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Association of ABO and RH Blood Groups with Diabetes

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ABSTRACT

Diabetes mellitus (DM) expresses a so-called metabolic abnormality resulting from a defect in the secretion of insulin secreted by the pancreas, and this causes a metabolic disorder, i.e. the metabolic syndrome of both triglycerides and carbohydrates, which in turn leads to high blood sugar as well. DM consists of two types, one insulin-dependent and the other non-insulin-dependent. In the past years, researchers have found a relationship between each of the ABO blood groups with susceptibility to certain diseases, as it was found that peptic ulcer disease is most affected by people with blood type O. The vast majority of them suffer from stomach cancer in addition to increased susceptibility to sweating. In our current research, our study includes DM metabolic disorder and its relationship to each of the different blood groups of people as well as the ABO/Rhesus (Rh.) factor.



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INTRODUCTION

ABO blood types, in their various forms, are inherited and are opposite, as they are located on the surface of both red blood cells and other tissues (Siransy et al., 2015). Blood type is a term describing antigens of the red blood cells (RBCs) controlled by gene chains closely related to the antigens of the chromosomes. The basis of the difference in blood groups results from the difference in each of their components of protein and carbohydrates (Mitra et al., 2014).

Blood group antigens are hereditary determined and Play a vital role in transfusion safety, understanding genetics, inheritance pattern, and disease

susceptibility (Huston et al., 2002). Rhesus factor (Rh) is the most prevalent blood group after ABO, possibly due to the theatrical presentation of hemolytic fetal hemolytic disease (HDN) after allogeneic immunization of self to antigen (Murphy and Roberts, 2017). There are 49 antigens for the Rh blood group. There are 49 antigens for the Rh blood group of which type, DC ... E and e, and Rh is one of the most common (D) and it is of two types, positive or negative. While there are more than 36 different ABO blood type systems consisting of more than 379 antigens listed by the International Society of Blood Transfusion, where ABO is the most studied group among humans (Davison et al., 2020).

There are variations between ABO blood types with increased susceptibility to sweating, for example. Studies have shown that people with blood type A are more likely to get stomach cancer, while stomach and duodenal ulcers occur more commonly among blood type members (Sharma et al., 2011). Some epidemiological studies have shown a significant association between the ABO blood group and diabetes. In the study of Barbaric et al., it was reported that blood group B was associated with a lower risk of diabetes compared with blood group O. On the other hand, Fagherazzi et al., blood type O as a protective agent against type 2 DM (Huang et al., 2008). The current study aims to determine the relation-

Table 1: The relation ABO blood groups in diabetics and controls

Blood group	Studied groups		
	Type1DM(104)	Type2DM(123)	Compact(195)
A	22(21.1%)	31(25.2%)	45(23.8%)
B	27(25.9%)	23(17.6%)	62(31.8%)
AB	5(4.8%)	10(8.1%)	20(10.2%)
O	50(48%)	59(47.9%)	68(34.8%)

Table 2: The relation of RH blood groups in diabetics and controls

Blood group	Studied groups		
	Type1DM(104)	Type2DM(123)	Compact(195)
RH+	79(93.2%)	114(92.6%)	168(86.1%)
RH-	7(6.1%)	97(7.3%)	27(11.3%)

ship between ABO blood groups, Rh factor and diabetes mellitus in Iraq.

METHODS

Blood samples were obtained from the vein using a syringe with (1-20) ml and a volume of (1-20) ml. The distribution/blood type ABO/Rh blood was obtained from 227 diabetic patients at the Special Center for Endocrinology and Diabetes in Rusafa/Baghdad. The samples were chosen at random. One hundred and four Type 1 DMs and one hundred and twenty-three Type 2 DMs were among them ([Kashfi et al., 2010](#)).

RESULTS AND DISCUSSIONS

One hundred and twenty-three were Type 2 DMs. However, the most important condition of the research was to focus on the blood sugar level to be 126 mg/decilitre (7.0 mmol./L) for people taking treatment. As for people who did not take treatment for diabetes, their blood sugar level must not be less than 110 mg/dL (6.1 mmol/L). ABO blood group test was performed by agglutination of slides ([Barbalic et al., 2010](#)).

Blood type Was associated with a high proportion of both type 1 and type 2 blood type AB diabetes has a minimum associated with each type 1 and type 2 DM ([Fagherazzi et al., 2010](#)). The blood group was almost equally unreliable in both diabetic and non-diabetic patients (Table 1). Also, RH+ve is significantly more in both diabetic and control patients than RH-ve in our population (Table 2).

CONCLUSIONS

Through the results of the research, it was found that blood type O is more likely to develop D.M for people who carry it compared to people who carry blood type AB. It is necessary to increase the attention and care of people with blood types.

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Conflict of Interest

The authors declare that there is no conflict of interest.

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