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Autoimmune Diseases in Moroccan Population, About 5270 Cases Followed Between 2000 and 2016.

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Abstract:
Background: *Autoimmune diseases are a real public health problem. Any prevention policy cannot bemplemented without epidemiological studies. The aim of the present study is to describe the most common autoimmune diseases in the Moroccan population.*
Methods:*this is a cross sectional study carried out on 5270 cases, in Patients followed in the differentdepartments of the Hospital of Rabat (Morocco), during the period between September 2000 and October 2016.*
Subjects were selected through simple random sampling method. Data was collected using questionnaire. the studied parameters were the age, the sex, and the type of the disease.
Results*: During the period, we registered 5270 cases of autoimmune diseases. Women were more affected with a sex-ratio of 1.38(chi-squared = 398.46, p≥0.0001). Moreover, the most concerned age group was [45-65 [years and ≥65 years. The average age was 59.2 ± 23.8 years. The most common autoimmune diseases in our target population were type I diabetes (45.5% of cases), rheumatoid arthritis with 38%, followed by lupus with 11.6%, behcet's disease with 2% and dermatopolymyositis (1.4%). The most common autoimmune diseases affecting women are rheumatoid arthritis, lupus, scleroderma and sarcoidosis. At men, the most important were type I diabetes, Behcet's disease and dermatopolymyositis, so there is a statistically significant association between sex and type of disease (chi-square = 398.46, p≥0 These diseases mainly affect the age group [45-65] (with a chi- square test of 689.44 and p≥0.0001).*
Conclusion: *Autoimmune diseases are a serious public health problem. The chronic nature if many of these diseases result in a significant impact in terms of medical care utilization, direct and indirect economic costs, and quality of life.*

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I. Introduction

One of the functions of the immune system is to protect the body by responding to invading microorganisms, such as viruses or bacteria, by producing antibodies or sensitized lymphocytes (types of white blood cells). Under normal conditions, an immune response cannot be triggered against the cells of one's own body. In some cases, however, immune cells make a mistake and attack the very cells that they are meant to protect. This can lead to a variety of autoimmune diseases. They encompass a broad category of related diseases in which the person's immune system attacks his or her own tissue. Autoimmune diseases result from a dysfunction of the immune system. The immune system protects you from disease and infection. Sometimes, though, the immune system can produce autoantibodies that attack healthy cells, tissues, and organs. This can lead to autoimmune disease. Autoimmune diseases can affect any part of the body. More than 80 autoimmune diseases have been identified. Some are relatively well known, such as type 1 diabetes, multiple sclerosis, lupus, and rheumatoid arthritis, while others are rare and difficult to diagnose. The causes of autoimmune diseases remain largely unknown. There is growing consensus that autoimmune diseases likely result from interactions between genetic and environmental factors. The National Institute of Environmental Health Sciences (NIEHS) is supporting research to understand how these factors work together to compromise the body's ability to defend itself, and develop into autoimmune diseases. NIEHS hopes to find clues that will lead to treatments and cures, or ways to prevent the development of these diseases.

Some autoimmune diseases are life-threatening, and most are Human Immune System debilitating and require a lifetime of treatment. There are treatments available to reduce the symptoms and effects from many

autoimmune diseases, but cures have yet to be discovered. Since most autoimmune diseases are rare, patients can often spend years seeking a proper diagnosis.

Autoimmune diseases are a public health issue worldwide. They affect all categories of the world population regardless of their age, sex or socio-economic level, nearly 10% of the world population are concerned, and they are the third leading cause of death in the world after cardiovascular diseases and cancers. Autoimmune diseases are little known, despite a prevalence that increases with a high incidence in women [1].

II. Methods

Design and study area

This research was a cross sectional study undertaken in different departments of the Moroccan hospital in Rabat, from September 2000 to October 2016. Study participants who were followed and who agreed to participate in the study were included in the sampling pool. The patients were selected by the simple random sampling method. Sample size was determined by p=0.05 and confidence interval 95%.

