INTRODUCTION

Autoimmune diseases manifest themselves in a broad spectrum. On one hand the encompass those diseases for which auto reactive antibodies against a single organ are characteristic, while on the other hand syndromes are found in which antibodies are directed against a number of tissues with correspondingly disseminated lesions (e.g. SLE). Classic examples of organ specific autoimmune disease include Hashimoto’s disease, Addison disease & IDDM.1–4

Thyroid disease can be classified into two groups: Autoimmune thyroid Disease (AITD) & Non Autoimmune thyroid disease (NAITD) on the basis of presence or absence of antithyroid antibodies.1

AITD is characterized by the occurrence in the serum of antibodies against the 3 primary thyroid antigens thyroid peroxidase (the microsomal Ag) TPO, Tg(thyroglobulin) & TSH receptor and also by lymphocytic infiltration of the gland. But autoantibodies have been indentified that react with several other constituents of the Thyroid gland e.g a second antigen in the Colloid (CA-2), the Sodium Iodide cotransporter, cell- surface antigens distinct from TPO & TSH receptor, and other antigens cloned from human thyroid complementary DNA (cDNA) libraries. Antibodies reacting with thyroxine (T4) and Triiodothyronine (T3) also have been detected in the serum of a few patients with AITD.5–8

The clinically most important antibodies are directed against Tg, which is stored in its iodinated form inside the thyroid follicle lumen; against TPO and against TSH receptor.9

The present study will however focus upon only the principal autoimmune system involved in goitrous & atrophic thyroiditis, the TPO & Tg antibodies. Thyroid hormone imbalances are more common than suspected. Hyperthyroidism is more common
than previously thought. This is particularly true for women over 50 yrs of age, said the Irish investigators who recommended more active targeted screening for this group.[10]

The state Bihar lies in the goitrous belt and the incidence of thyroid swelling is quite high here. A total 40 million people are estimated to suffer from endemic goiter in the country. Kishanganj leads the other states by having the highest prevalence recorded so far 66% in this district. Thereby quite a good number of the population have been detected to have hypothyroidism, hyperthyroidism (toxic goiter) in both male & female adults.

A part from nutritional factors like Iodine deficiency, autoimmunity is an important cause of both clinical and subclinical thyroid disorders. Moreover it has been a common experience that very often during histopathological examinations or FNAC reporting of the thyroid cases.

Aims
To assess the status of antithyroid antibodies amongst the patients of suspected or known thyroid disease attending VARDHMAN INSTITUTE OF MEDICAL SCIENCES.

MATERIALS AND METHODS

Study Place
The present study has been conducted in the pathology department of VARDHMAN INSTITUTE OF MEDICAL SCIENCES. 62 patients with different thyroid disorders (Colloid Nodular Goiter, inflammation and tumors) attending the various Medicine and surgical wards and the ENT dept. for their problems and who were subsequently sent to the pathology and biochemistry department of VARDHMAN INSTITUTE OF MEDICAL SCIENCES, for investigations, were evaluated simultaneously for their autoimmune status and the morphological disease in the thyroid gland.

Table 1: Showing the prevalence of TPO & TG antibodies in Male & Female.

<table>
<thead>
<tr>
<th>Antibodies</th>
<th>Male Percentage</th>
<th>Female Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPO</td>
<td>1.61 %</td>
<td>6.45 %</td>
</tr>
<tr>
<td>TG</td>
<td>3.22 %</td>
<td>8.06 %</td>
</tr>
<tr>
<td>Both(TPO &amp; TG)</td>
<td>8.06 %</td>
<td>14.51 %</td>
</tr>
<tr>
<td>None</td>
<td>12.9 %</td>
<td>45.1 %</td>
</tr>
<tr>
<td>Total</td>
<td>25.81 %</td>
<td>74.1 %</td>
</tr>
</tbody>
</table>

Table 2: Showing the approximate incidence of antithyroid antibodies in the different histological types of thyroid disorders.

<table>
<thead>
<tr>
<th>Histological Diagnosis</th>
<th>Total Number of Patients</th>
<th>(% ) of antibody prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thyroiditis</td>
<td>17</td>
<td>35.3%</td>
</tr>
<tr>
<td>-Acute Suppurative</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Subacute granulomatous</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Hashimoto’s thyroditis</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Chronic lymphocytic thyroditis</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Colloid Nodular Goiter</td>
<td>16</td>
<td>12.5%</td>
</tr>
<tr>
<td>Tumours and Tumour like lesions of thyroid</td>
<td>18</td>
<td>22%</td>
</tr>
</tbody>
</table>

Out of the total 16 cases of Collid Nodular Goiter cases studied, 5 (31.25%) were in the 21- 30 yrs age group, 6 (37.5%) patients were from 31 – 40 years age group, 3 (18.75%) were in the 41 – 50 years age
group and only 2(12.5%) patients were from the 51 – 60 years age group, 2(12.5%) patients of Colloid Nodular goiter showed significant TPO positivity. 3(18.75%) patients showed TG positivity. 2(12.5%) patients were found to be positive for both TPO and TG, 9(56.2%) of the Colloid Nodular Goityer cases did not show any antibody(Ab) in their serum.

17 cases of different types of Thyroids were evaluated. 3(17.6%) were from the 21 -30 years age group, 6 (35.2%) patients were from the 31-40 years age group and there were 4 patients (23.5%) in each of the 41-50 years and 51-60 years age group. Only one patient(5.88%) showed significant TPO Ab level alone, in the serum 3 patients(17.6%) showed only TG positivity while 5 other patients (29.4%) tested positive for both TPO and TG 8 (47.05%) patients having Thyroditis did not show any significant Ab in their serum.

