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Epidemiology of vitiligo

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جمهورية العراق

وزارة التعليم العالي

والبحث العلمي

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مشروع تخرج

وبائيات البهاق

مشروع مقدم الى مجلس جامعة ديالى كلية الطب في استيفاء جزئي لشروط الحصول على درجة البكالوريوس

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Dedication

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Hereby I present to you my graduation research.

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Abstract

Background: Vitiligo, a common depigmenting skin disorder, has an estimated prevalence of 0.5–2% of the population worldwide. The disease is characterized by the selective loss of melanocytes which results in typical no scaly, chalky-white macules. In recent years, considerable progress has been made in our understanding of the pathogenesis of vitiligo which is now clearly classified as an autoimmune disease. Vitiligo is often dismissed as a cosmetic problem, although its effects can be psychologically devastating, often with a considerable burden on daily life. In 2011, an international consensus classified segmental vitiligo separately from all other forms of vitiligo, and the term vitiligo was defined to designate all forms of no segmental vitiligo. ost studies demonstrate slightly greater prevalence in females and 50 % onset in childhood, but exceptions to these rules exist. Childhood vitiligo has been associated with atopic diathesis, halo nevi, and family history of vitiligo and autoimmunity. Post-pubescent vitiligo has been associated with greater acrofacial disease and thyroid disease, and early data supports reduced non-melanoma and melanoma skin cancer risk. This review summarizes the current knowledge on vitiligo and attempts to give an overview of the future in vitiligo treatment.

Aim: To determine the Epidemiology of vitiligo

Patients and methods: A cross-sectional hospital-based study was conducted on 110 patients aged between 5 years to 60 years old diagnosed to have vitiligo at a dermatologist clinic in Baqubah Teaching Hospital; during the period from October 1, 2021, until April 01, 2022. All available patients to the investigator in the outpatient dermatology unit at a tertiary care hospital were asked to participate. An oral consent was obtained then a short questionnaire was filled out for each patient. The questionnaire was developed based on the gender of the

patients, the site of the vitiligo, the family history whether it was positive or negative, and the age of the patients.

Results: looking to the gender results, the study showed that the numbers were close with female patients slightly higher than the male patients as the female counted for 56 and male patients were 54. As for the family history with vitiligo, the majority of the patients had a positive family history with percentage of 62.72% while patients with negative family history were 37.27%. Next, the study showed that the majority of the patients had a face site of vitiligo with a percentage of 29.85%. On the other hand, the minority of the patients had a lower limb site of vitiligo with a percentage of 18.48%. finally, the age disaggregation showed that the majority of patients aged between 25 to 35 while the minority of the patients aged between 35 to 60 percentages lower than 13%.

Conclusion: most patients suffering from vitiligo had a face site with positive family history. Furthermore, each gender tends to have almost the same frequencies of vitiligo. Finally, the age distribution in the study showed that the majority of the patients are between the ages of 25 and 35. This indicates that the dermatologist should put an emphasis on the above information.

Keywords: Vitiligo Patients, Dermatologist.

الملخص

الخلفية: البهاق ، وهو اضطراب جلدي مزيل للصبغة ، يقدر معدل انتشاره بنسبة 0.5-2 ٪ من السكان في جميع أنحاء العالم. يتميز المرض بالفقدان الانتقائي للخلايا الصباغية مما يؤدي إلى عدم وجود بقع قشرية بيضاء طباشيرية نموذجية. في السنوات الأخيرة ، تم إحراز تقدم كبير في فهمنا للإمراضية للبهاق الذي يصنف الآن بوضوح على أنه أحد أمراض المناعة الذاتية. غالبًا ما يتم تجاهل البهاق باعتباره مشكلة تجميلية ، على الرغم من أن آثاره يمكن أن تكون مدمرة نفسياً ، وغالبًا ما يكون لها عبء كبير على الحياة اليومية. في عام 2011 ، صنف الإجماع الدولي البهاق القطاعي بشكل منفصل عن جميع أشكال البهاق الأخرى ، وتم تعريف مصطلح البهاق للإشارة إلى جميع أشكال عدم وجود البهاق القطاعي. أظهرت دراسات أخرى انتشارًا أكبر قليلاً في الإناث و 50٪ بداية في مرحلة الطفولة ، ولكن توجد استثناءات لهذه القواعد. ارتبط البهاق في مرحلة الطفولة بالأهبة التأتبية ، وحمة الهالة ، والتاريخ العائلي للبهاق والمناعة الذاتية. لقد ارتبط البهاق بعد البلوغ بزيادة الإصابة بأمراض الجلد الحاد وأمراض الغدة الدرقية ، وتدعم البيانات المبكرة تقليل مخاطر الإصابة بسرطان الجلد غير الميلانيني وسرطان الجلد. تلخص هذه المراجعة المعرفة الحالية حول البهاق وتحاول إعطاء لمحة عامة عن المستقبل في علاج البهاق.

