

# Frequency of Organ Specific Autoimmune Disorders among patient of Hashimoto's Thyroiditis (HT)

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## ABSTRACT

**Background:** It is well known that antinuclear antibodies (ANA) are more commonly observed among HT patients with certain clinical significance. Even many studies available for the HT patients, however, the occurrence of organ specific autoimmune disorders remains unclear. That is due to which we aimed this study to calculate the frequency of the organ specific autoimmune disorder among HT patients in local population.

**Methods:** The study period was of six months. A total of 30 patients and equal number of controls were enrolled for this study. The exclusion criteria include the patients with history of renal impairment, patients with drug history of phenytoin, carbamazepine vitamins like B2, B6, B12 and HIV positive patients, whereas patients of either sex, 20-50 years of age with hashimoto thyroiditis (HT) included in this study.

**Results:** The study includes total of 60 subjects, 30 cases and 30 controls, the overall mean age was observed as 49.1±510.1 years. The mean age of patients was 49.3±10.1 years and of the controls 48.9 (11.3) years. ANA positivity was found in 12(40%) of the patients and 3(10%) in healthy controls (P value = 0.001).

**Conclusion:** We may conclude that the frequency of organ specific autoimmune disorder was significantly high among HT patients as compared to healthy controls.

**Key words:** Hashimoto thyroiditis, antinuclear antibodies, autoimmune thyroid disease

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## INTRODUCTION

Organ specific autoimmune diseases against multiple target organs, such as autoimmune thyroid disease (ATD) and type 1 diabetes, are frequently detected in a single patient<sup>1</sup> suggesting common etiology and genetic susceptibility shared among different autoimmune diseases. Hashimoto's thyroiditis (HT) is the part of ATD and organ specific autoimmune disorders, which is due to the presence of antibodies against the thyroglobulin, thyroid peroxidase, or thyrotropin receptor autoantigens.<sup>[2]</sup> Among the systematic autoimmune disease patients the ATD is well common.<sup>[3-10]</sup> It is also well known that antinuclear antibodies (ANA) are more commonly observed among HT patients with certain clinical significance.<sup>[10,11]</sup> Even many studies available for the HT patients, however, the occurrence of organ specific autoimmune disorders remains unclear. That is due to which we aimed this study to calculate the frequency of the organ specific autoimmune disorder among HT patients in local population.

## MATERIAL AND METHOD

It was an observational case control cross sectional study, conducted in the Department of Medicine,

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Surayya Azeem Teaching Hospital, Lahore. The study period was of six months. A total of 30 patients and equal number of controls were enrolled for this study. The exclusion criteria include the patients with history of renal impairment, patients with drug history of phenytoin, carbamazepine vitamins like B2, B6, B12 and HIV positive patients, whereas patients of either sex, 20-50 years of age with hashimoto thyroiditis (HT) included in this study. Patient's detailed medical history; physical examination and demographics were noted and stored electronically. Moreover the blood samples were drawn for the assessment/presence of antinuclear antibodies (ANA) in seera. The diagnosis of autoimmune disorder was based on standard criteria. Additionally Informed consent and ethical committee approval were received from patient and ethical approval committee.

**Statistical analysis:** All the collected data was stored electronically & analyzed later by using SPSS version 20. Descriptive statistics were applied to calculate mean and standard deviation. Frequency distribution and percentages were calculated for qualitative variables like gender, ANA positivity. Over all a P values less than 0.05 was considered statistically significant.

