SUB-ACUTE THYROIDITIS: ESR AS DIAGNOSTIC MARKER AND OPTIMUM DURATION OF PREDNISOLONE THERAPY

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ABSTRACT

BACKGROUND: Thyroiditis is an inflammation of the thyroid gland that can arise due to a variety of causes. Subacute thyroiditis or de Quervain thyroiditis is comparatively uncommon with recurrence rate of 5% patients over a 20-year period. It usually presents in the form of epidemics and mostly has overlapping symptoms, which leads to misdiagnosis.

OBJECTIVE: To study sub-acute thyroiditis with the risks and benefits of treatment and consequences of non treatment.

PATIENTS AND METHODS: The study was conducted on seventy (70) patients who visited for consultancy during April 2014 to May 2015. Their mean age was 37 years, having 28 male 42 females. Those who presented with symptoms of pain in front of neck, unilateral or bilateral, periodic generalized body aches, without having history of high grade fever, were included in the study after taking their consent. ESR, TFTs and complete blood picture of those having mildly enlarged or not palpable, painful and tender thyroid were done and recorded. They were divided into various groups for steroid therapy. The patients were selected randomly.

RESULTS: All the seventy patients having symptoms, suggestive of thyroiditis had markedly raised ESR with normal TFTs range and rest of the blood picture, were put on 40-45mg/day with tapering dose for two to six weeks. Those who were put on six weeks steroid therapy had no recurrence, where as those with duration less than six weeks time suffered from recurrence of symptoms.

CONCLUSION: Subacute thyroiditis presented with generalized bodyach and tender thyroid gland with raised ESR, when treated with 40-45mg/day prednisolone therapy for six weeks responded significantly.

KEY WORDS: Thyroiditis, Subacute thyroiditis, Erythrocyte sedimentation rate, Steroid therapy.

INTRODUCTION

Thyroiditis is a group of disorders that cause inflammation of the thyroid gland. The thyroid gland is located on the front of the neck below the laryngeal prominence, and secrete thyroxine that control metabolism. Various causes of thyroiditis include, Hashimoto's thyroiditis, postpartum thyroiditis, subacute thyroiditis, silent thyroiditis, drug-induced thyroiditis, radiation induced thyroiditis, acute thyroiditis, and Riedel's thyroiditis.¹ Each different type of this disease has its own causes, clinical features, diagnoses, durations, resolutions, conditions and risks. There are many different symptoms for

thyroiditis, none of which are exclusively limited to the disease. Many of the signs imitate symptoms of other diseases. This sometimes makes thyroiditis difficult to diagnose. Common hypothyroid symptoms manifest when thyroid cell damage is slow and chronic, and may include fatigue, weight gain, feeling "fuzzy headed," depression, dry skin, and constipation. Other, rarer symptoms include swelling of the legs, vague aches and pains, decreased concentration etc. In more severe conditions, depending on the type of thyroiditis, puffiness around the eyes, slowing of the heart rate, a drop in body temperature, or even incipient heart

failure may be seen. On the other hand, if the thyroid cell damage is acute, the thyroid hormone within the gland leaks out into the bloodstream causing symptoms of thyrotoxicosis, which is similar to those of hyperthyroidism. These symptoms include weight loss, irritability, anxiety, insomnia, tachycardia, and fatigue. Elevated levels of thyroid hormone, cause both conditions, but thyrotoxicosis is the term used with thyroiditis since the thyroid gland is not overactive, as in the case of hyperthyroidism.^{2,3}

Thyroiditis is generally caused by an attack on the thyroid, resulting in inflammation and damage to the thyroid cells. This is often considered a malfunction of the immune system. Viral or bacterial infection works in the same way as antibodies to cause inflammation in the glands.⁴ Thyroiditis can be considered an autoimmune disease, in case of thyroid antibodies production, the body acts as if the thyroid gland is foreign tissue.⁵ Some drugs, such as interferon and amiodarone, can also cause thyroiditis because they have a tendency to damage thyroid cells.

