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GENETIC STUDY OF PSORIASIS DISEASE : A REVIEW

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ABSTRACT

Psoriasis is a common inflammatory skin disease with an etiology based on both environmental and genetic factors .it may be caused by heritable predisposition who patients carry gene of psoriasis. The main genetic determinant for psoriasis known as –susceptibility1 (*PSORS1*) locus within the MHC on chromosome 6p21 (location of the *HLA* genes) is considered the major genetic determinant of psoriasis. In addition, linkage studies had identical 10 potential susceptibility loci several single nucleotide polymorphisms (SNP) in the receptor forinterleukin12 and 23(IL-12 and IL-23) had been linked to psoriasis and other chronic inflammatory conditions. In addition, the IL12B gene, which encodes the p40 subunit of IL-12 and IL-23, as well as the IL23A gene, which encodes the p19 subunit of IL-23, are strongly associated with psoriasis. This disease is triggered and worsened by some medications, infections, skin trauma, obesity, and stress, and those suffering from psoriasis are at higher risk for both cardiovascular disease and depression. It affects high range of people world wide, it is considered a public health problem. It has significant impacts on both physical and emotional health-related quality of life comparable to other major illnesses. The skin in psoriasis patches are typically red, dry, itchy, and scaly. Psoriasis varies in severity from small, localized patches to complete body coverage. Different methods have been used for psoriasis diagnosis with different sensitivity and specificity, some are conventional such as dermoscopy, biopsy, histopathology and molecular methods but it is typically based on the signs and symptoms. psoriasis is usually based on the appearance of the skin, The disease may begin at any age, the female infected more than male. Epidemiologic and basic scientific evidence contribution have led to the recognition of psoriasis as a disorder with important health implications that extend beyond the skin.
Keywords: Psoriasis, Plaque, Guttate.

Introduction

Psoriasis is chronic inflammatory, genetically and proliferative disease of the skin, affecting approximately (2%) of the population worldwide but is more prevalent in ethnic groups of European descent. In Iraq the incidence of psoriasis was 1.8% (Al-Samarai, 2009). This disease can affect any race and can occur at any age and recognized by change proliferation and differentiation keratinocytes (Nickoloff and Nestle, 2004). Psoriasis is a related with inflammation and scaling of skin, as the cells of the skin come on surface quickly before their complete maturation. There is a considerable genetic susceptibility and heredity association in this group of patients. The severity of psoriasis ranges from a few scattered red, scaly plaques to involvement of almost the entire body surface. It may progressively worsen with age, and wane in its severity, the degree of severity depends on inheritance and environmental factors (Adarsh and Sharma, 2018). Clinically a spectrum of different types may be observed: psoriasis vulgaris, guttate psoriasis, erythrodermic psoriasis, pustular psoriasis, inverse psoriasis, and arthritis. Evidence indicated the genetic, environmental, and immunological factors contribute to the pathogenesis of psoriasis and play important roles in its development. Many external factors including infection, trauma, or drugs, may exacerbate psoriasis. Some of the most common medications know to trigger or worsen existing psoriasis include lithium, gold salts, beta blockers and anti-malarial agent (Puig *et al*., 2014; Takeshita *et al*., 2018).

Psoriasis is a genetically disease nine gene loci are reported to contributing to expression of psoriasis. They are designated as Psoriasis susceptibility *PSORS1* to *PSORS10*, the first one being the most important on 6p21chromosome position (Puig *et al*., 2014). Psoriasis is associated with an increased risk such as cardiovascular disease, malignancy, metabolic syndrome, diabetes mellitus (Takeshita *et al*., 2018).

Aims of this study

- Study of the relationship between environmental factors and psoriasis.
- Evaluation of the association between psoriasis and other disease.

Cases description of Iraqi patients with psoriasis:

This study was carried out at the Department of Dermatology and Venereology in Baghdad Teaching Hospital Clinic AL-Yarmok and AL-Kadima and teaching hospital during the periods of (1 June 2018 to August 2018); This research included 50 patients of different age groups and different geographic residencies, presumptive diagnosis of psoriasis was based on signs, symptom and physical examination of the site. The patients where suffered from different types of psoriatic disease plaque (vulgaris), guttate, (2), scalp (3) and arthritis (4). Although most of them suffered from plaque psoriasis as shown in figures (1).

Fig. 1 : Plaque psoriasis in Iraqi patient.

Fig. 2 : Guttate psoriasis in Iraqi patient.

Fig. 3 : Scalp psoriasis in Iraqi patient.

Fig. 4 : Psoriasis arthritis in Iraqi patient.

