

AUTOIMMUNE DISEASE AND CHRONIC ILLNESS IN KSA (CROSS SECTIONAL STUDY)

Abstract

Background: Critical problems in the research of autoimmune illnesses include the scarcity of prevalence data based on a representative sample of the general population and the small number of diseases included in co-morbidity studies. The incidence of autoimmune disorders in a representative sample of the general population in Saudi Arabia is described in this research, and the hypothesis of an overall link between these diseases is tested.

Methods: This was an analytical cross-sectional study to spot light on the prevalence of autoimmune disease among Saudi population. Since the aim of the study was to determine the prevalence of autoimmune disease and their relationship with chronic illnesses among Saudi, this is the suitable design for this research. The study was carried out among Saudi population. Data were collected from general population using questionnaire. Participants were chosen via probability simple random sampling technique. Participants were selected from the general population. The expected number of sample size was 700 participants. However, the study included 802 participants.

Results: The study included the participation of 802 participants from both genders and different age groups in the Kingdom of Saudi Arabia. There were 436 female participants (54.4%) and 366 males (45.6%) took place in this study. The most prevalent age group was 45-54 years (n= 232, 28.9%). There were 199 participants reported having a family history of autoimmune diseases (24.8%). Furthermore, there were 186 participants who are using medications for high cholesterol level (23.2%) with no significant for gender (P= 0.08). Diabetes was prevalent among 203 participants (25.3%), blood pressure disorder (n= 211, 26.3%), ulcerative colitis (n= 137, 17.1%) and other comorbid conditions.

Conclusion: In conclusion, this survey confirm relatively high prevalence of autoimmune disease among Saudi population. In addition, participants suffered from additionally comorbid conditions.

Introduction

The study of the genesis and temporal trends of autoimmune illnesses, as well as the knowledge of the link between various disorders, benefit substantially from ongoing monitoring, as an example, [1]. A new review discusses various research on the epidemiology of autoimmune illnesses conducted over the last several decades, emphasizing the significance of future studies that might overcome shortcomings found in the present literature [1].

The availability of a systematic and impartial source of data that is typical of the general population is crucial in evaluating the incidence of autoimmune disorders [1]. Because autoimmune disorders are characterized by low mortality and hospitality, routine registration systems, such as death statistics and hospital admissions and discharges, only offer a limited picture of their incidence. The most acceptable way for gathering prevalence statistics without ascertainment difficulties is through population-based investigations, albeit these studies demand significant resources and are frequently dependent on self-reported data. However, in the case of autoimmune illnesses, which include uncommon diseases and diseases with significant clinical heterogeneity and complicated case definitions, self-reporting is associated with a high risk of referral bias [1–3]. The few studies that have been done on the general population are focused on laboratory screening and hence only look at autoimmune illnesses that may be detected by lab testing [4-6]. Asymptomatic types of sickness are also included in their findings.

The lack of definitive evidence on the co-morbidity of autoimmune illnesses may be due to the scarcity of prevalence data based on a representative sample of the general population [1-4]. Several research back up the idea that autoimmune illnesses share a similar cause. These studies often look at the prevalence of a second autoimmune illness in samples of patients who already have one and compare it to the prevalence of the patients' spouses or first degree relatives. A increased vulnerability to a second autoimmune illness is thought to indicate that autoimmune

disorders have common pathogenic pathways. The lack of a suitable control population is the most significant drawback of these investigations [3].

Literature Review

Autoimmune and auto-inflammatory disorders impact around one in every fifteen people in industrialized nations, and they are often a life-threatening health concern for the individual patient, as well as a significant financial burden on society. Despite tremendous advances in the development of novel treatment methods, the long-term result for many individuals with autoimmune disorders remains dismal [1].

Infection is still a leading source of morbidity and death in people with rheumatic illnesses. Vaccine development has made a significant contribution to preventing infection in rheumatic illnesses [2]. Vaccination, on the other hand, is a potent immune system stimulant with the potential to cause or worsen immunological disturbances shown as serological markers of immune system dysregulation or clinically manifested autoimmune disease [3]. Vaccines and autoimmune inflammatory rheumatic disorders (AIIRD) have a complicated relationship.

The pathophysiology of these diseases is mostly influenced by autoimmune responses and inflammation. Inflammatory cells (monocytes, macrophages, dendritic cells, T- and B-cells) and cytokines can be found in the lesion area as early as the early stages of atherosclerosis, and these cells can trigger cell-mediated immune reactions (CMIR) that I modulate the development of atherosclerosis and (ii) predetermine its progression [1, 2].

