

The Prevalence of Thyroid Disorders in Patients with Melasma

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الخلاصة:

المقدمة:

الكلف هو اضطراب فرط التصبغ المكتسب الذي يعرف بأنه بقع باللون البني الفاتح الى الغامق موزعة بشكل متناظر في أجزاء الجسم المعرضة للشمس وخاصة الوجه. أحد العوامل المتورطة في حدوث الكلف هو الخلل في الغدة الدرقية وأمراض المناعة الذاتية للغدة الدرقية. والهدف من هذه الدراسة هو الكشف عن مدى انتشار اعتلال الغدة الدرقية في المرضى العراقيين المصابين بالكلف وتأثيره على حدوث تغيرات بالقلب والأوعية الدموية، وللكشف عن العلاقة بين اضطرابات الغدة الدرقية بسبب المناعة الذاتية مع الكلف.

الطرق والمواد:

تصميم هذه الدراسة هو دراسة الحالات والشواهد والتي شملت 122 شخصا (82 مريضا الكلف و 40 مجموعة المراقبة) حيث ان اثنين وثمانون من المرضى (8 ذكور و 74 إناث) تم تشخيصهم سريريا أنهم مصابين بالكلف و تتراوح أعمارهم بين 15-45 سنة وكان معدل اعمارهم يتراوح حوالي 32.05 ± 8.51 وأدرجت سنوات) في الدراسة ، وشملت أربعين من المتطوعين الأصحاء من مجموعة الشواهد في الدراسة و الذين تتراوح أعمارهم بين 15-45 سنة و بمعدل 31.6 ± 8.35 سنة). كما تم تصنيف الذكور والإناث إلى ثلاث فئات عمرية لكل فئة تضمن ، خمسة عشر عاما للفئة لتكون مناسبة لتصنيف. تم قياس اختبارات وظيفه الغدة الدرقية ، والأجسام المضادة لبروتينات الغده الدرقية ، و انزيم البيروكسيداز الغدة الدرقية) للجميع.

النتائج:

الكلف وامراض الغدة الدرقية ذات المناعة الذاتية شائعة عند النساء اكثر من الرجال. ليس هناك اختلاف هام في (نبض القلب و ضغط الدم الانقباضي والانبساطي و معدل ضغط الدم و ضغط النبض والنتائج المزدوج) بين مرضى الكلف والشواهد. في مجموعة مرضى الكلف كان الهرمون المحفز للغدة الدرقية والأجسام المضادة لبروتينات الغده الدرقية ، و انزيم البيروكسيداز الغدة الدرقية اعلى بصورة ملحوظة من مجموعة الشواهد بينما ليس هنالك فرق ملحوظ بنتائج هرموني الغدة الدرقية (ثلاثي يودو ثايرونين و ثايرونين).
الاستنتاج: من هذه الدراسة، فإنه يمكن استنتاج أن هناك ارتباط كبير بين الكلف و اضطرابات الغدة الدرقية ذات المناعة الذاتية كان، معظمهم من الإناث.

Abstract

Background: Melasma is an acquired hyper pigmentation disorder recognized by blotchy, light-to-dark brown color macules distributed symmetrically in the sun-exposed parts in the body especially the face due to multiple causing factors including hormonal imbalance.

Aim of study: To detect the prevalence of thyroid disorders in iraqi patients with melasma and its effect on cardiovascular variables, and to detect the relationship between autoimmune thyroid disorders with melasma.

Materials and methods :The design of the study is a case control study which included 122 subjects (82 melasma patients and 40 control group) where eighty two consenting patients (8 male and 74 female) clinically diagnosed to have melasma and aged 15-45 years (32.05 ± 8.51 years) were included in the study, and forty healthy volunteer of controls group are included in the study aged 15-45 years (31.6 ± 8.35 years). The males and females were classified into three age groups for each one, fifteen years interval was considered to be suitable for classifying subjects. Patients were investigated for levels of (T3,T4,TSH,TgAb,and TPO).

Results: Melasma were more common in females than males. Also thyroid autoimmunity were more common in females than males. There was no significant difference in (heart rate, blood pressure, mean blood pressure, pulse pressure, and double product) between patients of melasma and control groups. The melasma group value of TSH is significantly higher than that of control group and also the melasma group value of both TgAb, and TPO are significantly higher than that of control group. While no significant difference in T3 and T4.