Relationship of psoriasis with other factors:

Age group distribution of psoriasis

Young individuals appeared to be more susceptible to infected by psoriasis; especially when their age group is (11-21) years with percentage at (36)% followed by age group (22-32) years with percentage at (26)% the age group (33-43) years with percentage at (18)% , while less than 10 years documented about (14%), finally the age group (44-54) years recorded 3 at percentage (6%). As shown in table (1).

Table 1 : Distribution and percentage of psoriasis patients according to age groups

Age group (years)	Patients				
	Female	(%)	Male	(%)	Total
Less than 10	4	14.2	3	13.6	7
11-21	10	35.7	8	36.3	18
22-32	7	25	6	27.2	13
33-43	5	17.8	4	18.1	9
44-54	2	7.1	1	4.5	3
Total NO.	28	99.8	22	99.7	50

These differences came from the variety in the region, random samples and average age of the people in different countries. Moreover, most of cases of psoriasis verified in the second and third decade because wars in the past twenty year that have occurred major pollution has led to the appearance of several diseases. However, psoriasis may begin at any age, but it is uncommon under the age of 10 years. It is most likely to appear between the ages of 15 and 30 years. Some investigators postulated that two different forms of psoriasis exist: type I psoriasis, with age of onset before 40 years and HLA-associated and tend to run a more severe course, and type II, with age of onset after 40 years and lacking *HLA* associations and usually is a milder disease, although many patients do not fit into this classification.

Age of disease emergence

The age of the onset in psoriasis is not fully understood, but most studies indicate that psoriasis can occur in any age. It has been reported to be present at birth and has been described as having its onset at the age of 10 years (Buntin *et al*., 1983). Other researches showed that the age of the onset for psoriasis is biphasic, with one peak in the early life (with a mean age of 16 years in females and 22 years in males). The other peaks occur later (with a mean age of 60 years in females and 57 years in males) (Henseler and Christophers, 1985). On the other hand, scientists refer to about three-quarters of the patients, the onset of psoriasis is before the age of 40 years, and in about one-third, it appears before the age of 20 years. Psoriasis occurs in 0.7% of children. In areas of high prevalence, the disease appears to start at a relatively younger age. Consequently, the incidence of psoriasis during childhood is higher in such places about 31times (WHO, 2013).

Gender distribution in psoriasis

Psoriasis disruption in female more than male as in Figure (5) the results that represent the sex ratio incidence among all the patients. It was showing that 28 females (53 %) have been diagnosed with psoriasis, on the other hand, there are 22 male cases (47 %) have a positive diagnosis regarding the psoriasis infection.

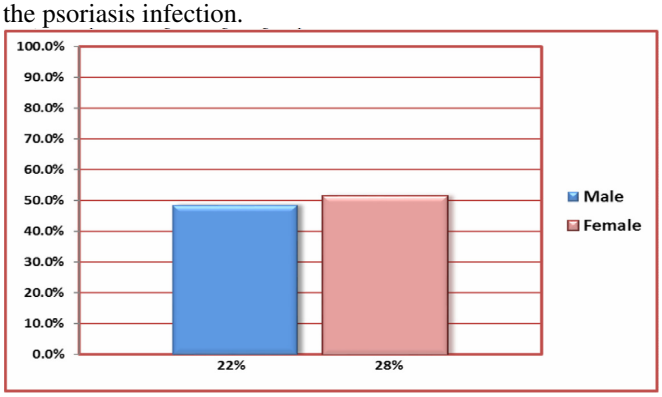

Fig. 5 : Showed Gender distribution in psoriasis disease

These results were similar to Hameed, 2007; AL-Waiz *et al*. (2003) in Iraq, AL-Humadi *et al*. (2013). Kurd and Gelfand, 2009; Griffth *et al*., 2015 in Kingdom of Sudia Arabia). These researches referred no differences between the both sexes related to the distribution of infection.

Spreading of psoriasis according to its types

Plaque psoriasis (50)% is recorded the most abundant type in compare to other types of psoriasis while arthritis psoriasis is documented (22)% and Gutta psoriasis is recorded about (18)%. In contrast, Erythrodermic psoriasis is recorded (4%), scalp and nail psoriasis is reported less than (2%) as illustrated in table (2) appear distribution of psoriasis according to its types.

Table 2 : Distribution and percentage of psoriasis patients according to its types

Type	Percentage %	Number patient
Plaque	50	25
Arthritis	22	11
Guttate	18	9
Erythrodermic	4	2
Scalp	4	2
Nail	2	1

In 2011, reports from health line and national psoriasis foundation indicated that plague psoriasis is the most common type (WHO, 2011). On contrast, other study showed that. type is the predominant one (AL-Humadi *et al*., 2013), this difference may due to the variety of samples size, study collection seasons and locations besides, environmental factors.

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