

STUDY OF INCIDENCE AND PREVALENCE OF AUTO IMMUNE DISEASES IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Aim and objectives: Our aim was to evaluate the incidence and prevalence of autoimmune diseases in a tertiary care hospital.

Materials and Methods: An observational and retrospective study of incidence and prevalence of autoimmune diseases was carried out in Aware Gleneagles Global Hospital, Hyderabad, Telangana. Approximately a total of 10,000 patients were studied out of them 110 patients were diagnosed with autoimmune diseases.

Results: Approximately one case of autoimmune disease was seen for every 100 patients. The ratio of prevalence of autoimmune diseases to other diseases was found to be 1:9. A total of 21 different types of autoimmune diseases were obtained, the most prevalent are GB syndrome, Hashimoto thyroiditis, RA, and SLE, and a significant increase of incidence of autoimmune disease was observed from 2017-2021, especially in the case of GB syndrome. Among the 110 patients, 73 were affected with a single autoimmune disease and 37 patients were suffering from two autoimmune diseases (secondary AID caused by a primary AID).

Conclusion: The incidence and prevalence of autoimmune diseases have been significantly increasing from 2017 to 2021, 21 different types of autoimmune diseases were diagnosed; it was observed that women were more prone to be diagnosed with the autoimmune disease than men. A total of 37 patients were found to be suffering from secondary autoimmune disease, with a majority of patients suffering from co morbid conditions like hypertension and diabetes mellitus.

Key words: Autoimmune diseases, GB syndrome, Hashimoto thyroiditis, SLE.

INTRODUCTION

An autoimmune disorder occurs when the immune system attacks the healthy organs or self molecules instead of attacking the foreign particles. This occurs when the immune system cannot recognize the healthy organs or self-molecules; as a result, healthy organs are attacked by the

immune system. This may result in the breakdown of immunological tolerance to auto reactive immune cells. ^[1] The causes of autoimmune disorders are unknown, but many studies suggest that certain types of infections are associated with environmental and genetic factors. National Institutes of Health (NIH) states that 23.5

million (more than 8% of the population) Americans suffer from an autoimmune disorder and the prevalence is rising every year.^[2]

Moreover, there are some suggestions that the number of common health problems like atherosclerosis and inflammatory bowel disease may have an autoimmune component. Women have a greater risk of developing an autoimmune disease than men, as >75% of those suffering from autoimmune diseases are females.^[3]

Many of these disorders, such as rheumatoid arthritis (RA), multiple sclerosis (MS), and systemic lupus erythematosus (SLE), disproportionately occur in women. Some autoimmune diseases are more common in women of Spanish-speaking countries like South America, Spain and Native American descent.^[4]

Among all other autoimmune disorders, these are the most common cause of death in all women under the age of 65 years.^[5]

Autoimmune diseases may also be caused by heredity and the same disease may run in family. Other risk factors include environmental triggers, such as viruses (like Measles virus and cytomegalovirus may cause multiple sclerosis, whereas west Nile virus may cause myasthenia gravis), bacteria, and perhaps nutritional factors.

Research in the last decade stated that B-cells (a type of white blood cell) may have a strong ability in the development and progression of certain autoimmune diseases.^[6]

There have been major advancements in the treatment of autoimmune illnesses over the last decade. Biologic treatments (BT), which target cells and molecules implicated in autoimmune pathways, have presented an exciting era of hope, with improvements in symptoms. Traditional immunotherapeutic drugs, such as

corticosteroids and azathioprine, are part of the arsenal. The addition of targeted drugs to azathioprine (AZA) and methotrexate (MTX) has gradually increased their efficacy. BT may be less toxic and have less negative side effects.