الهدف: تحديد وبائيات البهاق.

المرضى والطرق: أجريت دراسة مقطعية مستعرضة في مستشفى بعقوبة التعليمي على 110 مريضاً تتراوح أعمارهم بين 5 سنة الى 60 سنة. تم تشخيص إصابتهم بالبهاق من قبل استشاري أمراض جلدية. طُلب من جميع المرضى المتاحين للباحث في وحدة الأمراض الجلدية. تم الحصول على موافقة شفوية ثم تم ملء استبيان قصير لكل وكان البحث مبني على اسس الاعمار, تاريخ العائلة, الجنس, واخيرا التشخيص.

النتائج: بالنظر إلى نتائج الجنس ، أوضحت الدراسة أن الأرقام كانت متقاربة مع نسبة المرضى الإناث أعلى قليلاً من المرضى الذكور حيث تم إحصاء الإناث لـ 56 مريض والمرضى الذكور 54. أما بالنسبة للتاريخ العائلي للإصابة بالبهاق ، فقد كان لدى غالبية المرضى تاريخ عائلي إيجابي بنسبة 62.72٪ بينما المرضى الذين لديهم تاريخ عائلي سلبي 37.27٪. بعد ذلك أظهرت الدراسة أن غالبية المرضى يعانون من البهاق في الوجه بنسبة 29.85٪. من ناحية أخرى ، فإن أقلية المرضى كانت لديهم منطقة الأطراف السفلية من البهاق و بنسبة 18.48٪. أخيرًا ، أظهر التصنيف

العمري أن غالبية المرضى تتراوح أعمارهم بين 25 و 35 عامًا بينما أقلية المرضى تتراوح أعمارهم بين 35 إلى 60 وهذا يعادل أقل من 13٪.

الخلاصة: معظم المرضى الذين يعانون من البهاق لديهم موقع على الوجه له تاريخ عائلي إيجابي. علاوة على ذلك ، يميل كل جنس إلى أن يكون له نفس ترددات البهاق تقريبًا. أخيرًا ، أظهر التوزيع العمري في الدراسة أن غالبية المرضى تتراوح أعمارهم بين 25 و 35 عامًا. وهذا يشير إلى أن طبيب الأمراض الجلدية يجب أن يركز على المعلومات المذكورة أعلاه.

الكلمات المفتاحية: مرضى البهاق ، طبيب جلدية.

Introduction

Vitiligo is an acquired pigmentary skin disorder by the absence of pigmentary cells from the epidermis that results in white macules and patches on the body.[1] The condition is usually associated with few autoimmune disorders, with thyroid abnormalities are the commonest one. The etiology of vitiligo is unknown but there are different theories to explain its pathogenesis. Vitiligo presents clinically with signs and symptoms of white spots on the body distributed symmetrically and more obvious in people with dark skin. The lesions are characterized by well-demarcated pearly white or depigmented macules and patches, oval, round, or linear-shaped, and the borders are convex, range from the size of few millimeters to centimeters and enlarge centrifugally. There are different clinical variants of vitiligo which are Trichrome, Marginal inflammatory, and Quadrichrome vitiligo. Koebner phenomenon (Development of vitiligo at specific trauma prone sites, like cut, burn, or abrasion) is also a common clinical manifestation. Initial lesions occur most frequently on the hands, forearms, feet, and face, favoring a periocular or perioral distribution.[2][3]