Immune responses may modify atherosclerosis in many ways: I 2 glycoprotein I immunotherapy increased atherosclerosis, (ii) heat shock protein (HSPs) 60/65 antigen immunotherapy increased atherosclerosis, and (iii) oxLDL immunotherapy decreased atherosclerosis [3, 4]. Aside from recognized CVD risk factors, autoimmune mechanisms are regarded as being quite important. In clinical practice, autoimmune illnesses are linked to a significant risk of cardiovascular disease. In animal investigations of a prominent autoimmune illness, SLE, mostly proinflammatory Th1

cytokines (e.g., IFN-gamma) were discovered as being involved in CMIR, but in people with SLE, mainly Th2 cytokines were identified as being involved in CMIR [3].

Increased atherosclerosis, increased inflammation, elevated levels of oxidized LDL (oxLDL) and autoantibodies against oxLDL, increased triglycerides, total cholesterol (TC), and Lp(a) and decreased HDL-cholesterol, elevated systemic inflammation and the presence of anti-phospholipid antibodies (aPL), high homocysteine levels, and osteoporosis are all risk factors for CVD in SLE [2]. However, the proportional risk of CVD varies depending on the kind of autoimmune illness. Some autoimmune diseases, such as systemic lupus erythematosus (SLE), rheumatoid arthritis, antiphospholipid (Hughes) syndrome (APS), and systemic sclerosis, have a significant risk of CVD development, whereas others, such as Sjögren's syndrome and systemic vasculitis, appear to have a smaller association.

Methods

Study design

This was an analytical cross-sectional study to spot light on the prevalence of autoimmune disease among Saudi population. Since the aim of the study was to determine the prevalence of autoimmune disease and their relationship with chronic illnesses among Saudi, this is the suitable design for this research.

Study setting

The study was carried out among Saudi population. Data were collected from general population using questionnaire.

Sampling and sample

Participants were chosen via probability simple random sampling technique. Participants were selected from the general population. The expected number of sample size was 700 participants. However, the study included 802 participants.

Inclusion criteria: Patients and general population

Exclusion criteria: none.

Instruments

Data collection tool was self-designed and base on latest literature. It contained the following information: (1) basic information about participants and (2) disease related information.

Statistical analysis

Data obtained from questionnaire were entered and analyzed using SPSS program version 23 computer software. Sociodemographic data are presented using descriptive statistics as means, median, percentages and standard deviation. Independent T test and one-way Anova are used to show statistical significance among patients' characteristics and tool scores. Chi square test is used to show relationship between categorical variables. Statistical significance is set at a P value of 0.05 or less.

Permission and ethical considerations

Administrative approval will be sought from the unit of biomedical ethics research committee Ethical approval was sought from the ethical committee of the faculty of medicine, king Abdul-Aziz university. An informed consent was sought from the participants.

Results

The current study aimed to examine the prevalence of autoimmune diseases among population in Kingdom of Saudi Arabia and the relationship between them chronic illnesses. The study included the participation of 802 participants from both genders and different age groups in the Kingdom of Saudi Arabia. There were 436 female participants (54.4%) and 366 males (45.6%) took place in this study. The most prevalent age group was 45-54 years (n= 232, 28.9%) followed by the age group 35-44 (n= 202, 25.2%) while the least frequent age group was above 55 years (n= 67, 8.4%). The distribution of age groups among study participants is presented in figure 1 and table 1 shows the distribution of age groups by the gender of participants. More than half of participants were non-smokers (n= 493, 61.5%) and the rest of participants were smokers (n= 309, 38.5%). The mean value of body mass index among study participants was 29.48 ± 5.49 standard deviation while the median value of body mass index was 28. This reflects an overweight population in the study sample.

