ISSN 2564-324X

CASE STUDY

Case Study: Hashimoto's Thyroiditis and Increased HbA1C

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Sibal P, Singh S. Hashimoto's Thyroiditis and Increased HbA1C. Int J Diabetes Manag. 2023;2(1):12-15.

Abstract

Several metabolic problems and clinical symptoms are caused by hypothyroidism. According to some research, hypothyroidism may cause blood sugar levels to rise. It has been shown that people with diabetes who also have hypothyroidism may have higher Hemoglobin A1C values (HBA1C). This test is used to diagnose and monitor diabetes patients' blood sugar control. A high HBA1C typically implies poor diabetes management. Patient was suffering from Hashimoto's Thyroiditis, which was diagnosed through blood investigations and was given treatment as per functional medicine approach. HbA1c was seen high in start, which reduced significantly after functional medicine treatment and therapies. Our study suggests that we should be cautious while interpreting HbA1c values in patients with hypothyroid and treating patients while observing all their symptoms and treating them by working on their root cause i.e., functional medicine approach.

Key Words: *HbA1c; Hypothyroid; Functional medicine*

Introduction

Hashimoto's Thyroiditis is an autoimmune condition and there are evidence-indicating patients having abnormalities of the thyroid. Hormones may alsolead to increased HBA1C. The most plausible system prompting Type 2 Diabetes in thyroid brokenness could be credited to irritated hereditary articulation of a star grouping of qualities alongside physiological variations prompting impeded glucose use and removal in muscles, overproduction of hepatic glucose yield, and improved retention of splanchnic glucose [1]. This may likewise prompt the advancement of insulin obstruction. Hyper-and Hypo-thyroidism have connected with insulin obstruction, which has been the significant reason for disabled glucose digestion in Type 2 Diabetes Mellitus. The interconnection of hyperthyroidism in diabetes was explored in 1927, by Coller and Huggins giving proof of a relationship of hyperthyroidism and deteriorating of diabetes. A meta-examination revealed a recurrence of 11% thyroid brokenness in the patients of diabetes mellitus. [2].

Clinical Assessment

A 45-year-old female patient of Indian origin, who had been living in India for the last many years, visited to the Functional Medicine Clinic in Gurgaon.

Patient visited to clinic with symptoms of:

- Skin: Had roughness and dryness
- Hair loss: Extreme hair loss
- Gut issues like constipation
- Joint stiffness

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Received: April 17, 2023, Accepted: May 22, 2023, Published: May 29, 2023

- Muscle weakness
- Menopausal issues were present.
- CRP- Levels increased.
- HbA1C - 7.2

Patient has had these side effects throughout the previous 4 years. She gave a past filled with these side effects and took different medicines, which included different prescriptions likewise, yet no help was seen. She likewise allowed a 10-day history of erythematous rashes, which included her face too. There was no set of experiences of either night sweats or weight reduction. She drank liquor at times and had never smoked. On assessment, her temperature and different perceptions were typical. There was an expanded heartbeat. There was a presence of edema. The midsection was delicate and non-delicate. The neurological assessment was mediocre.

Investigations

A routine blood test was done which revealed TPO antibodies in the blood.

- T4 Test: The main thyroid hormone is thyroxine (T-4). A low T- 4 level in the blood validates the results of a TSH test and suggests that the problem is within the thyroid itself.

- TSH Test: The pituitary gland produces TSH. When the pituitary gland recognizes low thyroid hormone levels in the blood, it deliversTSH to the thyroid to stimulate thyroid hormone production. TSH levels in the blood that are too high indicate hypothyroidism.

- CRP Level: In this case, it was observed that her CRP levels were also increased. This also helps in making an autoimmune diagnosis.

Treatment and Progress

Patient treatment was carried with the functional medicine approach and following treatments were suggested and carried forward:

- 12 sessions of colon hydrotherapy
- 6 months of ozone therapy
- Diet acupressure
- Peptide therapy
- Stress management
- IV-Therapies: Meyer's Cocktail
- IV Omega 3 therapy.

Colon hydrotherapy: It helps in flushing out toxins from the body and cleanses the colon.

