

Research Article

Premature Hair Greying and Diabetes Mellitus



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Abstract

Background: Hair greying is a natural age-related process. It is considered as a cosmetic, not a medical, condition. However, as the chances of developing a disease increase with age, many studies have postulated that hair greying could be a predictor of some aging diseases such as diabetes mellitus. **Aim:** The present study aims to reveal onset, pattern of hair greying and its correlation to diabetes mellitus among individuals with various age groups and of both sex in Minia governorate. **Patients and methods:** The present study was conducted on 5000 individuals answered a questionnaire **Results:** 11.9% of premature hair greying cases were suffering from diabetes mellitus either type 1 or type 2 and were receiving a regular daily treatment (before and during onset of hair greying) either insulin for type 1 DM and/or oral hypoglycemic for type 2 DM **Conclusion:** premature hair greying can be considered an alarming factor for DM and others systemic diseases.

Keywords: hair, greying, diabetes

Introduction

Premature hair greying is hair greying at early age. It is associated with family history premature greying of hair, obesity and smoking. The National Cholesterol Education Program's Adult Treatment Panel report viewed coronary artery disease as the primary outcome of metabolic syndrome, such as diabetes mellitus, obesity, hyperlipidemia and hypertension. Metabolic syndrome could induce precocious ageing. However, an association between metabolic syndrome and premature hair greying has seldom been studied⁽¹⁾.

Hair color can be affected by metabolic diseases such as phenylketonuria iron-deficient anemia and oculocutaneous albinism. Premature greying of the hair was thought to be a coronary risk factor in

peoples under the age of fifty years but not related to diabetes⁽²⁾.

Aim of the present work was to evaluate the relation between DM and hair greying

Patients and Methods

The present study was conducted on 5000 individuals recruited from Dermatology outpatient clinic in Minia governorate from Minia University hospital, Minia Leprosy hospital and Minia Dermatology hospital to make sure that different social and educational classes of participants are included. Participants are of both sexes.

A written informed consent (after approval of ethical committee of faculty of medicine) was obtained from all participants approval number 201/2/2021 and approval date 15 February 2021.

All participants were answered for a pre designed questionnaire

Statistics

Statistical analysis was performed using the SPSS statistical software, version 20.0 (SPSS Inc., Chicago, IL). Statistical significance was determined as p-value <0.05. Significant: P value<0.05. Not significant: P value>0.05.

Results

Range of age of cases was from 12 to 70 years with mean \pm SD 45.51 \pm 11.27 years with female predominance (68.56%), while males were presented in 31.44 % of participants.

In males hair greying appeared at mean age \pm SD 33.17 \pm 10.76 years. In females, hair greying started at mean age \pm SD 34.98 \pm 9.46 years.

597(11.9 %) of cases were diabetic (receiving a regular daily treatment, before and during the onset of hair greying either insulin for type 1 DM and/or oral hypoglycemic for type 2 DM) with earlier

onset of hair greying in 49.9 % of cases. Age of onset of hair greying in diabetic cases was with a range from 12– 57 years with a mean age \pm SD 33.78 \pm 9.92 years. While, 4403 (88.1 %) of cases were non diabetics with age of onset of hair greying was from 18 – 56 years with a mean age \pm SD 39.02 \pm 8.65 years. Hair greying was significantly started earlier in diabetic patients in comparison to non-diabetic patients ($p<0.001^*$) (fig 1).

In diabetic patients, premature hair draying started at temporal and frontal areas.

Diabetes mellitus type 1 was presented in 197 cases (32.9 %) with age of onset of hair greying was from 2- 30 years with a mean age \pm SD15.6 \pm 8.3 years. Diabetes mellitus type 2 was presented in 400 (67.1%) of cases. Range of age of onset of hair greying was from 19- 44 years with a mean age \pm SD 31.3 \pm 6.4years. Hair greying was significantly starting earlier in diabetic patients type 1 comparison to diabetic patients type 2 ($p<0.001^*$) (table 2, fig 2).

Table 1: Relation between hair greying and diabetes mellitus

	Do you have diabetes mellitus				P
	Yes (n = 597)		No (n = 4403)		
	No.	%	No.	%	
At which part of head hair greying started					
Frontal	299	50.1	2398	54.5	$\chi^2=45.141^*$ <0.001*
Temporal	298	49.9	1773	40.3	
Vertical	0	0.0	66	1.5	
Occipital	0	0.0	166	3.8	
At which age hair greying started					
Min. – Max.	12.0 – 57.0		18.0 – 56.0		t=13.622* <0.001*
Mean \pm SD.	33.78 \pm 9.92		39.02 \pm 8.65		
Median	35.0		40.0		

χ^2 : Chi square test t: Student t-test

p: p value for comparison between the studied categories *: Statistically significant at p \leq 0.05

