

# **AUTO-IMMUNE DISEASES:THE CAUSES OF THEIR PREVALENCE AND INCIDENCE IN HUMAN POPULATION**

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## **ABSTRACT**

*Auto-immune diseases are caused by the body's immune response to its own tissues/tissue components either by producing auto-antibodies or by increased production of the immune system cells. There are many autoimmune diseases affecting the human population all over the world. These diseases may be systemic (systemic lupus erythematosus )or tissue specific (thyroiditis).The causes could be hereditary, aging, epigenetic changes, hormonal, nutritional deficiencies, stress, environmental agents, infections etc. The causes may be specific or a combination of factors that may contribute to their development. The female population is the most affected. Some of these diseases are a common occurrence like diabetes typeI, thyroiditis, multiple sclerosis, etc. The incidence of these diseases is increased during the present century when compared to the past as the living standards today is totally compromised due to various reasons like sedentary life style, consuming adulterated foods, drugs, pollution etc. Therefore, there is a dire need to understand the possible mechanisms that triggers off the immune system's response against self, taking into consideration all the factors. Many questions pertaining to auto-immunity like recognition of self from non-self, immune tolerance etc needs to be investigated.*

**Keywords:** *Auto-Immunity, Auto-Antibodies, Systemic, Thyroiditis, Pollution*

## **I. INTRODUCTION**

The immune system protects our body against many disease causing agents by both the specific and non-specific immune responses producing the antibodies, lymphocytes(T and B cells),complement, natural killer cells and phagocytes[1].Auto-immunity is the body's natural ability to distinguish between the self from the non-self by a phenomenon known as immune tolerance, with which it can identify the self tissue components. If the tolerance or any other components of the immune system is affected then the immune response also is affected and results in the development of auto-immune disorders. There are more than 80 types of auto-immune diseases[2].Auto-immune diseases are the major cause of all the ailments like heart disease, cancer etc[3].The diseases can be of systemic like systemic lupus erythematosus or may be tissue specific like thyroiditis. If systemic they can affect all the organs of the body due to the circulating auto-antibodies or lymphocytes[4].

The auto immune diseases were not that prevalent in the olden days and were usually seen in the older people that too the incidence of such disorders were very low. But, in the present scenario there seems to be increased incidence of these diseases as well as their prevalence due to many reasons like the consumption of the diet deficient in nutrients, adulterated food, sedentary life style, stress, pollution etc[5].The auto –immune diseases seem to run in the families i.e., there is genetic predisposition [6].The women are the worst affected by these

diseases because of their complicated reproductive cycle and the children due to their low immunity, as they are born with the natural (Passive) immunity obtained from the mother through the immunoglobulin-G as it can pass through the placenta and confer resistance to the growing foetus.

Because of the rise in the development of the auto-immune diseases all over the globe various organisations like American auto-immune related diseases association, Indian immunology society etc are actively involved in the study and research and creating awareness among people to prevent these diseases. Therefore, the present study was aimed to furnish information about their prevalence and incidence and to further assist and have a thorough understanding of these diseases there is a need to gather information about all these diseases and how they are caused, the genetic basis etc all over the world.

For the present study the population selected was random from the people of only Hyderabad city without considering a particular caste/religion/ or community. The data collected from the people was divided into two groups with children being the first group and the adults the second group. Among the adults there are males and the females of the age group 40 plus and another group of age 50 and above. A questionnaire was prepared to get the feed back related to certain general medical history like diabetes, blood pressure, and any other recent infections or diseases they are suffering from including auto-immune related ones like thyroid, multiple sclerosis, hormonal disturbances etc, The data was obtained from nearly 500 people from across the city either personally or through distribution of the questionnaire feed back forms.

## II. RESULTS

From the data collected it was clear that the common ailments people are suffering from are diabetes type I, blood pressure, thyroid diseases. Multiple sclerosis is a very common occurrence among females. Rarely among children the systemic disease was noticed. The data alone cannot be used to say that the diseases are purely the auto-immune origin but there should be a careful evaluation of the diseases by proper diagnosis, like for example in case of the thyroid it is mandatory to know if the antibody titres are done in addition to the screening of the thyroid hormone levels. As much information as possible is to be obtained to know the disease prevalence and incidence. Based on the data the study and research can be done to know the exact causes and also to come to a conclusion about what mechanisms are involved in causing them. Such studies not only provide information but also gives an insight into the mechanisms of the development of these diseases. More and more data need to be collected and analysed. There are reports and published data/statistics of auto-immune diseases in the US.

The present study is only a beginning to know about how the trend is among the few Indian population of Asia and based on the data, how we can initiate research of their occurrence, treatment options and prevention. Also to contribute to the research all over the world so that the diseases' management becomes easier and this may also give some information to treat/prevent other ailments as well.

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