Leg alopecia in Patients with Coronary Heart Diseases in comparison with Healthy Control in Adult Males

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Abstract

Background: Coronary artery diseases are associated with varieties of dermatological conditions like psoriasis, lichen planus, androgenic alopecia, premature graying of hair, thoracic hairiness, diagonal earlobe crease and others.

Objective: To determine the association of leg alopecia with coronary heart diseases in adult males' patients.

Patients and methods: One-hundred forty male patients were included in this case-control study which conducted in Baghdad and Al-Yarmouk Teaching Hospitals for the period from May 2009 through August 2010. The study sample was divided into two groups of patients. Each group included 70 male patients who are above 40 years. The first group (Group A) included patients with history of coronary heart diseases. The second group (Group B) included apparently healthy male persons as a healthy control. During interrogation with each individual a detailed history and physical examination were done. Patients were classified according to degree of hairiness of their legs into those with: - absent hair, diffuse hair loss leaving few scattered hair, partial hair loss where the loss was not uniform and sometimes patchy, and lastly leg with normal hairs.

Results: The hair loss of legs was as follow: Group A: 75.71%, Group B: 44.28% and there was a statistical difference between two groups (p value= 0.0002). When the different age groups compared together, it was observed that leg hair loss increased with age in both Group A and B but in patients with coronary heart diseases hair loss was more and started at earlier age than healthy persons. Patients with coronary heart diseases who had hair loss from their legs tended to have weaker or even absent peripheral arterial pulses in comparison with patients in healthy control group (p value=0.0002). Hair follicles without hair shaft were more commonly and easily seen in the area of leg alopecia among healthy control while decreased or absent in the diseased group (p value=0.0008), while the broken hairs were more in healthy control than patients with coronary heart disease (p value=0.0008).

Conclusion: Alopecia of legs was a statistically significant common problem among adult males with coronary heart disease patients. Also, leg alopecia started at earlier age in patients with coronary heart disease than healthy persons

Keywords: leg alopecia, coronary heart diseases, adult male.

Introduction

Leg alopecia is frequent dermatological problem in adult male population where various conditions might be brought in the differential diagnosis including alopecia areata, frictional hair loss [1], traumatic hair loss, and follicular mucinosis. Coronary artery diseases are associated with varieties of dermatological conditions like psoriasis [2,3], lichen planus [4-6], androgenic alopecia [7], premature graying of hair [8] thoracic hairiness [9], and diagonal earlobe crease [9] and others.

So, the aim of the present study was to determine the association of leg alopecia with coronary heart diseases in adult males' patients.

Patients and Methods:

This case-controlled study was conducted in Baghdad and Al-Yarmouk Teaching Hospitals during the period from May 2009 through August 2010. The study sample included two groups of persons taken from surgery, medicine, and dermatology departments in these hospitals. Each group included 70 males who are above 40 years. The first group (Group A) included patients with already diagnosed angina, myocardial infarction or history of coronary heart diseases, their ages ranged from 42 to 80 years with a mean± SD of 57.185 ± 10.828 years. The second group (Group B) included healthy persons as control group, their ages ranged from 40 to 76 years with a mean± SD of 55.271 ± 9.963 years.

During interrogation with each individual, a detailed history was taken regarding the followings: age, smoking, history of diabetes mellitus, hypertension, and coronary heart diseases, type of dressings and clothes, and family history of diabetes mellitus, hypertension, and coronary heart disease.

For each individual, blood pressure was taken and careful examination of legs for distribution of hair, texture and type of hair, any hair loss, site of hair loss, presence of hair follicles and broken hair. In addition, examination of peripheral arterial pulsations was performed.

To clarify important point regarding the type of hair pattern, each individual in all groups was asked about distribution of hair and any changes in hair pattern or hair loss from legs. Only those who had complete hair pattern previously were enrolled in this study.

Individuals were classified according to degree of hair loss from their legs into those with:-

Absent hair.

Diffuse hair loss from legs leaving few scattered hair.

Partial hair loss where the loss is not uniform and sometimes patchy.

Leg with normal hairs.

Statistical analysis were done using EPI-info version 6 by estimation of both descriptive and analytic statistics. P value equal or less than 0.05 was considered as significant.

Formal consent was taken from each patient after full explanation about the goal and nature of the present study. Also, ethical approval was performed by the Scientific Council of Dermatology and Venereology-Iraqi Board for Medical Specializations.

For the determination of the statistical significant among different variables, descriptive statistics (like mean and standard deviation) were used together with analytic statistics like chi-square, using EPI version 6.

Results

Table (1) shows numbers and percentages of patients according to degree of hair loss from their legs. Total number of patients with hair loss (Leg alopecia) in group A is more than group B and statistical difference between those who had normal hair and who had hair loss from their legs(Leg alopecia) was highly significant (p value=0.0002). For patients in Group A; 53 (75.71%) patients had leg alopecia, 2 (2.85%) of them had absent of hair, 24 (34.28%) had diffuse hair loss, and 27(38.57%) had partial hair loss. Regarding Group B; 31 (44.28%) patients had leg alopecia, 2 (2.85%) of them had absent of hair, 9 (12.85%) had diffuse hair loss, and 20(28.57%) had partial hair loss.