Table 2: hair greying according to type of diabetes

	Type of diabetes mellitus		P
	Type I (n = 197)	Type II (n =400)	
At which age hair greying started			
Min. – Max.	2.0 – 30.0	19.0 – 44.0	t=23.022* <0.001*
Mean ± SD.	15.6 ± 8.3	31.3 ± 6.4	
Median	16.0	32.0	

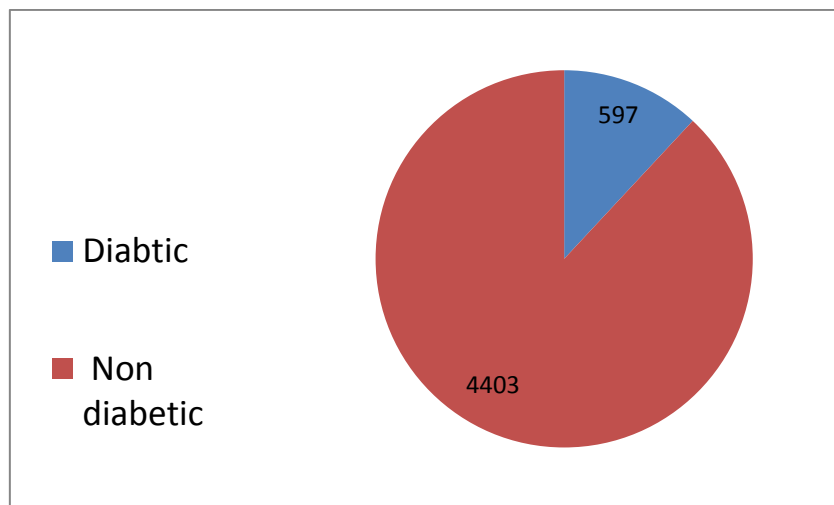


Fig. 1: Diabetic and non diabetic cases

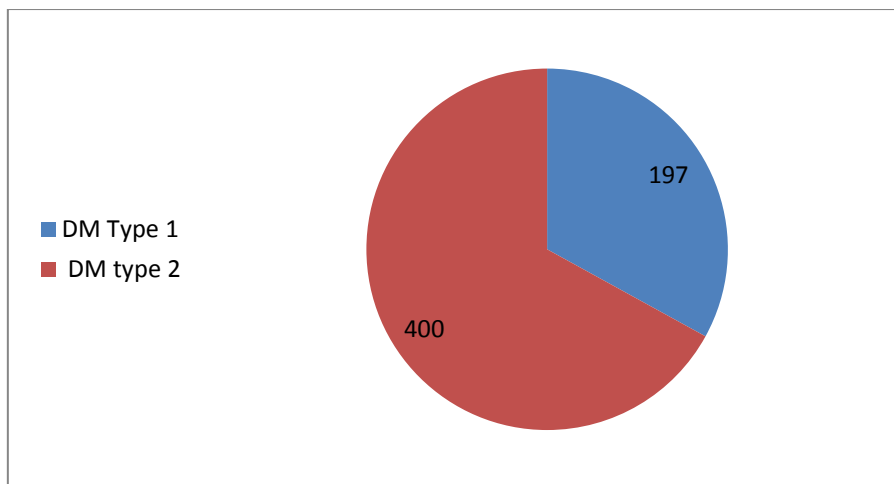


Fig. 2: Type of diabetes mellitus

Discussion

In the present study, 11.9% of cases had diabetes mellitus with a significant earlier age onset in comparison to non-diabetic patients. Premature hair greying occurs significant earlier in diabetic patients (type 1) than diabetic patients (type 2).

Our results goes with Wollina⁽³⁾ as they observed early and higher frequency of diabetes in greying males aged with dark eyebrows compared to those with greying of the eyebrows.

Genetic, oxidative free radicals, nutrition and environment play roles in the etiopathogenesis of hair greying^(4,5). Aging and chronic systemic diseases may be a cause of hair greying by increasing oxidative free radicals⁽⁶⁾.

In the other way, many reports showed that premature hair greying is a predictor of severe systemic diseases⁽⁷⁾.

Acer et al.,⁽⁸⁾ observed that half of participants with hair greying of them had at least a history of one chronic disease. There an association between hair greying and hypertension, diabetes mellitus, hypercholesterolemia, thyroid diseases, cardiovascular diseases, lung diseases, dyslipidemia and cancer respectively.

Also, ElFaramawy et al.,⁽⁹⁾ noted that high incidence of hair greying was associated with high risk of coronary heart diseases independent of chronological age.

Additional evidence comes from Kocaman et al.,⁽¹⁰⁾. They noted that hair greying, as a sign of human aging, was higher in coronary heart disease patients with diabetes.

On the other hand, there is no significant association between hair greying and diabetes or hypertension^(11,12).

In conclusion;

there is an association between premature hair greying and diabetes mellitus. Premature hair greying should be considered as an alarming sign for early

onset of diabetes mellitus and other concomitant diseases as hypertension and coronary heart disease.

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