On the basis of the distribution, the pattern Vitiligo is classified into three types, generalized, segmental, and localized. The severity of the disease is scored by the body surface area affected. The course of the disease is often unpredictable and varies in response to the treatment. Depigmentation often the cause of psychological distress, social stigmatization, and low self-esteem.[3]

Etiology

The exact etiology of vitiligo is unknown. It is frequently associated with multiple autoimmune diseases. There are various theories about its pathogenesis and the etiology is multifactorial. It is characterized by incomplete penetrance, genetic heterogeneity, and multiple susceptibility loci. Family and other twin studies have shown that inheritance is complex and also involves both environmental and genetic

factors. Additionally, it is hypothesized that genetic factors can influence the age of onset of vitiligo. The inheritance of vitiligo may also include genes associated with the biosynthesis of melanin, regulation of autoantibodies, and response to oxidative stress.[4]

Recent research studies have not highlighted any associations with any certain HLA type. There is a strong reason to believe that segmental and nonsegmental vitiligo have a unique genetic mechanism, which can account for variable treatment responses.[5]

Epidemiology

Vitiligo is the commonest cause of depigmentation. It can appear at any age from child to adulthood, but peak incidence is reported in the second and third decade. The age of onset usually varies between the sexes. Its prevalence is approximately 0.1% to 2% of people including adults and children worldwide and it affects all races equally.[6]

Classification

In 2011, an international consensus classified SV separately from all other forms of vitiligo, and the term vitiligo was defined to designate all forms of NSV. “Mixed vitiligo” in which SV and NSV coexist in one patient, is classified as a subgroup of NSV. Distinguishing SV from other types of vitiligo was one of the most important decisions of the consensus, primarily because of its prognostic implications.

Type of vitiligo	Subtypes
NSV	Focal[1] Mucosal Acrofacial Generalized Universal Rare variants of vitiligo (leukoderma punctata, hypochromic vitiligo, follicular vitiligo)
SV	Focal[1] Unisegmental Bi- or multisegmental
Mixed (NSV + SV)	Concomitant occurrence of SV and NSV According to severity of SV
Unclassified	Focal at onset, multifocal asymmetrical nonsegmental, mucosal (one site),

[1] Can evolve into segmental (SV) or nonsegmental vitiligo (NSV).

Figure 4: Classification of vitiligo

- **Generalized,** which is the most common type, when macules appear in various places on the body.
- **Segmental**, which is restricted to one side of the body or one area, such as the hands or face.
- **Mucosal,** which affects mucous membranes of the mouth and/or the genitals.
- **Focal,** which is a rare type in which the macules are in a small area and do not spread in a certain pattern within one to two years.
- **Trichome,** which means that there is a white or colorless center, then an area of lighter pigmentation, and then an area of normally colored skin.
- **Universal**, another rare type of vitiligo, and one in which more than 80% of the skin of the body lacks pigment.[7]

