

SPECTRUM OF ABO AND RH (D) BLOOD GROUPS AMONGST THE PALESTINIANS STUDENTS AT AL-AZHAR UNIVERSITY – GAZA

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ABSTRACT

The aim of the study was to evaluate the distribution of ABO and Rh (D) blood groups in a sample of 1158 students of both sexes from Al-Azhar University, Gaza, in Palestine. The blood groups phenotypes were detected by the classic slide method. The frequency of ABO for both sexes can be shown with a general formula $A > O > B > AB$. The rhesus positive and negative distribution in both sexes was similar (97%) and (3%) respectively. The blood group A Rh (D) positive was the predominant group among both sexes while the blood group O Rh (D) negative was the commonest in both sexes.

KEY WORDS: Spectrum of ABO, Rh Group, Gaza, Palestine.

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INTRODUCTION

Since 1960s there was a spirited competition to perform the first and safe blood transfusion in humans. However, most of transfusion trials failed, with no scientific explanation.¹ Until the discovery of Karl Landsteiner in 1901. He discovered the first and the most important blood group system on the surface of red blood cells (RBCs), the ABO blood group system. The importance of Landsteiner's discovery lies in firstly the transfusion of blood amongst different populations irrespective of their ethnic origin, secondly, organ transplan-

tation,² and finally, the development of legal medicine and anthropology.³ In 1940, Landsteiner also discovered the rhesus system, which is the second important system in blood transfusion. Our prime concern of the present study was to determine the frequencies of ABO and Rhesus D blood groups in a population sample from paramedical students.

SUBJECTS AND METHODS

After approval of the project by both Laboratory Medicine Department and the Faculty of Applied Medical Sciences at Al-Azhar University, Gaza, Palestine, all subjects males (M) and females (F) were verbally informed about the goal of the study and they agreed to participate. The subjects included were residing in Gaza city or in nearby of Gaza. A total of 1158 subjects (545 M and 613 F), 18-20 year old, were included and were tested for ABO and Rh (D) blood groups. The blood samples were collected either by finger prick with a sterile lancet or by sterile syringe. Anti-A, Anti-B and Anti-D (Labkit, Barcelona, Spain) antiserum were used for blood group phenotyping by slide method.⁴ Manufacturer's

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procedural instructions were followed. On a labeled slide a drop of anti-A, anti-B and anti-D was placed and a drop of test cells was added to each and was mixed. Results of agglutination were recorded immediately after mixing.^{5,6}

RESULTS

The distribution of ABO blood groups in males (both rhesus positive and negative donors) is illustrated in (Table-I). Blood group A was found to be the most prevalent group (37.6%) amongst rhesus positive male students. The least frequent blood group was AB (6.6%).

In contrast, the spectrum of ABO amongst rhesus negative donors can be shown with a general formula O>A>AB>B. Similar frequency of ABO blood groups in both rhesus positive and negative was found in females (Table-II).

DISCUSSION

The antigens A and B are considered the most immunogenic, and the most important, due to their role in blood transfusion and transplantation.⁷ During the World Wars, it was discovered for the first time that the frequency of these antigens was different in persons native to different parts of the world.⁸ In the present study, which was the first to document the spectrum of ABO blood groups, the commonest blood group was A in both sexes. In contrast, the blood group O was the predominant in the West Bank, Syria, Saudi Arabia and Sudan.⁹⁻¹² The blood group A was the most frequent in Nepal, Tehran, Russian Federation, Kafirs, Kalash, Lapps, North-West of England, Chitrali, Australian aborigines, Western European descent and African descents.¹³⁻¹⁸

Table-I: Spectrum of ABO blood groups in rhesus positive and negative male donors.

Blood group	No. of Rh +	Percentage	No. of Rh -	Percentage
A	205	37.6	4	0.7
O	178	32.7	8	1.46
B	111	20.4	1	0.18
AB	36	6.6	2	0.36
Total	530	97.3	15	2.7

Table-II: Spectrum of ABO blood groups in rhesus positive and negative female students.

Blood group	No. of Rh +	Percentage	No. of Rh -	Percentage
A	240	39.152	6	0.98
O	186	30.343	9	1.47
B	135	22.023	0	0
AB	36	5.873	1	0.16
Total	597	97.39	16	2.61

Therefore, our study is in agreement with their findings. In all populations, group AB was the least common. For the rhesus system, the percentage of Rh positive and negative was (97.3%) and (2.7%) respectively, in both sexes. The blood group O was the dominant in Rh negative students, while blood group A was the prevalent among rhesus positive donors. A similar Rh distribution to our study was found in Azad, Jammu and Kashmir population. They found that Rh D positive and negative was (97.7%) and (2.3%) respectively.¹⁹ Our planned study was taken to document the frequency of ABO and Rh (D) blood groups in Gaza-strip. However, more comprehensive study is needed to confirm our findings.

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