Various immunotherapeutic techniques have been used in the past. Immunosuppressive medicines have previously been utilized. Immune suppressive drugs are used to treat autoimmune disorders. Pharmaceutical and biologic medicines with a specific target Use in the clinic, comprehend the mechanisms of action as well as the most typical adverse effects.^[7] In the treatment of autoimmune disorders, surgical alternatives are restricted. The kidney, liver, and lungs are the organs that can be transplanted after autoimmunity has compromised their function.^[8]

MATERIALS AND METHODS

Study site: The study is carried out at Aware Gleneagles Global Hospitals, Bairamalguda, Hyderabad Telangana.

Study design: A hospital-based retrospective, observational study was carried out on 110 patients in the general department of Aware Gleneagles Global Hospital.

Sample size: The study has been carried out on 110 patients.

Study period: The study was carried out for a period of six months.

Study criteria

Inclusion Criteria

Patients aged between 10 years to 80 years
Auto immune disease with and without comorbidities.

Exclusion Criteria

Infants
Elderly (> 80 years)
Pregnant women

Study approval: The study was approved by the Ethical Committee of Gleneagles Global Hospital. Permission was given for the collection of data.

RESULTS

Table 1: Gender wise distribution of autoimmune diseases

Gender	Percentage (%)
Male	36.36%
Female	63.64%

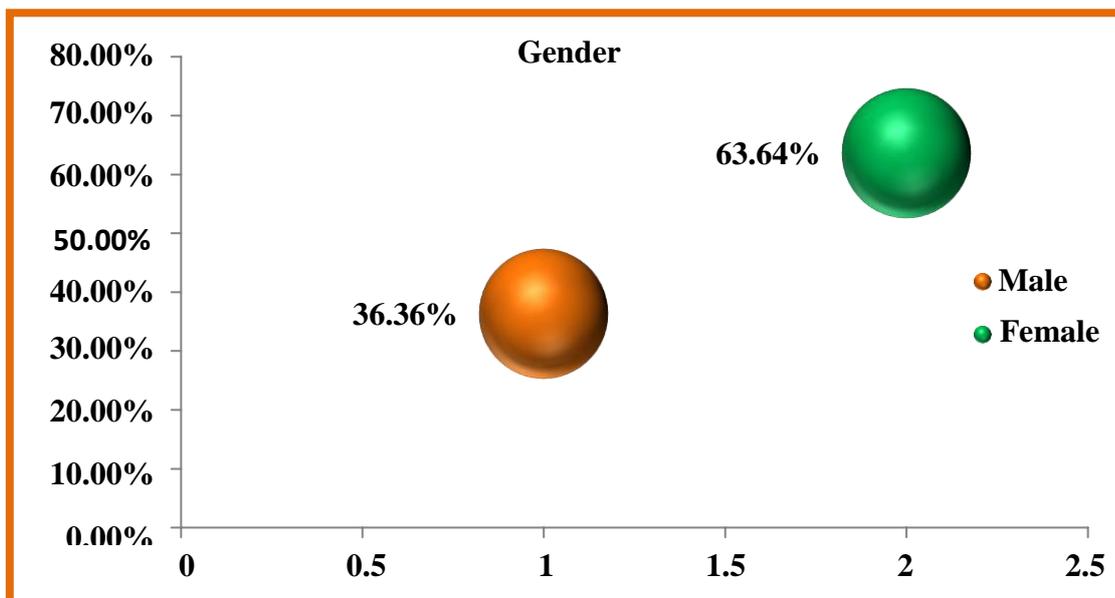


Figure 1: Auto-immune diseases and gender

A total of 110 patients were confirmed to have auto-immune diseases, of the population, 36.36% were males, and 63.64% were females.

