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Research Article

The association of Hypothyroidism medications and Systemic Lupus Erythematosus SLE: A case study of drug induced Lupus

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ABSTRACT

Introduction

Hypothyroidism is a condition which requires iodine levels to be augmented and adjusted for the proper function of thyroid gland. Hypothyroidism refers to any state in which thyroid hormone production is below normal. The thyroid gland is regulated by, the pituitary gland. There is a risk that the medicines given to treat hypothyroidism can cause systemic lupus erythematosus SLE. It is an autoimmune disease in which the body's immune system mistakenly attacks healthy tissue. It can affect the skin, joints, kidneys, brain. SLE is much more common in women than men.

Case presentation

A 45 year old female patient visited the hospital with complaints of itching on the right leg. There were symptoms risking the presence of SLE which later, the patient was then diagnosed with the disease. Upon investigation it was suspected a case of drug induced lupus as the patient had hypothyroidism two years ago and was on levothyroxine therapy.

Conclusion

This report presents a case with an association between hypothyroidism medications and SLE. Risk of morbidity can be controlled by maintaining proper iodine level as well as to reduce the symptoms of SLE. The presence of either condition was associated with a higher frequency of both anti-microsomal and anti-thyroglobulin antibodies.

Keywords: Hypothyroidism; Systemic lupus erythematosus; SLE

INTRODUCTION

Hypothyroidism is a condition which requires iodine levels to be augmented and adjusted for the proper function of thyroid gland. Hypothyroidism refers to any state in which thyroid hormone production is

below normal.^[1] The medications used to treat such condition are observed to exacerbate auto immune disease i.e. Systemic lupus erythematosus SLE and at the same time studies have reported the diagnosis of hypothyroidism in patients with SLE. ^[2] Systemic

lupus erythmatosus SLE is an autoimmune disease in refers to the body's immune system mistakenly attacks healthy tissue. It can affect the skin, joints, kidneys, brain. SLE is much more common in women than men. These disorders may directly or indirectly involve the thyroid gland. Because thyroid hormone affects growth, development, and many cellular processes, inadequate thyroid hormone has widespread consequences for the body. SLE is characterized by the production of unusual antibodies in the blood mediated by acute and chronic inflammation of various tissues of the body in which illnesses occur when the body's tissues are attacked by immune system.^[3, 4] Thyroid disease marked by the presence of antibodies directed against thyroid antigens has been associated with non organ specific disease SLE.^[5] Presence of both the antibodies i.e. anti-microsomal and anti-thyroglobulin are found in equally high frequency in hypothyroidism and SLE.^[6] Several studies have reported such an association between hypothyroidism and SLE regardless of the primarily occurring disease.^[5-8] The present case study is based on a patient with such conditions in a tertiary health care setting.

CASE PRESENTATION

A 45 years old female patient had complaints of itching on the right leg, though had a normal body weight and physique, there reported an episode of bleeding and worsening of lesion. The bleeding stopped, but the lesion was notable. During the course of further evaluation, it was found that another lesion was formed at the breast about 10 days back. The patient reported swelling of genitalia, palpitations and appetite decreased. From the family history, it was observed that patient had no familial tendencies. Patient was diagnosed with systemic lupus erythmatosus SLE co-morbid condition with hypothyroidism which was diagnosed two years ago and had been on levothyroxine therapy for a considerable time.

MANAGEMENT

Patient's medication therapy for hypothyroidism includes levothyroxine tablet (0.5mg) this replaces the thyroxin which the normal thyroid gland is not making. For SLE medication therapy includes pregabalin 100 mg, prednisolone 50 mg and hydroxy

chloroquine 20 mg tablet. Care plan includes a healthy diet must be maintained and increase of iodine in normal diet to balance iodine levels.^[5,6] For SLE care plan includes non-medical therapy like protection of lesions from sunlight, maintain cleanliness and body hygiene.^[3] The patient and medical provider's goal is to find the most effective treatment plan for each individual patient to manage the symptoms with which they are presenting. This evolves over time through working at maintaining a balance between preventing flares and the potentially life-threatening organ damage they can cause, while maintaining quality of life and minimizing the side effects that can come from various medications.^[4]

DISCUSSION

The present case study focuses on a patient with hypothyroidism, later diagnosed with SLE. From the patient history it looked like a case of drug induced lupus.^[9] The NICE guidelines recommend a set of approaches in devising a disease management to make early diagnosis of the disease, to offer appropriate initial and subsequent management and to relieve symptoms.^[10] However, in a nut shell the goal of therapy is to reduce the morbidity associated with the disease and prevent any complication resulting from the ailment.^[1] Standard therapy for SLE is likely to consist of non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, and/or immune suppressants such as rituximab.^[3-4] However, for the management of hypothyroidism NICE guidelines recommends levothyroxine. All people who are stable on levothyroxine require annual measurement of serum thyroid-stimulating hormone (TSH)^[10].

The aim of the treatment of hypothyroidism is to render the patient back to the normal or 'euthyroid' state. When a sufficient dose of thyroid treatment is given to lower the TSH to within the normal range for the test method used, patients usually recover from their symptoms of hypothyroidism SLE should practice proper sun protection as approximately one-third of patients are photosensitive. They should be instructed to avoid direct exposure to sunlight and use protective clothing and sunscreens that block both ultraviolet. A UVA and UVB rays. Patients should also be counseled to avoid tanning beds. This

is especially important for patients with cutaneous involvement. It is also important that patients maintain proper nutrition, including adequate intake of calcium and vitamin D. These are especially important in patients receiving long-term glucocorticoids therapy. Vitamin D levels should be monitored periodically as well, since patients are encouraged to avoid sun exposure, which could cause problems with inadequate conversion of vitamin D in the skin.^[3-10]

The medication regimen of the patient included levothyroxine. According to NICE guidelines evidence supports the use of thyroxin alone in the treatment of hypothyroidism. Thyroxin is usually prescribed as levothyroxine.^[10] Patient's current therapy for SLE included pregabalin 100mg capsules. Treatment with pregabalin is safe, efficacious in relieving pain associated with SLE. Hydroxy chloroquine 20 mg tablets also indicated for SLE auto-immune disease as it helps to suppress over activity of the immune system and limits inflammation. Corticosteroids such as prednisolone 50mg are also given.^[11] The EULAR guidelines recommend an adjunct therapy with glucocorticoids, antimalarials, non-steroid anti-inflammatory drugs NSAIDs and, in severe cases, immunosuppressive agents. Regular monitoring of both the co-morbid conditions is beneficial. Medicine treatment for lupus often involves reaching a balance between preventing organ damage, having an acceptable quality of life, to minimize side effects.^[12] However, evidence supports

the association of the two disease regardless of which is the primary disease. In this case, it can be said that the patient suffered with drug induced lupus as the patient had been diagnosed hypothyroidism two years ago and continued undergoing levothyroxine treatment. No history was available whether the patient went routine thyroid function tests which are mandatory in treatment. It is suspected that prolonged levothyroxine therapy has led to the development of SLE. By routine monitoring and adherence to clinical guidelines the risk can be lowered. This fact is also highlighted in a number of studies which highlighted the associations.^[13,14]

CONCLUSION

This case presents a case with an association between hypothyroidism and SLE. By following the guidelines and routine monitoring of the thyroid functions therapy can be modified and / or discontinued and hence, the risk of developing the disease can be lowered.

STATEMENT OF CONSENT

Prior to documenting medical information, the patient's consent was obtained.

CONFLICT OF INTERESTS

The authors declare no conflict of interests exists.

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