is satisfactory when the effective dose is established to maintain TSH and thyroid hormone concentrations within normal parameters. Patients with hypothyroidism must continue with the treatment and with periodic controls for the rest of their lives in order to adjust the medication to each stage of their life.

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