

The Correlation between obesity & ABO Blood Group of a sample of students of the Faculty of Education at the University of Wasit

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Abstract

This study was conducted to determine the prevalence of obesity among young people and to determine whether there was any association between overweight and obesity with the ABO blood group. The total number of students tested was 200 students (100 from each gender), in aged between 20 and 23 years. They took the weights and length of the individuals and entered the body mass index (BMI) equation according to the index of body mass by dividing the weight in kilograms per square meter in length and comparing the values calculated by the standard values shown in Table (3) and calculating the percentages for each weight category. Blood groups were recorded from the information taken for the some research members, and the test was performed in a way that matched those who did not know their blood samples and other random samples to verify the credibility of the information. The results were identical to the information obtained directly. The results were as follows: 2%, the proportion of individuals with a weight below normal distributed equally between males and females and 71% is the proportion of individuals with normal weight, boys scored the highest percentage of girls while the proportion of people who suffer from obesity is 25% and the increase in girls by 2% of male. At the level of the blood groups, O group was the most overweight, followed by A, B, and AB, and only 4% in the O group.

Introduction

Since the 19th century, there has been a diverse attempt to determine the relationship between the Rh factor, blood groups and different metabolic and malignant diseases. Results obtained from studies on human with gastric tumor [1], salivary gland tumors [2], duodenal ulcer [3], colon and rectal cancer [4

5], thyroid disturbance [6], ovarian cancer[7], tumors of upper urinary tract[8], lung cancer[9] breast and pancreatic cancer [10, 11], many heart disease [12-14], hypercholesterolemia [15] studies showed a clear correlation between a section of these diseases with ABO blood groups. Extensive information was

based on the assumption that some metabolic and other chronic diseases may also be associated with Rh and blood groups based on available results, which helps to identify disease-predisposing factors and to adopt possible preventive measures to reduce their incidence.

Diabetes is a chronic metabolic disorder of the endocrine [16]. Has a hereditary character, although environmental factors are also involved in their genetic influence. Similarly, blood groups have also been determined to correlate their genetic effect with diabetes [17]. The discovery of a positive relationship with diabetes and blood groups may reflect increased susceptibility to disease and a negative relationship against diabetes. Class A owners have been found to be the most affected in East Asian countries [13], [18] while in Iraq the owners of type B were most likely to develop diabetes.

Medical nursing is increasingly important in the alarming elevation in the prevalence of childhood and adolescent obesity, hypertension and diabetes [14]. [16] More importantly, predisposing factors have been associated with multiple and complex factors, which are also the characteristics of all ages - children, adolescents and adults, As well as both sexes and ethnic / ethnic groups, which are either not subject to modification such as genetic factors, race, age, gender or can be modified by behavioral interventions or other interventions such as over nutrition, physical

inactivity, lack of exercise and harmful levels of alcohol abuse For tobacco or environmental factors[15], [17],[18] ABO system is one of the genetic make-up of an individual that will provide a lot of valuable information for early detection of vulnerable groups.

then, innovative studies that elucidates the reasons of obesity has become an increasingly important focus for the National Institutes of Health. however, the difficulties that fact the obesity is a “complex disorder.” For more individuals, the obesity may cause from multiple gene and environmental factors. [22].

Obesity risk is 2 - 8 times higher for a person with a family history compared with a person with no family history of obesity. [23].

Research have determine variants in several genes that may cause elevation in weight and body fat distribution [24] [25]. Polymorphisms invarious genes controlling appetite and metabolism predispose to obesity under certain dietary conditions. [26] .

The involvement of genetic factors in the development of obesity is estimated to be 40–70%. Some of these obesogenic or leptogenic genes may influence obese individuals’ response to weight loss or weight management.[27]

Although many studies have evaluated the potential relationship between ABO blood groups and diseases, these studies are still controversial and / or inconclusive. As for the individual’s genetic makeup, the ABO system becomes clinically important as an interesting

field for detailed research. The aim of this study is to ascertain the tendency to develop high blood pressure, diabetes and obesity risk with ABO blood groups among young people, which are valuable information for early detection of vulnerable individuals to program pathological interventions. In addition, to evaluate the relationship of pre-hypertension, pre-diabetes and type of blood type. This explains the mechanism between blood pressure, blood glucose and BMI in health and disease. To our knowledge, this study aims to explore the ABO system and the risk factors for certain diseases.

Method and materials:

The materials that we used in this research are :

- 1- Kits of ABO blood group test from Spinreact, S. A. /S. A.U. Ctra.
- 2- balance for determination students weights.
- 3- metric ruler for determination each individual length

Kits of ABO blood group is Spinreact Monoclonal IgM ABO Blood grouping reagents contain mouse monoclonal antibodies diluted in a phosphate buffer containing sodium chloride, EDTA, and bovine albumin. The reagent will cause direct agglutination of test red cells that carry the corresponding ABO antigen.