## RESULTS

The study includes total of 60 subjects, 30 cases and

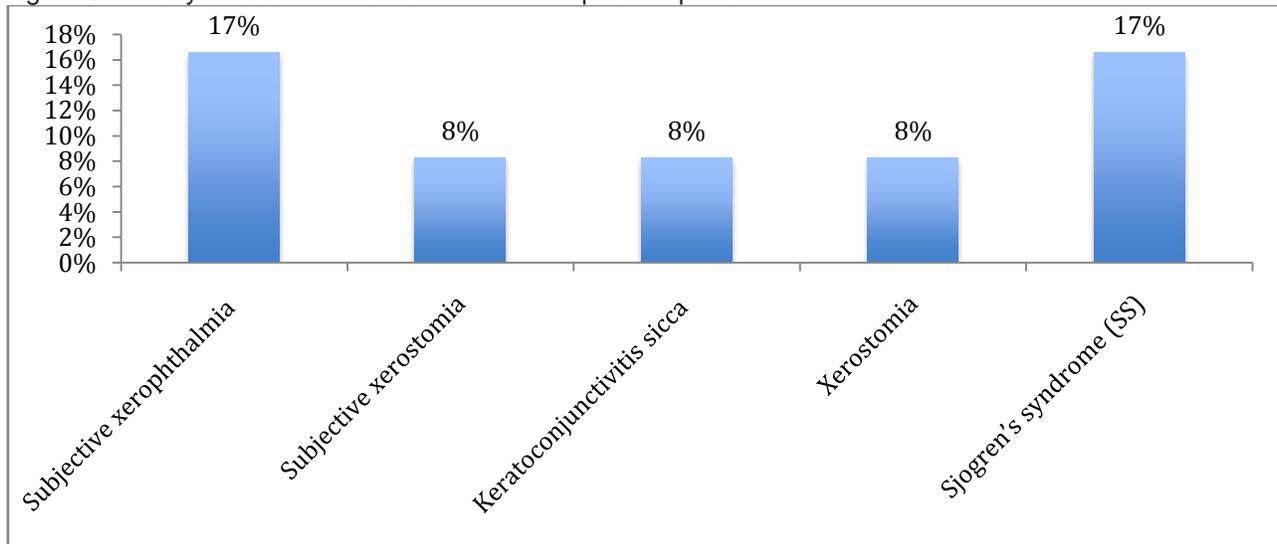
30 controls, the overall mean age was observed as 49.1±10.1 years. The mean age of patients was 49.3±10.1 years and of the controls 48.9 (11.3) years. ANA positivity was found in 12 (40%) of the patients and 3(10%) in healthy controls (P value =0.001). More of the summary of ANA positive patients is given in table 1.

Table 1: Distribution of antibodies in ANA positive patients

Antinuclear Antibodies (ANA)	Frequency
Anti-Ro antibodies,	1(8.3%)
Anti-Ro and anti-La antibodies	1(8.3%)
Anti-dsDNA antibodies	1(8.3%)
aCL (5 had IgGaCL & 2 had IgMaCL)	2(16.6%)

The mean (SD) level of anti-DNA antibodies was 12.9 (3.1) IU (range 11–20). The mean (SD) titres of IgG and IgMaCL were 143 (12.5) IU (range 135–170) and 158 (16.5) IU (range 140–183), respectively. One patients had leucopenia (white blood cells, 4610<sup>9</sup>/l), but none had lymphopenia. No patient had abnormal liver enzymes, serum creatinine levels, and urine tests. None of the healthy subjects had positive anti-dsDNA, antibodies against the extractable nuclear antigens, aCL, or other abnormal serological examinations. The summary of Autoimmune disorder in ANA positive patients is given in Fig. 1.

Fig. 1: Summary of autoimmune disorder in ANA positive patients



**DISCUSSION**

Our study reports high frequency of ANA among cases as compared to the health controls. Other antibodies like Anti- dsDNA, anti-Ro antibodies, and aCL were also detected among patients. We also detect clinical and serological markers of systemic autoimmunity in all ANA positive patients. This high frequency ANA among patients is well recognized<sup>10,11,12</sup>. However presence of other antibodies was a point of controversial discussion. In literature earlier published studies, which contains diagnostic assays had well explained about these antibodies<sup>10,11,13,14</sup>. These anti-dsDNA antibodies were reported positive when measured by radioimmunoassay but it is negative in specifically Crithidialuciliae assay was used<sup>11,13,14</sup>. The antibodies found in blood serum against Ro/SSA and La/SSB antigens had been occasionally described.<sup>[8]</sup> When the La/SSB antigens were tested by ELISA, many cases has abnormal values but in low litres. Many of the studies examining the presence of non-

thyroid antibodies, failed to detect above-mentioned antigens<sup>11,12</sup>. There is very less studies available that reports presence of aCL in thyroiditis patients<sup>15,16</sup>. Some of the studies reports negative aCL among HT patients<sup>12</sup>. Notwithstanding the presence of the above autoantibodies, fewer publications have studied the occurrence of systemic autoimmune diseases in patients with HT<sup>17</sup>. Our study findings reports xerophthalmia, xerostomia, Keratoconjunctivitis sicca with high frequency which is confirmed in another study by Hansen et al<sup>18</sup>. Some of the patients had keratoconjunctivitis sicca together with xerostomia, while few of the above patients had autoimmune sialadenitis in lip biopsies. Another study confirms the frequency among HT patients.<sup>[18]</sup> To our knowledge this study will be the first of its kind in Pakistan. This study will investigating any incidence of organ specific autoimmune diseases among ANA positive patients with HT by complete history, physical examination, serological and immunological tests, and objective tests for keratoconjunctivitis sicca and xerostomia.

## CONCLUSION

We may conclude that the frequency of organ specific autoimmune disorder was significantly high among HT patients as compared to healthy controls.

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