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STUDY FOR GENETIC RELATION BETWEEN THE ATTACHED EAR LOBES AND HAIRY EARS IN A SELECTIVE IRAQI SAMPLE

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Abstract- In most people the ear lobes hang free (unattached). This is the dominant trait (E). the attached earlobe is recessive (e). In this study a selective Iraqi sample (66) were examined for attached or free ear lobe, hairy ear and short fingers. The results showed a very strong relation between attached ear lobe and the other two characters, P value equals 0.00 in both. Also the relation between hairy ear and short fingers characters was very strong, P value equals 0.00. Experimental work showed that all men who have attached ear lobe and hairy ear have translocation in chromosome number 22.

Keywords- ear lobes, hang free, unattached lobe, attached earlobe, hairy ear, short fingers

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Introduction

Some people have earlobes that curve up between the lowest point of the earlobe and the point where the ear joins the head; these are known as "free" or "unattached" earlobes. Other people have earlobes that blend in with the side of the head, known as "attached" or "adherent" earlobes [1].

Attached and free earlobes are often used to illustrate basic genetics. The myth is that earlobes can be divided into two clear categories, free and attached, and that a single gene controls the trait, with the allele for free earlobes being dominant. Neither part of the myth is true [1,2] and there are many factors which influence ear lobe length for adult such as sex and age [3].

Classroom exercises on earlobe genetics say that there are two distinct categories, free (E) and attached (e). However, many of the papers on earlobe genetics have pointed out that there are many people with intermediate earlobes [4,5]. El Kollali [6] classified earlobes into three types, based on whether the attachment angle was acute, right, or obtuse.

In the present study, as in prior investigations, the men with phenotype attached earlobes and hairy ear have a genotype (karyotype of chromosomes) with translocation in the chromosome number 22, this result didn`t have been previously reported.

Methods

A sample of (66) Iraq individuals were examined for attached or free ear lobe. Pedigree data were obtained by questionnaire, findings are summarized in [Table-1].

Table 1- Numbers of females and males subjected

Samples	Females	Males
Unattached ear lobe (EE, Ee)	31	18
Attached ear lobe (ee)	9	8
One parents unattached ear lobe	5	5
Attached & hairy ear	0	5
Attached & short fingers	2	3

Cytogenetic Analysis

The chromosomal preparation of human blood lymphocytes was done according to Shubber, et al [7] and Allen, et al [8].

Statistical Analysis

The statistical analysis of the results was done using SPSS software version 16 by application of Chi square test to find the relation.

Results

In order to statistically assess the strength of the relation between the character of attached ear lobe with the other studied characters (hairy ear & short fingers), the sample was subjected to Chi square test, results showed a very strong relation between attached ear lobe and the other two characters, P value equals 0.00 in both.

The relation between hairy ear and short fingers characters was also assessed using this test, results also showed a very strong relation between these characters, P value equals 0.00.

[Fig-1] demonstrates the gender distribution between free and attached ear lobe.

[Fig-2] shows the family history distribution in between the free and the attached ear lobe (with family history).

[Fig-3] indicate the distribution between the hairy ear and short fingers (all short fingers had attached ear lobe).

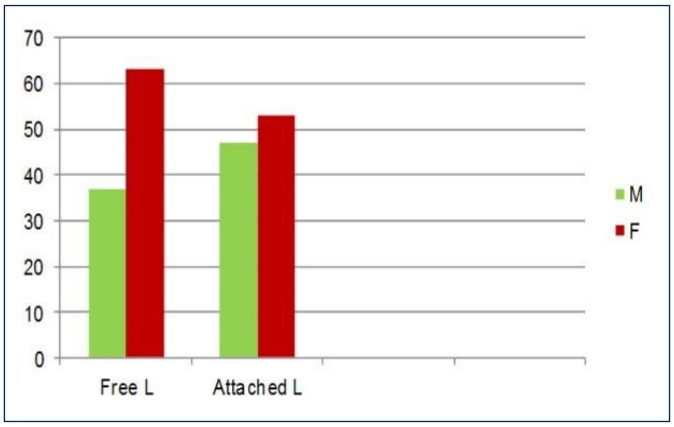

Fig. 1- Gender distribution

Free 18 (36.7%) Males & 31 (63.3%) Females.

Attached 8 (47.1%) Males & 9 (52.9) Females.

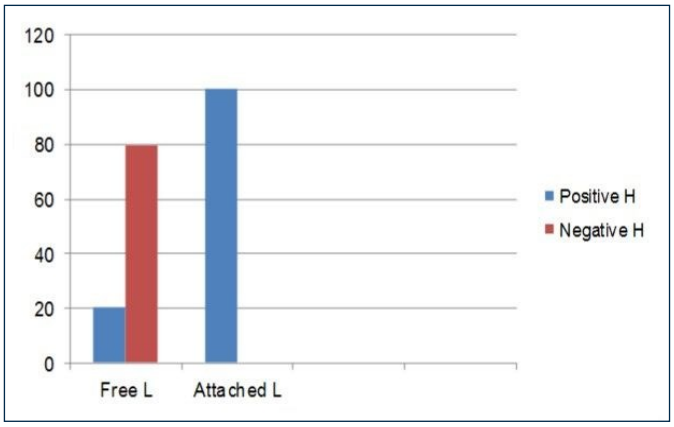

Fig. 2- Family History (Hx)

Free 39 (79.6%) - & 10 (20.4%) +.

Attached 17 (100%) +.

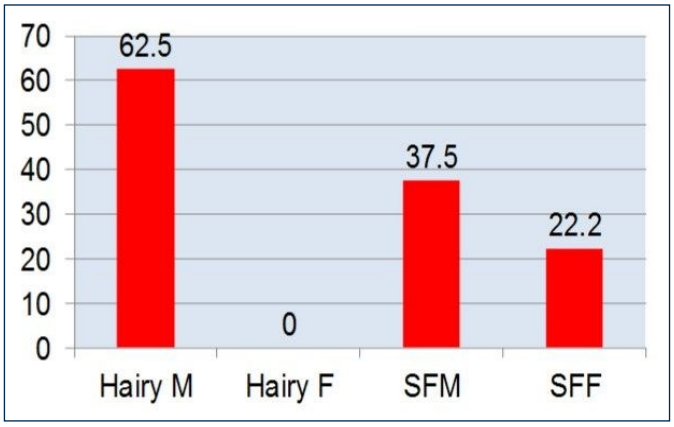

Fig. 3- The distribution between the hairy ear and short fingers

Discussion

Pendulous or hang free ear lobe is the most predominant type among individuals, it is the dominant (EE or Ee) trait, the less common attached ear lobe is recessive (ee) [9].

In the hang free ear lobe group, the number of females was 31 (63.3%), while males were 18 (36.1%), in other hand the attached ear lobe group, females were 9 (52.9%) and males were 8(47.1%) as shown in [Fig-1].

Also in the hang free ear lobe group, 39 subjects (79.6%) gave a positive family history Hx for attached ear lobe, while in the attached ear lobe group, all individuals gave a positive family history Hx (100%), [Fig-2].

The distribution between hairy ear and short fingers were shown in [Fig-3], all peoples with attached ear lobe had short fingers (100%).

Experimental work showed that all men (5 from 8) who have attached ear lobe and hairy ear have translocation in chromosome number 22.

List of Abbreviations

M: Males.

F: Females.

SFM: Short Fingers Males.

SFF: Short Fingers Females.

Conflict of Interest : None Declared.

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