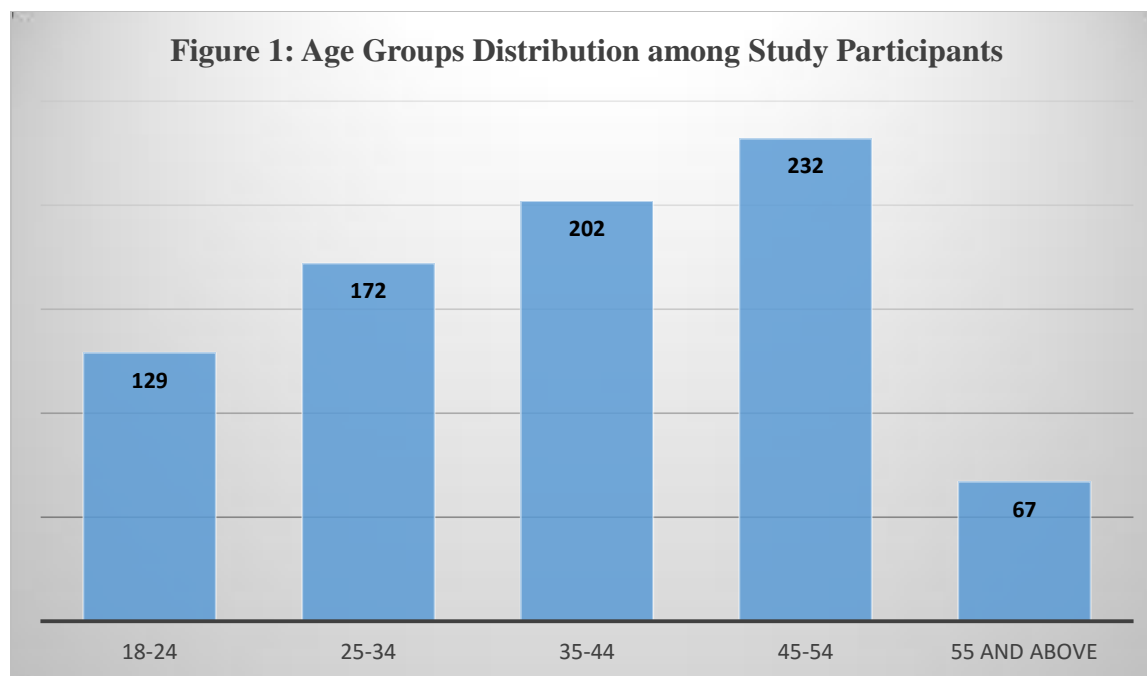


Table 1: Age Groups Distribution According to the Gender

Age group	Male	Female
18-24	61	68
25-34	94	78
35-44	77	125
45-54	103	129
55 and above	24	43

There were 199 participants reported having a family history of autoimmune diseases (24.8%). Furthermore, there were 186 participants who are using medications for high cholesterol level (23.2%) with no significant for gender ($P= 0.08$).

Participants were asked if they used certain types of medications. Their answered varied among different groups and classifications of medications. However, there were 325 participants

reported not using any of the medications in the list (40.5%). The distribution of medications used is presented in table 2.

Table 2: Medications use among study participants		
Medication	Frequency	Percent
Antibiotic	150	18.7
Anticonvulsant drugs	44	5.5
Antihypertensive drugs	151	18.8
Others	132	16.5
No use of medication	325	40.5

Participants were also asked if they have any comorbid disease. Diabetes was prevalent among 203 participants (25.3%), blood pressure disorder (n= 211, 26.3%), ulcerative colitis (n= 137, 17.1%) and other comorbid conditions (table 3). Table 3 shows the distribution of comorbid conditions according to gender.

Table 2: Prevalence of comorbid conditions among study participants distributed by gender			
Comorbid condition	Male	Female	P value
Diabetes mellitus	100	103	-
Blood pressure disorders	89	122	-
Ulcerative colitis	66	71	-
Asthma	40	41	-
Cancer	10	11	-

Heart disease	16	20	-
High cholesterol levels	29	31	-
Migraine headache*	42	56	0.001
Celiac disease*	19	9	0.02
Type 1 diabetes	7	5	-
Graves' disease	7	3	-
Hashimoto's autoimmune thyroiditis*	7	17	0.000
Multiple sclerosis*	3	12	0.000
Rheumatoid arthritis	29	24	
* P value is reported for only statistically significant condition			

Discussion

By defining the prevalence of the most prevalent autoimmune illnesses in a representative sample of the general population in Saudi Arabia, and studying the co-morbidity between autoimmune disorders that affect various organs, this research contributes to the study of autoimmune diseases. To our knowledge, this is the first population-based study to look at a constant number of autoimmune disorders in a group of people [1]. Autoimmune diseases are complex illnesses that are triggered by a combination of genetic predisposition and environmental factors [3-5].

The key strength of this study is the impartial data source. A comparison of the prevalence of type 1 diabetes and multiple sclerosis as determined on the basis of the data under investigation and the prevalence of these diseases obtained in previous population-based studies performed in Sardinia [5, 7-8] can also be used to confirm the reliability of the data presented in this paper.

According to this survey, one or more autoimmune disorders impact 15% of the general population. These findings are greater than those seen in the present literature, which suggest an overall incidence of autoimmune disorders of 4%–5% [9-10].

Overall, women had a greater incidence than males, matching previous research [10-11].

Type 1 diabetes and multiple sclerosis prevalence figures show that KSA is among the locations with the greatest incidence of these conditions [12-15].

The prevalence of ulcerative colitis in our study is lower than in previous studies, but it appears to be consistent with frequency in other locations [1, 9, 10, 16].

Conclusion

Finally, this study confirms that the Saudi population has a significant frequency of autoimmune illness. Furthermore, the subjects had extra comorbid conditions.

References

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