Subacute thyroiditis (or de Quervain thyroiditis) is comparatively uncommon, often follows upper respiratory tract infection, and may be related to viral infection. Patients generally present with an enlarged, painful, markedly tender thyroid, and signs and/or symptoms of thyrotoxicosis. Diagnostic evaluation is notable for markedly elevated erythrocyte sedimentation rate (ESR) and C-reactive protein levels, normal levels of thyroid peroxidase antibody, and abnormally low 24-hour radioactive iodine uptake (less than 5% in the toxic phase)⁶. Thyrotoxicosis may be followed by a brief phase of hypothyroidism, but eventual recovery of normal thyroid function is typical. It is relatively uncommon but may represent up to 5% of all visits for a thyroid condition. It usually occurs in epidemic fashion

PATIENTS AND METHODS

The study was conducted on out patients who visited for consultancy during April 2014 to May

2015. A total of seventy (70) patients having age in the range of 24-50 years with average age of 37 years of both sex were included in the study. Out of these seventy patients 28 were male and 42 females. The patients who presented with symptoms of pain in front of neck, unilateral or bilateral, periodic generalized body aches, having history ranging from weeks to months, without having history of high grade fever, not responding to routine treatment of NSAIDs etc. were included in the study after taking their consent. On examination these patients had tender thyroid with or without enlargement of thyroid gland. They were advised erythrocyte sedimentation rate (ESR) test, with full blood picture and thyroid function test (TFTs). They were divided into various groups for steroid therapy. Inclusion criteria were above clinical symptoms with tender thyroid and raised ESR. Those having normal ESR and normal thyroid gland on examination were not included in this study and were managed accordingly. Total patients were divided in to four groups, having both males and females for oral steroid therapy on the basis of duration of medication. The patients with recurrence of symptoms were given repeated course till complete recovery.

RESULTS

All the seventy (70) patients of the understudy group were given 40-45mg/day steroid medication with tapering dose for two to six weeks oral steroid therapy on the basis of raised ESR. The Patients were divided in to four groups of almost equal number of subjects. Each group was given tapering steroid therapy for different time duration as given in table 1. Those who were put on six weeks steroid therapy were observed to have no recurrence of symptoms, where as those with duration less than six weeks time suffered from recurrence. Table 1 shows the detail of groups and duration of medication with response to steroid therapy.

Table 1

No of patients	Duration of steroid therapy (weeks)	Inference
17	2-3	Symptoms relived with observed recurrence
18	3-4	Symptoms relived with observed recurrence
17	4-5	Symptoms relived with observed recurrence
18	6	Symptoms relived with no recurrence

DISCUSSION

Thyroiditis is an inflammation of the thyroid gland, having various causes, such as iatrogenic, viral infection and autoimmune etiology. It has been divided into different types on the basis of various classification systems based on clinical course and etiology⁸. Treatment depends on the type of thyroiditis and the clinical presentation. The most common and helpful way to diagnose thyroiditis is to palpate the thyroid gland. The common regimen to treat acute thyroiditis has been prednisolone (PSL) therapy however. The rate of recurrence of subacute thyroiditis (SAT) during prednisolone (PSL) therapy has been reported to be approximately 10 to 20%. Relapse has been reported with no exact information of time period⁹. Different treatment duration has been reported by various workers with various percentage of recurrence. Kubota et al have reported 15mg prednisolone therapy from 6 to 40 weeks time with respect to recurrence rate in different subjects, however, maximum number of patients recovered within six (51.6%) to eight (28%) weeks¹⁰. Mizukoshi et al have used treatment regimen of 30mg/ day prednisolone up to six weeks with 80% success rate¹¹. In the present study 40-45mg/day PSL medication with tapering dose for two to six weeks have been given to the patients, divided into four different

groups. These four groups were made according to the duration of PSL therapy ranging from two weeks time to six weeks time. In all the three groups ranging from two weeks to five weeks PSL therapy, recurrence of symptoms were observed in the follow up visits who were given recurrent dosage. However, patients in the fourth group with six weeks PSL medication had no recurrence of symptoms.

Various laboratory investigations including TFTs, CRP level, Anti-thyroglobulin antibody etc are done to diagnose thyroiditis but the most commonly done laboratory investigation is Mean erythrocyte sedimentation rate (ESR)¹². In the present study all the seventy (70) patients of the understudy group were having raised ESR (Mean = 50±10mm/h) In the follow up patients with no recurrence of symptoms ESR was found normal. The mean age of patients in our study was 37 years which is also supported by Canaris et al in their study reporting as thyroid disease is to be very common disorder, particularly in middle-aged and elderly individuals¹. This study also correlates with studies reporting its higher percentage found in females than the males. 30-40mg of prednisolone with tapering dose of 5mg per week was given to the patients with subacute thyroiditis. No recurrence was seen in them after six months of completion of therapy. These results are comparable with our study.^{13, 14} No recurrence was seen in patients with sub-cute thyroiditis with 30-40mg daily.¹⁵

CONCLUSION

Data supporting associations of sub-acute thyroiditis, presenting with symptoms of pain in front of neck, unilateral or bilateral, periodic generalized body aches, without having history of high grade fever, and tender thyroid gland on physical examination is supported by raised ESR when treated with 40-45mg/day prednisolone therapy for six weeks, showed good results.

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