Conclusion: There were considerable association between melasma and autoimmune thyroid disorders, mostly in females.

Introduction

Melasma is a symmetrical progressive hyper pigmentary disorder of the human skin particularly the face that happens in all races. Clinically, melasma can be classified into centrofacial, malar and mandibular, according to the distribution of melanin pigment in the skin. When the examination of melasma done by Wood's light, melasma can be categorized into epidermal, dermal or mixed types(1). The occurrence of melasma is due to an increased melanogenesis in the melanocytes of the skin. Light microscopic findings of melasma include increased deposit of melanin in the epidermis and dermis or both when compared with adjacent normal skin and mild perivascular lymphohistiocytic infiltrates(2). It is reported mainly in Fitzpatrick skin types IV-VI, (3,4).

Melasma also called chloasma and "the mask of pregnancy," is a wide spread, chronic cutaneous discoloration typically affecting females of childbearing age. Chloasma is derived from the Greek word meaning "to be green"; melasma comes from the Greek word meaning "to be black." Given the actual color of the dyschromia, melasma is the preferred term. Melasma typically presents most often on the upper lip, cheeks, nose, forehead, chin, and, occasionally, on the neck. (5). It is much rare before puberty. In Iraq melasma is

presented as a frequent dermatological disorder as it was seen in 26.6% of women in Iraq (6). It is more common in females (90%) especially with darker complexions and those living in areas of intense ultraviolet radiation. The condition usually develops slowly and symmetrically, lasting for years, worsening in summers and improving in winters (7). The exact cause of melasma is unidentified. The multiple contributing factors such as genetic influences, ultraviolet exposure, oral contraceptive pills, pregnancy, estrogen-progesterone treatment, thyroid disorders, photosensitizing, cosmetic, and anti seizure drugs (8)

Material & Methods

This is a case-control study which included 122 subjects (82 melasma patients and 40 control group) who attended different medical centers including the department of dermatology and venerology of Al-Sadr Medical City in AL-Najaf city and the department of dermatology and venerology of Al-Dewaniya Teaching Hospital in Al-Dewaniya city from November of 2013 to November of 2014. Well informed consents were acquired from each one of participants. The functional or applicative division of this study was done in the Laboratory of Aldiwaniya teaching hospital. Eighty two consenting patients (8 male and 74 female) clinically diagnosed to have sever melasma (with MASI score 33-48)

and aged 15-45 years(32.05±8.51 years) were included in the study. In this study every participant had a uniform case sheet was assigned by him and which includes: name and age of the patients, gender, address ,occupation, marital status, number of pregnancies for married female patients, disease duration, family history of melasma and thyroid disease , any thyroid gland enlargement or disorder and its' duration if presented, any aggravating or relieving factors for melasma example: cosmetics, drug history of contraceptive hormonal medication intake and any treatment for thyroid disorders. Patient's area and extent of involvement of melasma were also noted. For each participant(heart rate, systolic blood pressure , diastolic blood pressure, mean blood pressure,

pulse pressure, and double product) were recorded. Also the results of laboratory investigations (T3, T4,TSH,TgAb,TPO) were recorded. The data analyzed (according to SPSS version 18). Independent sample t-test was used to compare means and to find out the significance of difference. A *p* value <0.05 was considered significant. A *p* value <0.001 was considered highly significant.

Results

Melasma and thyroid disorders were more common in both age groups 25-34 and 35-45 years . In this study melasma were more common in females than males . Also thyroid autoimmunity were more common in females than males. (see table: 1)

Table (1): Age and Gender Distribution of Melasma Patients and Their Relation With Thyroid Disorders Distribution.