Questionnaire

Data was collected using a questionnaire whose validity was obtained using the content validity. The questionnaire included items on various aspects as follows:

1.Socio-demographic component: age, gender.

2.Type of the autoimmune disease

Data collection

Data was collected by a trained research doctor. It was based on patient record.

Data analysis

Data were analyzed using IBM SPSS 19.0 for Windows. Descriptive as well as analytical analyses wereemployedto determine epidemiological profile of patients and to describe the most common autoimmune diseasesin the Moroccan population. Theresults are expressed in terms of numbers for the qualitative variables and on average ± standard deviation for thequantitative variables. Differences between categorical groups were determined by using (χ^2) test. P-values‹0.05were considered to be statically significant in all analyses.

III. Results

Description of socio demographic variables

Between September 2000 and October 2016, we administered questionnaire to 5270 patients with Autoimmune diseases, 58% were female and 42% were male, sex ratio = 1.38 (chi-square test = 398.46, p≥0.0001). we found an increasing prevalence with an average prevalence of 330 cases per year [figure 1]. The mean age of participants was 59.16 ± 23.81 years [Figure 2], and the most concerned age group were 45 and 65 years of age followed by the age group ≥65 years 50 to 60 years old.

Type of autoimmune disease

Autoimmune diseases were most frequent in women that in men. Regarding the type of autoimmune diseases, we found that the most common diseases are type I diabetes (45.5%), rheumatoid arthritis (38%), lupus erythematosus (11.6%), behcet's disease (2%), and Dermatopolymyositis (1.4%) [Table 1].

Regarding the association between the different types of autoimmune diseases and the sex of the patients, we found that there is a statistically highly significant association (chi-squared = 398.46, p≥0.0001). The most common autoimmune diseases in women were rheumatoid arthritis, lupus, scleroderma and sarcoidosis. In men, diabetes, Behcet's disease and dermatopolymyositis were the most important [Figure 3].

In our population, we found that there is also a statistically highly significant association between autoimmune disease types and patient age (chi-square = 488.5, p≥0.0001). Diabetes and rheumatoid arthritis mostly affected the age group [45-65 [years of age, followed by ≥65 years of age. Lupus and Behcet's disease affected the age group [45-65 [years, followed by [25-45 [years, sarcoidosis, scleroderma and dermatopolymyositis in the age group [45-65]. There is a statistically highly significant association between age and sex of patients with the onset of an autoimmune disease with a Pearson chi-square test = 32.87, p≥0.0001, [Figure 2]. For the youngest, it was mostly men who are most affected by autoimmune disease and for adults and the elderly, women were the most affected by autoimmune diseases.

IV. Discussion

Autoimmune diseases by their frequency have become a major public health problem. Indeed, of the 5270 patients with autoimmune diseases, we found a female predominance, these results are consistent with the results of the literature, indeed, sex is a very important factor in the onset of the disease. Most autoimmune

diseases occur significantly more frequently in women than men. This female preponderance for abnormal autoimmune function has largely gone unexplained. Many investigations have concentrated on the effects of female and male sex hormones on immune function, by suggesting that estrogens favor the antibody production-enhancing the response and, by doing so, possibly, increase the risk towards abnormal autoimmune function. Others have suggested that women are genetically predisposed towards abnormal autoimmune function, possibly because the X chromosome may confer susceptibility towards tolerance breakdown [2, 3, 4].

In our sample, the distribution of autoimmune diseases by sex is similar to the literature. Indeed, in some diseases (rheumatoid arthritis, scleroderma, and lupus erythematosus), 85% or more of patients are female. A relatively equal risk between males and females is seen in some childhood onset autoimmune diseases (type I diabetes, lupus erythematosus). The recent studies of adult-onset diabetes indicate a higher risk among men compared with women [5].

In our study we found that there is a statistically highly significant association between patient age and onset of illness with an average age of 59.16 ± 23.81 years, these results are similar to those of the literature, indeed the age is the most important factor, with an incidence curve which increases with the age.