It is used as a naturopathic modality and is beneficial in treating IBS, constipation where the bowel can be normalized through water temperature variation. When paired with nutritional measures, body detoxification improves bowel function, reduces headaches, aids in sugar management, and improves circulatory, immunological, and weight disorders [3].

Ozone therapy: Ozone acts as a potentiate of the immune system. Ozone therapy has a long history of being a useful medical treatment option for those suffering from chronic conditions like autoimmune disorders. The introduction of ozone (O3) into the body effectively oxidizes it, allowing it to operate normally [4]. Ozone therapy also induces a specific level of oxidative stress, which stimulates the body's natural antioxidant mechanisms. It is a safe and effective treatment fora variety of autoimmune disorders [5].

Diet: Increased HbA1c levels in type 2 diabetics have been identified as one ofthe primary risk factors for developing microvascular and macrovascular problems. Dietary therapy can help patients improve their increased HbA1c levels, preventing them from acquiring diabetes

complications [6]. The cornerstone of diabetes management and its consequences is metabolic control.Obtaining an HbA1c target reduces the chance of developing microvascular disease [7].

Peptide therapy: When an individual mounts an improper immune response to aself-antigen or an innocuous environmental antigen, autoimmune and allergic disorders develop. This causes a pathogenic T-cell response, which causes damage to certain tissues and organs. This appears as destruction of insulin- secreting cells in type 1 diabetes (T1D), resulting in a life-long reliance on synthetic insulin [8]. Two recent phase I studies with a peptide immunotherapy treatment for celiac disease have also shown encouraging data suggesting that the antigen-specific T- cell responses can be modulated following peptide treatment [9].

Stress Management: "Unknown trigger factors" have been linked to the start of at least 50% of autoimmune diseases. Stress, both physical and psychological, hasbeen linked to the development of autoimmune illness. There is increasing evidence that the immune system is regulated by circadian rhythms. Critical immune mediators, such as cytokines, undergo daily fluctuations. Circadian information reaches immune tissues mainly through diurnal patterns of autonomic and endocrine rhythms [10].

How could stress "get inside the body" affect the immune response? First, sympathetic fibers descend from the brain into both primary (bone marrow andthymus) and secondary (spleen and lymph nodes) lymphoid tissues [11].

IV Therapies: IV therapy is a treatment that boosts the body's immunity by replenishing it with vitamins, antioxidants, and minerals. IV vitamin infusions include boosting the immune system, increasing mentalclarity, and fighting conditions such as chronic fatigue. If you were already somewhat dehydrated, the rehydration provided by the fluidsin the IV drip may help you feel better. Although the classic "Myer's cocktail" and "banana bags" both contain a blend ofvitamins and minerals, "IV multivitamin therapy" includes vitamins and other micronutrients such as minerals [12].

Deficiencies occur due to inadequate or inappropriate administration, increased, or altered requirements, and increased losses, affecting various biochemical processes and resulting in poor wound healing, altered immune status with deleterious sequelae [13].

All autoimmune diseases begin with a leaky gut because Hashimoto's thyroiditisalso begins with a leaky gut, generating systemic inflammation, we can't lower the antibodies unless we repair the gut. To lower the antibodies, diet needs to be adjusted. There is clearly thyroid gland tissue and gluten biomimicry—and there are most definitely IGG dietary allergies to items like milk, cereals, eggs, and others. To eliminate "potential food offenders" and begin lowering antibody levels and inflammation, there is need of an "autoimmune protocol diet" [14].

The thyroid-liver axis is another example of how thyroid function affects theentire body. The liver is crucial in thyroid hormone activation, transport, and metabolism in this complex interaction, and thyroid hormones influence hepatocyte activity and liver metabolism [15]. Dysbiosis and intestinal autoimmune disorders have been linked to autoimmune thyroid disease [16].

Combined sessions of these therapies lead to improvement in patient's symptoms and help her to lead a normal life. Her CRP levels showed improvement. Her HBA1C levels showed improvement. Her cholesterol levels showed improvement. With hindsight, the pattern of clinical features like skin roughness and dryness and hair loss showed improvement. The patient complains about joint stiffness and muscle weakness also got relieved.

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