Age group	Total melasma patients	Gender	Total	Thyroid Autoimmunity	Other Thyroid Disorders	Normal Thyroid
15-24 years	16(19.5%)	F	16(19.5%)	0(0%)	0(0%)	16(19.5%)
		M	0(0%)	0(0%)	0(0%)	0(0%)
25-34 years	32(39%)	F	26(31.7%)	26(31.7%)	0(0%)	0(0%)
		M	6(7.3%)	2(2.4%)	0(0%)	4(4.8%)
35-45 years	34(41.5%)	F	32(39%)	12(14.6%)	3(3.6%)	17(20.7%)
		M	2(2.4%)	0(0%)	1(1.2%)	1(1.2%)
Total	82(100%)	F	74(90.2%)	38(46.3%)	3(3.6%)	33(40.2%)
		M	8(9.8%)	2(2.4%)	1(1.2%)	5(6%)

There was no significant difference in (heart rate, blood pressure, mean blood pressure, pulse pressure, and double

product) between patients of melasma and control groups. See (table: 2).

Table (2): Heart Rate (HR), Systolic Blood Pressure (SBP), Diastolic Blood pressure (DBP), Mean Blood pressure (MBP), Pulse Pressure (PP) and Double Product (DP) values of melasma patients group in comparison with control group.

Parameters	Melasma	control	P. value	
HR	77±1.414	77±4.242	1.00	N.S.
SBP	135±21.213	125±7.071	0.592	N.S.
DBP	90±14.142	85±7.071	0.698	N.S.
MBP	105±16.499	98±7.071	0.652	N.S.
PP	45±7.071	40±0	0.423	N.S.
DP	10380±1442.497	9640±1074.802	0.620	N.S.

N.S.= not significant

Values as(M±SD)

The melasma group value of TSH is significantly higher than that of control group (p-value less than 0.05) and also the melasma group value of both TgAb, and TPO are significantly higher than that of control group [highly significant(p-value less than 0.001)]. While no significant difference in T3 and T4 (p-value more than 0.05) as shown in(table: 3).

Table (3) : Triiodothyronine (T3), Thyroxine (T4), Thyroid Stimulating Hormone (TSH), Antithyroglobulin Antibodies (ATA), and Thyroid Peroxidase antibodies(TPO) concentrations in serum of melasma patients group in comparison with control group

Parameters	Group		P. value
	Melasma	Control	
T3(n.Mol/L)	1.76±0.17	1.73±0.26	0.385
T4(n.Mol/L)	87.16±8.29	89.5±10.4	0.182
TSH(u/L)	3.09±1.42	2.41±1.29	0.012*
TgAb (U/ml)	31.3±42.18	11.65±2.15	0.004**
TPO(u/L)	42.23±82.68	7.61±4.79	0.009**

Values as(M±SD)

* = Statistically significant difference between groups (P<0.05),

**=

Statistically highly significant difference between groups (P<0.001).

Discussion

Exact link between hormones and melasma remain unclear (3). Gross clinical presentation of the imbalance thyroid hormone (TH) were frequently first seen in the skin somewhere thyroid hormone plays an important role in sustaining natural function. Thus, the skin presented significant external markers related with thyroid disorders that could signal dermatologists to examine, verify and diagnose thyroid diseases (9).

In this study 90.2% of melasma patients were females (74 of 82 patients) and 9.8% were males (8 of 82 patients). Also thyroid autoimmunity more in females (51.4%) than in males 25% as shown in table (1). This result agree with (10,11,12). The exact cause of melasma is unidentified (8) but this may be due to the fact that progesterone or estrogen, or both may be the triggering factors in the melasma development in female who

had a certain tendency toward both melasma and thyroid autoimmunity.

In this study there was no significant difference in (heart rate, blood pressure, mean blood pressure, pulse pressure, and double product) between patients of melasma and control groups. There is no compatible study with our result. Each one of hypothyroidism and hyperthyroidism produce changes in cardiac contractility, cardiac output, blood pressure, and myocardial oxygen consumption. (13,14).

Also in this study patients with melasma had an incidence of thyroid disorders [n=44 (53.65%)] 5 times greater than the age-matched control patients (10%). The result of this study agree with (3,15). Also 48.78% of patients with melasma had an incidence of thyroid autoimmunity. This result agree with study by (16).

Conclusion

From the present study, it can be concluded that there were considerable associations between melasma and autoimmune thyroid disorders, mostly females. There were no significant differences in values of (heart rate, systolic and diastolic blood pressure, mean blood pressure, pulse pressure, and double product) between melasma patients and control group.

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