Table 2: Prevalence of autoimmune diseases and other diseases

Diseases	Percentage (%)
Auto-immune disease	1.10%
Other diseases	98.90%

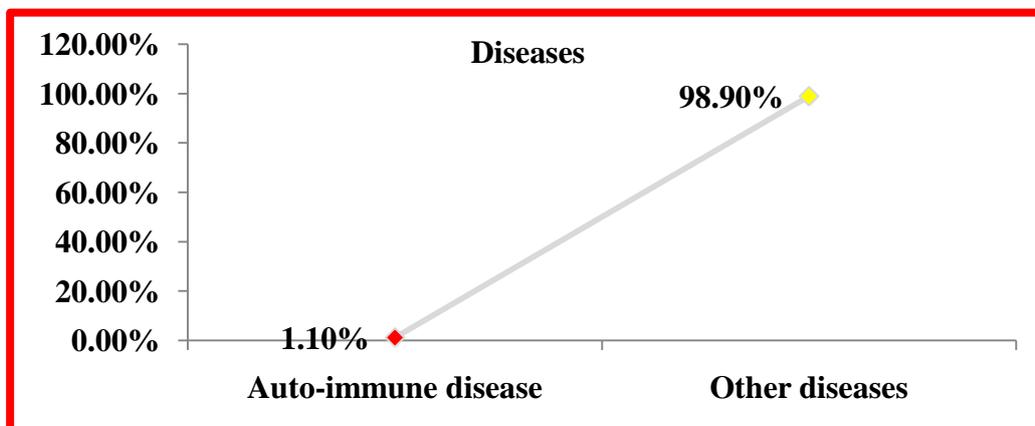
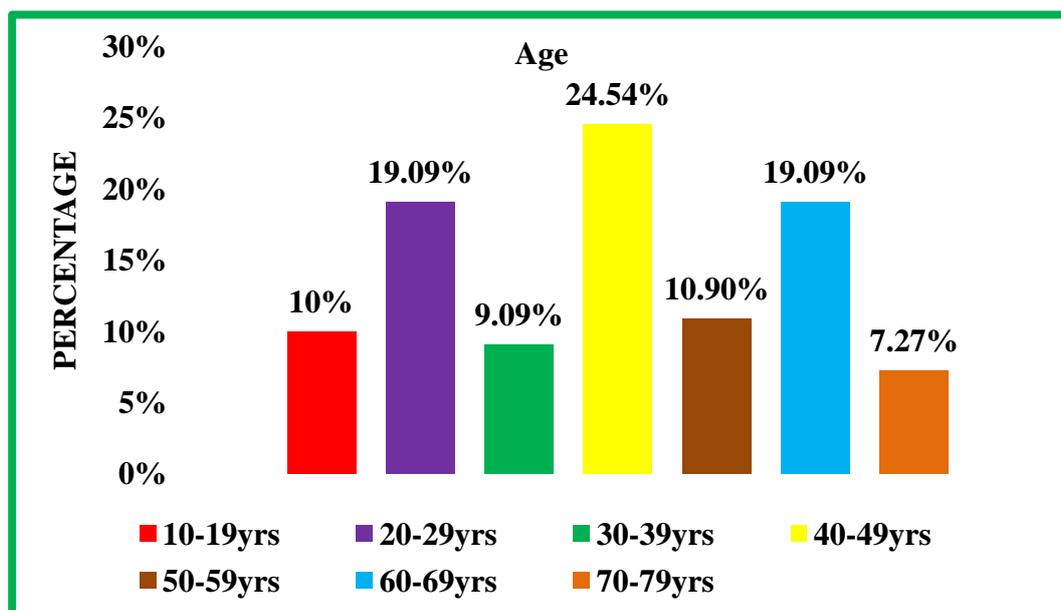


Figure 2: Prevalence of auto-immune diseases and other diseases.

In the study population 1.10% had auto immune diseases and 98.90% had other diseases.

Table 3: Auto immune disease and age

Age-based years	Percentage (%)
10-19	10%
20-29	19.09%
30-39	9.09%
40-49	24.54%
50-59	10.90%
60-69	19.09%
70-79	7.27%

**Figure 3: Auto immune disease and age**

Out of 110 patients, the highest percentage of auto immune diseases was seen in the age group of 40-49 years and lowest in 70-79 years.