We used slide technique as follow :

- 1- prepare a 35 – 45% suspensions of test red cells in phosphate buffer solution.
- 2- place on a glass slide of anti ABO reagent and test red cells suspension in equal volumes .
- 3- using a clean applicator stick, mix reagent and cells over an area of about 20-40 mm.

4- slowly tilt the slide back and forth for 30 second , with occasional further mixing during the 2- minutes period, maintaining slide at room temperature.

5- read macroscopically after 2 minutes over a diffuse light and do not mistake fibrin strands as agglutination.

metric ruler and balance were used to determination of blood group, length and weight of each individual of those tested in this study.

This study was conducted at the Faculty of Education at Wasit University in the city of Kut, the largest city in Wasit Governorate. The total number of enrolled students was 200 students distributed equally in gender. The length and weight of each study was measured for the purpose of extracting the body mass index (BMI) by calculating the mass in kilograms divided by square meters measured in meters and compared to the criteria shown in Table (3). And took information about the blood groups of some study members of those who are sure of their blood groups and conducted a test for those who are uncertain of the blood type and random sample of the first group to verify the credibility of the information

Results

The results of the study (Table 1), which were conducted on the students of the Faculty of Education at the University of Wasit, which were aged between 19-23 years. The study included 200 students divided equally between the sexes. The blood type O was the most frequent and 49% Overall, the highest

percentage of obese individuals was 46% of the total number of people with high weight, followed by A (26%), B (16%) and AB (1%). There was a reduction in weight less than normal in the O group and by 12%. The percentage of individuals with a weight below normal for both males and females was 71%. The proportion of people with normal

weight was higher than that of boys, while the percentage of individuals with obesity was 25% the increase in girls was 2 percent higher than that of boys.

Table (1) Percentage of overweight people and their association with blood groups

Individuals	Blood group			
	A	B	AB	O
Number	13	8	6	23
percentage	26%	16%	12%	46%

Table (2)The BMI summary for each gender

Number of trial members	Male	female	Total number
	100	100	200
Percentage of individuals with below normal weight	2%	2%	2%
Percentage of individuals with normal weight	74%	70%	72%
Percentage of individuals suffering from obesity	24%	26%	25%

Table (3) The BMI criteria of obesity [28]

BMI – Kg/m ²	Category
Less than 15	Very severe Weight loss
15 - 16	severe Weight loss
16 – 18.5	Weight loss
18.5 - 25	Normal weight
25 - 30	Increase weight
30 -35	Light obesity
35 - 40	Medium obesity
More than 40	Excessive obesity

Discussion

In the current study we found that the distribution of overweight and obesity was 50%. When the data of boys and girls were analyzed separately we found that overweight and obesity were more prevalent in girls (26%) than boys (24%). 1993 has seen an increasing trend of obesity in developing countries and this is in line with increased industrialization and improved standard of living [19]. Thus obesity and weight gain must increase over time and this calls for the urgent need to study with a larger sample size and a wide geographic area so that we can get a real picture in time. On the other hand, weight loss was also very low in the study group. We have 2% of boys and 2% of girls are underweight. This is what is recorded in previous studies and in different places where studies have recorded an increase in the proportion of individuals, who suffer from low weight as in [3], [11].

The other objective of this study is to find out if there is any association between the ABO blood group system and overweight / obesity. There are several studies that found the association between blood groups and other

cases such as smoking, pancreatic cancer [12], lung cancer [5], oral cancer [9], obesity and obesity were found to be more prevalent among girls than males. The majority of those who were overweight and obese had the blood type O, followed by blood group B and the least were of blood type A [20] ,. Another study reported a significant difference in obesity in blood type B compared with other groups [21].

The results showed that the association and distribution of high blood pressure, obesity or diabetes risk, as well as differences in cumulative BMI, blood pressure, and blood glucose (ABO), were not statistically significant (> 0.05). The tendency to gain weight and obesity quickly and seriously is worrying and needs to be studied

Immediately and effectively so that we can stop this in a timely manner on the other hand we reduce the uncontrolled overweight leading to obesity which indicates that there is a great need for information about the pattern of food and the prevalence of overweight. The community can be sensitized about healthy diet, healthy weight, importance of physical activity and outdoor sports. Watch TV longer,

video or computer, the use of the Internet longer must strongly reduce. Because these are the main causes of obesity [3], [10], [12]. Fast food and snacks should not be strongly discouraged. There is an urgent need for further research; which should even include children from different regions, social and economic group, race, and religion and food habits.

Conclusions

- 1 - We conclude from this study that there are small differences of BMI and its relationship to sex
2. Individuals with blood type O are the most common in the sample
- 3 - The study showed that the proportion of the largest individuals who suffer from overweight and obesity were of the type O followed by a difference of significant members of type A and the lowest proportion of the members of the family AB.
4. The low percentage of people who suffer from low weight was only for O group without gender differences.

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