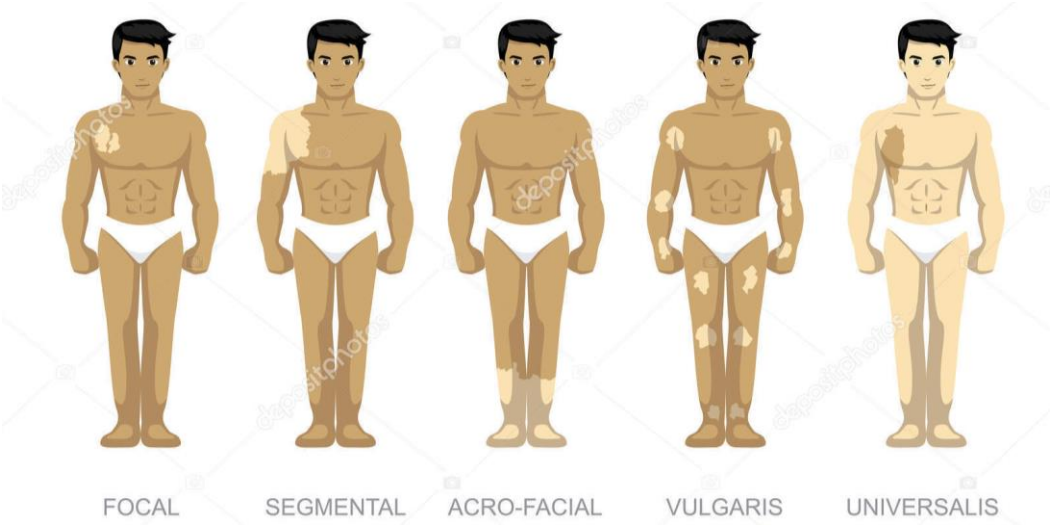

Figure 5: Types of vitiligo

Treatment

Various types of topical and systemic medications, phototherapy, laser therapy, and surgical therapy are used for the treatment of vitiligo. Topical treatment, modalities include corticosteroids, calcineurin inhibitors, and vitamin-D analogs. Phototherapy is an effective treatment option. It induces repigmentation in most of the patients with early and localizes the disease. Narrowband UV-B is widely used, mostly two to three times in a week with 311-312nm wavelength. It has largely replaced the psoralen photochemotherapy because of its toxic side effects. Excimer Laser is used to treating limited, stable patches of vitiligo. In segmental vitiligo which is resistant to most of the treatments, Tacrolimus and systemic corticosteroids can be combined with it.[8] Afamelanotide and JAK inhibitor therapy are emerging treatments. Topical ruxolitinib was also found to be very effective (in 2019 randomized placebo-controlled, double-blind prospective trial)

Surgical treatment options are limited to segmental or localize vitiligo that is limited to a small area. Five basic methods of repigmentation include non-cultured epidermal suspensions, thin dermo-epidermal grafts, suction epidermal graft, punch grafting, and cultured epidermis with melanocytes.[9] The following patients are good candidates for surgical treatment.

- Segmental vitiligo
- Localize vitiligo involving small area
- Vitiligo in areas which usually not re-pigment well (hairline, dorsal fingers, forehead, ankles)
- The lesion must be stable.

Patient and Methods

A cross-sectional study was conducted among patients attending to Baqubah Teaching Hospital; during the period from October 1, 2021 until April 01, 2022. All available patients aged from 5 years to 60 years with at least one vitiligo patch of whatever type diagnosed by consultant dermatologist were approached and oral consent was obtained from them to participate in the study. Additionally, 110 cases were used in this study. A short questionnaire was arranged and filled by the investigator. The questionnaire included data about age, gender, family history, and site of vitiligo.

Statistical analysis:

The collected data was analyzed by using computer, excel and SPSS-24 (Statistical Packages for Social Sciences- version 24). All the variables were analyzed by number, proportion and percentage.

Results

Table 1 shows that out of the 110 patients included in the study 54 were males and 56 were females. The study showed that 49.10% of the patients were males and 50.9% of the patients were females.

Table 1. Sex distribution of the vitiligo patients

Gender	Number of Cases	Percentage
Male	54	49.10%
Female	56	50.90%
Total	110	100%

Table 2 shows that the number of patients with vitiligo with positive family history were 69 and the number of patients with vitiligo with negative family history were 41. The study showed that out of 110 patients, the majority with positive family history were 62.73% while 37.27% were minority with negative family history.

Table 2. Family History distribution of the vitiligo patients

Family History	Number of Cases	Percentage
Positive	69	62.72%
Negative	41	37.27%
Total	110	100%

Table 3 as for the site, the study showed that site on face acquired 63 cases with percentage of 29.85% which is the majority of the patients (out of 110 patients). Site on upper limb was 48 cases with percentage of 22.74%. As for the site on Trunk, 61 cases were recorded with 28.91% percentage. Finally, cases with site on lower limb was minority with 39 cases and a percentage of 18.48%.