There are notable differences in the age distribution among autoimmune diseases. Although most diseases can occur at any age. The mean age of childhood onset diseases, type I diabetes is approximately 8-10 years [6, 7]. In other studies of systemic lupus erythematosus and of scleroderma provide evidence that these diseases may occur later than had been reported in earlier studies in more selected populations. Other diseases that generally occur between ages 30 and 50 years [8]. An older age at diagnosis (40-70 years) is seen in rheumatoid arthritis [9, 10]. Autoimmune diseases are generally thought of as being relatively rare, but their effects on mortality and morbidity are quite high. The chronic nature if many of these diseases results in a significant impact in terms of medical care utilization, direct and indirect economic costs, and quality of life.

V. Declaration

Ethics approval and consent to participate:
Permission to conduct the study at the hospital was received from the hospital administration.

Consent for publication:Not applicable
Availability of data and material: The datasets during and/or analyzed the current study available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests.

Table 1: frequency of different types of autoimmune diseases

DISEASES	EFFECTIVE	PERCENTAGE
DERMATOPOLYMYOSITIS	74	1,4
TYPE I DIABETES	2398	45,5
AUTOIMMUNE HEPATITIS	9	,2
LUPUS ERYTHEMATOSUS	609	11,6
BASEDOW'S DISEASES	10	,2
BEHCET'S DISEASES	100	1,9
RHEUMATOID ARTHRITIS	1996	37,9
SARCOIDOSIS	29	,6
SCLERODERMA	38	,7
MULTIPLE SCLEROSIS	7	,1
Total	5270	100,0

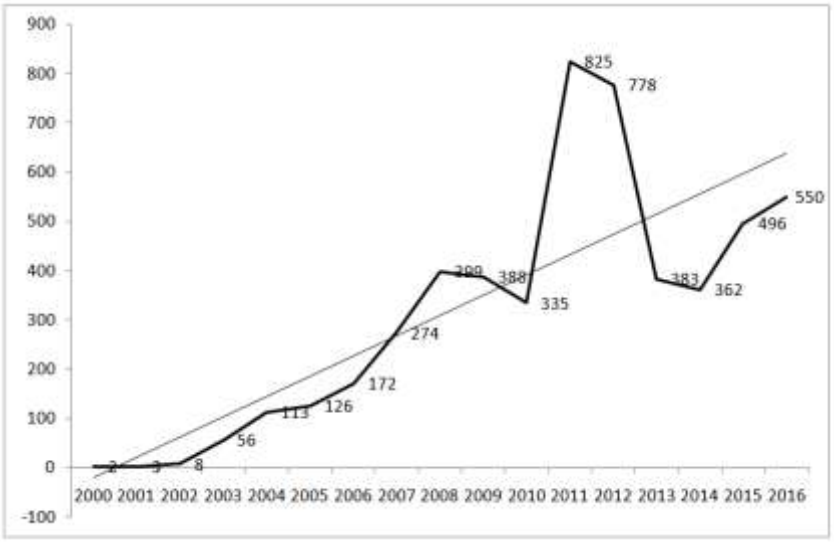

Figure 1:prevalence of autoimmune diseases during the period 2000-2016.