Table 4: Common Auto-immune Diseases

Auto-immune disease	Percentage (%)
Guillain-Barre's syndrome	11.85%
IBD	10.90%
AITD	10%
SLE	8.18%
Rheumatoid arthritis	8.18%

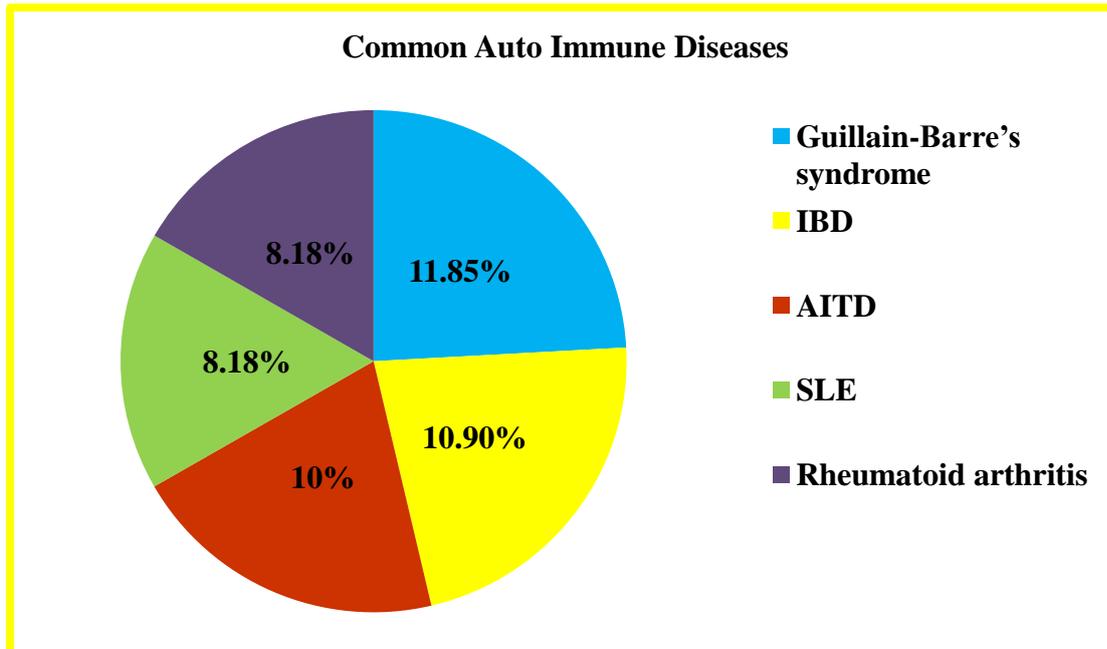


Figure 4: Common auto-immune disease

The most commonly seen auto immune disease was found to be Guillain-Barre's syndrome i.e. 11.85%, followed by IBD 10.90%

DISCUSSION

As per previous studies, increase incidence and prevalence of AID's is seen mostly in western countries but even India is seeing a gradual increase in incidence and prevalence of AID's from the last few years, still, the US standing first.^[9]

The gender wise distribution resulted that the majority of the patients with AID's were females which were 63.6% and males were around 36.4%. The male to female ratio observed in our study was approximately 2:1 (1.8:1).

This confirmed the finding of the previous study conducted that the prevalence of AID's in is more.^[10]

The age wise distribution of patients resulted that the prevalence of AID's was seen majorly in the age group between 40-49 years with 24.6% (27 patients), next age group of patients with more prevalence of AIDs was seen in between 20-29 years with 19.09% (21 patients) with the age group 60-69 years with 19.09% (21 patients).