Table (1): The frequency distribution of the Group A and B by their leg hair loss.

Hair of legs		Group A		Group B		
		No	%	No	%	P value
Hair loss of legs	Absent hair	2	2.85	2	2.85	
	Diffuse hair loss	24	34.28	9	12.85	
	Partial hair loss	27	38.57	20	28.57	
	Total number of persons with hair loss	53	75.71	31	44.28	0.0002
number of persons with Normal hair		17	24.28	39	55.71	
Total		70	100	70	100	

Hair loss of legs according to age groups is shown in table (2). It was observed that leg hair loss increased with age in both group A and B but in patients with coronary heart diseases hair loss was more marked and started at earlier age than healthy persons. It was found that in age group 40-50 years for example, the hair loss was present in 14 (60.86%) in group A compared with 8 (27.58%) in group B and statistical difference between two groups was significant (p value=0.015).

Table (2): Hair loss of legs according to age of the Group A and B.

	Hair of Legs	AGE								P value
		40-50		51-60		61-70		>71		
		No	%	No	%	No	%	No	%	
Group -A	Patients with hair loss	14	60.86	19	76	11	91.66	9	90	0.13
	Persons with normal hair	9	39.13	6	24	1	8.33	1	10	
Group -B	Persons with hair loss	8	27.58	11	45.83	7	70	5	71.42	0.04
	Persons with Normal hair	21	72.41	13	54.16	3	30	2	28.57	
P-value		0.015		0.03		0.18		0.32		

The present work showed that in persons with leg alopecia, peripheral arterial pulses was more weak or absent in group A 40(75.47%) than in group B 11(39.62%) and statistical difference between two groups was significant (p value=0.0002).

It was also observed that in persons with leg alopecia, the presence of hair follicles in the area of alopecia was more in group B 24(77.41%) than group A 21(39.62%) and statistical difference was significant (p value=0.0008).

The study also showed in persons with leg alopecia, the number of broken hairs was found in 25(47.16%) of patients in group A while present in 26(83.87%) of patients in group B and statistical difference between two groups was significant (p value=0.0008).

Discussion:

This study to the best of our knowledge was the first study carried out in the field of leg alopecia.

The present work showed that the alopecia of legs was common problem among adult males with coronary heart disease (75.71%), while present in (44.28%) of healthy control and there was a statistical difference between patients and healthy controls (p value 0.0002). This difference could not be well explained but most probably related to the

reduced blood supply of hairy skin in patients with coronary heart diseases (11).

It was observed that leg hair loss increase with age in both group A (coronary heart diseases) and group B (healthy control) but in patients with coronary heart diseases hair loss was more marked and started at earlier age than healthy persons. It was found that in age group 40-50 years for example, the hair loss was present in (60.86%) in group A compared with (27.58%) in group B and statistical difference between two groups was significant (p value=0.015).

The present work showed that in persons with leg alopecia, peripheral arterial pulses was more weak or absent in Patients with coronary heart diseases (75.74%) than in healthy control (35.48%) and statistical difference between two groups was significant (p value=0.0002). This can be explained by the effect of atherosclerosis and microangiopathy that can interfered the blood supply of hair follicles.

It was also noticed that in persons with leg alopecia, the presence of hair follicles in the area of alopecia was more in healthy control (77.41%) than Patients with coronary heart diseases (39.62%) and statistical difference was significant (p value=0.0008). Accordingly the presence of hair follicles in the area of alopecia is more in favor of frictional hair loss.

The study also showed in persons with leg alopecia, the number of broken hairs was found in (47.16%) of patients in Patients with coronary heart diseases while present in (83.87%) in healthy control (p value=0.0008). This indicates that broken hairs were more in healthy control than in patients with coronary heart diseases. This could be due to the fact that broken hair is caused by trauma and friction and thus associated more with the frictional hair loss.

These results indicated Patients with coronary heart diseases had hair loss from their legs which can occur at earlier age than normal persons with more diffuse loss and sparse hairs and had weak or absent peripheral arterial pulses, decrease in the hair follicles, and little or no broken hairs. This is in comparison with a frictional hair loss which is patchy (localized) hair loss affects males of middle age. Most cases were healthy and there were no important medical or dermatological associations. The most common areas were the lower limbs and abdomen. It was found to be due to continuous pressure from socks, trousers and bed. (1) They are associated with broken hairs and normal hair follicles at the sites of loss.

In conclusion, alopecia of legs was a statistically significant common problem among adult males with coronary heart disease patients. Also leg alopecia started at earlier age in patients with coronary heart disease than healthy persons.

This was attributed to ischemia of skin containing hair follicles while in healthy control the loss was mainly due to friction.

The presence of hair follicles or broken hair in the area of alopecia were more in favor of frictional hair loss

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