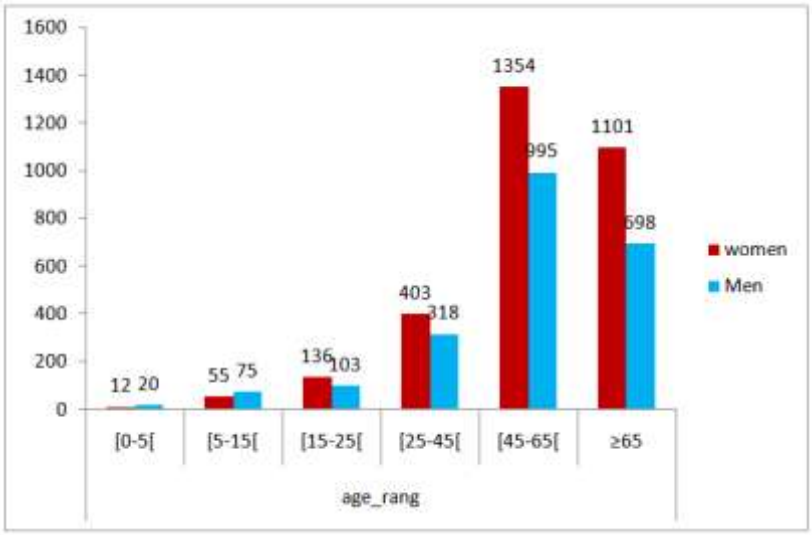

Figure 2:sex distribution of patients by age group.

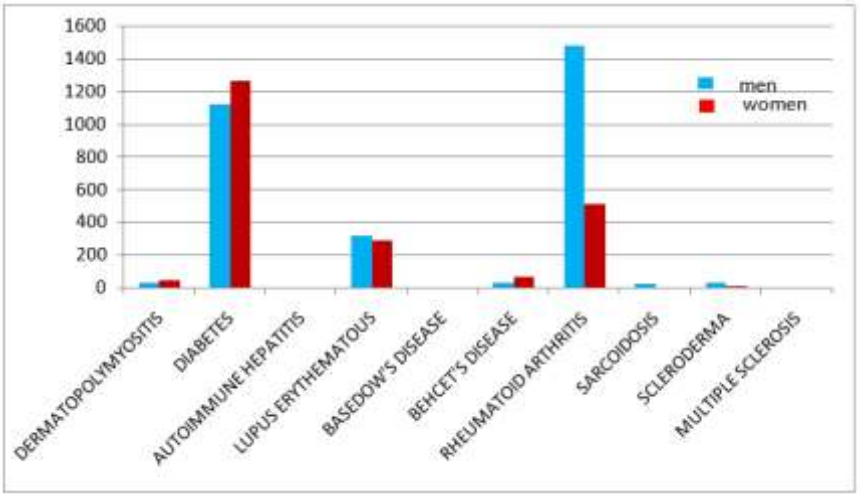

Figure 3:distribution of autoimmune diseases by sex of patients.

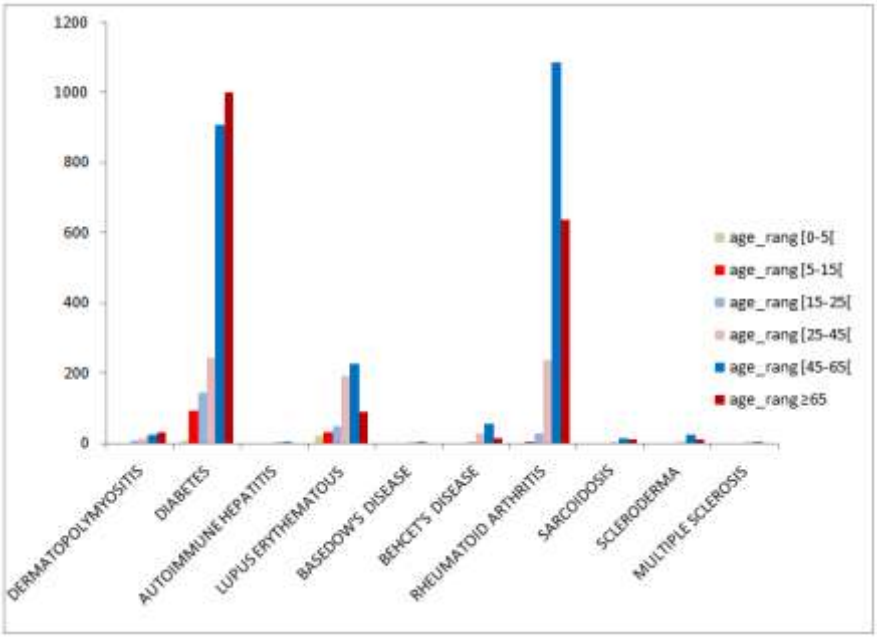

Figure 4:distribution of autoimmune diseases by age group.

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