In a study of 18 cases of different tumors and tumor like lesions of the Thyroid were assayed of these, 3(16.6%) patients belonged to the 21-30 years age group, 9(50.0%) were from the 31-40 years age group, 5(27.7%) patients belonged to the 41- 50 years age group & only 1 patient(5.55%) was from the 51-60 years age group. Of the 18 cases of Tumors and Tumor like condition of the Thyroid 2(11.1%) patients showed significant levels of TPO in their serum. 1 Patient (5.5%) tested positive for TG alone & 4 patients(22.2%) were found to be positive for both TPO & TG while 11(61.1%) patients did not show any of the Ab in their serum.

15 patients presented with hyperthyroidism. 2 cases (13.3%) had only significant levels of TPO in their serum. 7 patients (46.6%) had significant levels of both antibodies in their serum while 6 (40%) patients had none of the antibodies in significant levels. The prevalence of antibodies in this group was the highest 60% amongst all other study populations. The 17 patients who presented with hyperthyroidism, there were only single patients(5.88%) showing levels of TPO & TG antibodies in their serum while there were 3 patients(17.6%) having significant levels of both antibodies in their serum and 12 patients(70.5%) had none of the antibodies. The prevalence of antibodies in the study group had been found to be 29.4%. 30cases with some Thyroid disorder, were found to be Euthyroid, of these 2 patients (6.6%) had significantly raised level of TPO antibody. 6 Patients (20%) had significant TG antibody in their serum. 4 patients had raised levels of both TPO & TG antibodies while 18(60%) patients had none of the antibodies. The antibody prevalence in this group was 40%.

DISCUSSION

There are three primary types of antithyroid antibodies: peroxidase antibodies (TPO), antithyroglobulin antibodies (Tg), and anti-TSH receptor antibodies. In a study, it was found that 23% of patients with thyroid disorders tested positive for antithyroid antibodies, with anti-TPO antibodies being positive in 5 patients (8.06%). Two of these patients were diagnosed with subacute granulomatous thyroiditis.

In a study of 62 patients with thyroid disorders, the highest number of patients, 25 (40.3%), were between the ages of 31-40 years. In the 21-30 years age group, there were 15 (24.1%) patients, and there were 11 (17.74%) patients in both the 31-40 and 41-50 years age groups. The gender distribution was heavily skewed towards females, with 46 (74.19%) female patients and only 16 (25.8%) male patients. The male to female ratio was 1.29.

It is not specified in the information provided what the TPO and TG antibody levels were in male and female patients. Further information is required to determine any differences or similarities between the TPO and TG antibody levels in male and female patients. Nodular goiter showed significant TPO positivity. 3(18.75%) patients showed TG positivity. 2(12.5%) patients were found to be positive for both TPO and TG, 9(56.2%) of the Colloid Nodular Goityer cases did not show any antibody(Ab) in their serum.

Our results suggest that patients with elevated antithyroid antibodies may have a higher risk of thyroid nodule malignancy. Analogically to previous studies, we found positive anti-Tg more frequently in patients with TC (35%) compared to those with benign nodules (21%).

In a study of 18 cases of different tumors and tumor-like lesions of the thyroid, 3 (16.6%) patients were in the 21-30 years age group, 9 (50%) were in the 31-40 years age group, 5 (27.7%) were in the 41-50 years age group, and only 1 (5.55%) was in the 51-
60 years age group. Out of the 18 cases, 2 (11.1%) had significant levels of TPO in their serum, 1 (5.5%) had significant levels of TG, 4 (22.2%) had significant levels of both TPO and TG, and 11 (61.1%) had neither. Similar finding of Slatosky et al. [11]

Out of the 15 patients with hyperthyroidism, 2 (13.3%) had significant levels of TPO, 7 (46.6%) had significant levels of both TPO and TG, and 6 (40%) had neither. The prevalence of antibodies in this group was the highest at 60%. Among the 17 patients with hyperthyroidism, only 1 (5.88%) had significant levels of TPO and TG, 3 (17.6%) had significant levels of both TPO and TG, and 12 (70.5%) had neither. The prevalence of antibodies in this group was 29.4%.

Out of the 30 cases with some thyroid disorder who were found to be euthyroid, 2 (6.6%) had significant levels of TPO, 6 (20%) had significant levels of TG, 4 (13.3%) had significant levels of both TPO and TG, and 18 (60%) had neither. The antibody prevalence in this group was 40%.

Yes, it is important to follow up on all cases with positive antithyroid antibodies. Demonstration of antibodies in the serum is essential for confirmation of a diagnosis of autoimmune thyroid disease (AITD), especially in the early stages of the disease when morphological changes may not be very clear. Early diagnosis of AITD is important because these patients present with hormonal dysfunction (hyper- or hypothyroidism) but they do not require hormonal supplementation or anti-thyroid drugs. Instead, these patients respond well to a short course of steroid therapy.

CONCLUSION

All of the antibody positive cases need to be followed up. In the light of the clinical utility of the tests for anti thyroid antibodies in the diagnosis and prognosis of AITD. As already mentioned, for the confirmation of a diagnosis of Autoimmune Thyroid disease, demonstration of antibodies in the serum is essential. This is specially important in the early stages of the disease, when the morphological changes are not very convincing. The diagnosis of these cases of AITD is important because although these patients present with hormonal dysfunction (Hyper/ Hypothyroidism) they do not require any hormonal supplementation or anti thyroid drugs, rather these patients respond very well to a short course of Steroid therapy.

REFERENCES