When compared to the above age groups, considerably less prevalence was seen in the age group between 50-59 years with 10.9% (12 patients), 10-19 years with 10% (11 patients), 30-39 years with 9.09% (10 patients) and 70-79 years with 7.27% (8 patients). This confirmed the findings of the early study conducted that the prevalence of AID's was majorly seen in the age group of 30-60 years. 11 Out of 110 AID's, most prevalent AID's were: GB syndrome with 11.8% (13 cases), Hashimoto's thyroiditis with 9.1% (10 cases), RA with 8.2% (9 cases), SLE with 8.2% (9 cases), UC with 7.3% (8 cases), Pernicious anaemia with 6.4% (7 cases), IgA nephropathy with 6.4% (7 cases), Lupus nephritis with 5.5% (6 cases), ITP with 5.5% (6 cases). Next comes thrombocytopenia with 3.6% (4 cases), DM-1 with 3.6% (4 cases), crohn's diseases with 3.6% (4 cases), AIHA with 3.6% (4 cases), Psoriasis with 2.7% (3 cases), Multiple Sclerosis with 2.7% (3 cases), ankylosing spondylitis with 2.7% (3 cases) with moderate prevalence. Least prevalent AID's in our study were hemolytic anemia with 1.8% (2 cases),

CIDP with 1.8% (2 cases), psoriatic arthritis with 0.9% (1 case), cholangitis with 0.9% (1 case).^[9,12]

Out of 70 females, 6 were unmarried and 64 were married (mothers). The ratio of prevalence of AID's in married to unmarried women was 9:1 approximately. This confirms the findings of a previous study that the prevalence of AID's is more prevalent in married women than in unmarried women due to hormonal changes that are caused during or after pregnancy.^[13]

In the present study, the majority of AID's were caused due to environmental factors and very few were due to genetic factors. The ratio of AID's caused due to environmental factors to genetic was 13:1 (environmental factors with 92.7% and genetic factors with 7.3%). This says that AID's is caused majorly due to environmental factors than genetic factors. As said in the previous study, this may be due to no availability of genetic tools.^[14]

In our study, out of 110 patients, SLE was seen in 9 patients. Out of those 9 patients, lupus nephritis was seen in 6 patients. This shows that LN can affect up to 66.7% of SLE patients which confirms the previous study that multiple indirect pieces of evidence support a genetic etiology in SLE and LN.^[15]

In our study, AITD was seen in 11 patients out of whom 10 patients (90.9%) were diagnosed with Hashimoto's thyroiditis and 1 patient (9.1%) was diagnosed with Grave's disease. This confirms the previous study that the prevalence of HT is more when compared to GD.^[16]

In the present study, 9 individuals were suffering from RA and 6 patients developed DM. This proves the earlier study conducted that the risk of DM incidence can be seen in RA patients.^[17]

The earlier study states that cardiovascular

diseases are one of the main causes of morbidity and mortality in AID's like SLE and RA. Out of 9 patients with RA, 6 patients had CVD's and out of 9 patients with SLE, 7 patients had CVD's. This confirms the earlier study.^[18]

Out of 110 individuals with AID's, onset of PAH was seen in 4 individuals aging above 40 years. PAH was seen in individuals who were diagnosed with Pernicious anaemia, SJ syndrome, RA and Multiple sclerosis. PAH in AID's could be fatal with characteristic manifestations.^[19]

CONCLUSION

In our current study, which was carried out in Aware Gleneagles Global Hospital, which was to study the incidence and prevalence of AID's.

The study was carried out in 110 patients, and during the study it was found that the prevalence of AID's when compared to other diseases was less.

Among all the study, Guillain Barre's syndrome was the most common disease found in the patients.

In the present study conducted, it has been found that females were more affected with AID's when compared to males.

A comparative study was also conducted between married and unmarried women and it showed that the prevalence of AID's was mostly in married women considering the reason of hormonal changes.

As per the age wise distribution in our study, patients belonging to the age group of 40-49 years showed the highest prevalence of AID's.

Incidence rate has also been taken into consideration while conducting the study and it has been found that there is wide increase in the incidence of Guillain Barea's syndrome in the year 2020 and 2021.

The risk factors that majorly contributed towards the development and progress of AID'S were environmental factors.

Thus, for our study it can be concluded that females are more prone to develop AID's and there has been an increase in incidence of AID's with yearly increase in the cases of AID's.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest

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