Table 3. Site distribution of the vitiligo patients

Site	Number of Cases	Percentage
Face	63	29.85%
upper Limb	48	22.74%
Trunk	61	28.91%
Lower Limb	39	18.48%
Total	211	100%

Table 4 shows the age distribution of the vitiligo patients the majority of the patients were between the ages of 5 to 35 with percentages of 67.25%. the patients of age between 35 to 45 were 11 with percentage of 10 percent. This was similar to the patients with age between 55 to 60. Finally, patients with age between 45 to 55 were 14 with percentage of 12.72%.

Table 4. Age distribution of the vitiligo patients

Age	Number of Cases	Percentage
5~15	24	21.81%
16~25	24	21.81%
26~35	26	23.63%
36~45	11	10.00%
46~55	14	12.72%
56~60	11	10.00%
Total	110	100%

Discussion

The study here showed that vitiligo affects both genders equally as from 110 patients, 54 males have vitiligo, and 56 females have vitiligo. The percentages were too close as compared to other studies in this regard, for example, across India a study showed that the same results with an equal frequency among male and female patients [10,11]. It's important to mention that the study showed a very slight difference between the number of male and female with the female patients are slightly more [10,12,13]. This is because of the social stigma and martial concerns that prompt the women to seek early consultations. [13] showed that vitiligo affected 0.43% of the dermatology outpatients of both genders which is similar to the pattern obtained in his study (see table 1).

As for the family history, this study showed that the majority of the patients have a positive family history with a percentage of 62.27% while the minority of the patients have a negative family history with a percentage of 37.27%. On the other hand, other sources said that there was a family history of vitiligo in 13.7% of the patients (with first-degree relatives in 35 patients). Vitiligo has a polygenic or autosomal dominant inheritance pattern with incomplete penetrance and variable

expression [14,15,16]. It's important to mention that positive family history is considered to be a poor prognostic factor for vitiligo.

Regarding the site of vitiligo, the study indicated that most of the patients have vitiligo on the face site with 63 patients out of 110. Secondly, 61 patients showed vitiligo on the trunk site. Then, 48 patients showed vitiligo on the upper limb site. Finally, the minority of the patients have vitiligo on the lower limb. When comparing the study results with other research, it was obvious that the same results were obtained. For example, other studies conducted in Brazil [17,18] indicated that most of the cases were affected on the face site with a percentage of 27.4% which is in line with the current study [19,20].

Finally, the study examined the age of the patients with vitiligo. It was clear that most of the cases were aged between 5 to 35 years old with the highest percentage (23.63%) of people between ages 25 to 35. This was in line with other authors from India who indicated that the highest cases of vitiligo were recorded among patients with ages 25 to 35 [21,22,23].

Conclusion

In conclusion, the study represented an overall view of the vitiligo patients with disaggregation that is based on the site of vitiligo, the family history, the gender of the patients, and age spectrum of patients. It was obtained that majority of the patients suffers from vitiligo on face site with another majority of patients having a positive family history of vitiligo cases. Additionally, it was clear that the vitiligo frequencies among males and females are equal, but as for the age, high numbers were recorded among patients between the ages of 25 to 35. It's also important to mention that a minority of the patients have vitiligo on their lower limbs. This should carry a message to a dermatologist to put more emphasis on the psychological problems as part of their future management plan.

Recommendations

Patients with vitiligo often experience stigmatization, isolation, and low self-esteem. Although there is no cure for the disease, the available treatments may halt the progression of the disease and induce varying degrees of repigmentation, with acceptable cosmetic results in many cases. Therapeutic regimens used to treat vitiligo include psoralens and ultraviolet A light (PUVA), topical corticosteroids, fluorouracil locally applied with skin abrasion, a variety of surgical techniques to transplant autologous melanocytes from pigmented skin to no pigmenting areas, a new photochemotherapeutic regimen, Therefore, we recommend maintaining a stable psychological state for vitiligo patients by trying all advanced and modern treatment methods.

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