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Research Paper

Distribution of ABO Blood Groups And Resus Factor (RH) in ALBIYDA /LIBYA.

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ABSTRACT: *the aim of this study is to determine the prevalence of different blood groups and Rh factors in a random population sample from ALBIYDA city /Libya . Blood group and Rh factor determination was carried out by the antigen-antibody agglutination test from July 2013 to January 2014, and included 1306 subjects. The percentages of various groups among male subjects, were recorded as 37.44% (for blood group O), 30.168%, 23.43% (for blood group A and B) respectively and 8.96% (for blood group AB). The Rh positive and negative distribution in the studied population was 83.92% and 16.08% respectively. The determination of the frequency of blood groups in the region would not only help in blood transfusion services, but also eliminate the risk of erythroblastosis foetalis in the neonates.*

Keywords: *Blood groups, ABO, Rh.*

I. INTRODUCTION

The ABO blood group system was discovered by Austrian scientist, Karl Landsteiner, who found three different blood types (A, B and O) in 1900 from serological differences in blood called the Land- steiner Law [1]. Forty years later both Karl Landsteiner and Weiner discovered the Rh blood group system [2]. ABO and Rh blood groups are the most important blood groups despite the long list of several other blood groups discovered so far [3];[4];[5].

The ABO blood grouping is based on the presence or absence of A and B blood group antigens on the surface of red blood cells (RBC) derived from inherited gene[6].The antigens are located on the surface of the red blood cells and the antibodies are in the blood plasma. Individuals have different types and combinations of these molecules [7]. Study of distribution of blood groups is important as it plays a vital role in blood transfusion, human evolution, anthropology and tracing ancestral relation of humans. Some blood groups have shown associations with diseases like duodenal ulcer, diabetes mellitus, urinary tract infection and ABO & Rh incompatibility of newborn[8].

The knowledge of distribution of ABO and Rh blood groups is essential for management of blood banks inventory. It is important to have information on the distribution of these blood groups in any population [5]. Hence the present study was planned with the aim to determine the frequency and distribution of ABO and Rh (D) in ALBIDA CITY/LIBYA

II. MATERIAL AND METHODS

The study aim was to determine the distribution of different blood groups in the eastern region of north cost of Libya as there were no data available in this region. The study included 1306 subjects who were donors, people who attended the Blood Bank in ALBIYDA CITY/LIBYA The subjects includes adult people, male with eligible age range (17–60 years old) who came to donate blood during the study period. The study period was from July 2013 to January 2014. The samples were collected by venipuncture in a disposable syringe and immediately transferred to a tube containing ethylene diamine tetra acetic acid (EDTA) anticoagulant.

The ABO and Rh blood grouping was done by agglutination tests using commercially available anti-sera A, B, and Rh (D). For typing of Rh, only anti-D is used, which is most immunogenic. Hence those who tested positive with anti-sera D were considered to be Rh positive and those who did not were considered to be Rh negative. Few studies of ABO and Rh blood group prevalence among the various populations of other country were compared with the present study. Data on the frequency of ABO and Rh blood groups was reported in simple percentages and graphic.

III. RESULTS

The prevalence of ABO and Rh blood groups in the total of 1306 males was determined. As can be seen in Table 1 and figure 1, most frequent ABO blood groups were O (37.44%) and A (30.17 %), respectively, whilst the least frequent one was AB (08.96%). According to the Rh system the Rh positive comprised (83.92%) and the Rh negative (8.9%) among participants as shown in figure (2) .amongst whom blood group O+ was found to be the most common type (30.245%), followed by groups A+ (26.186%), B+ (19.85%) and AB+ (8.193%), whereas amongst the Rh negative subjects, blood group O- was the most frequent (7.20%), followed by groups B− and A-(4.134%), (3.981%) respectively and AB− were the lowest frequency (0.766%), as shown in Table (2) and figure (3).

Table 1 Distribution of ABO blood groups in ALBYDA, LIBYA

BLOOD GROUP	NUMBER	PERCENTAGE
A	**395**	**30.16845329**
B	**306**	**23.43032159**
O	**489**	**37.44257274**
AB	**117**	**8.958652374**
TOTAL	**1306**	**100**

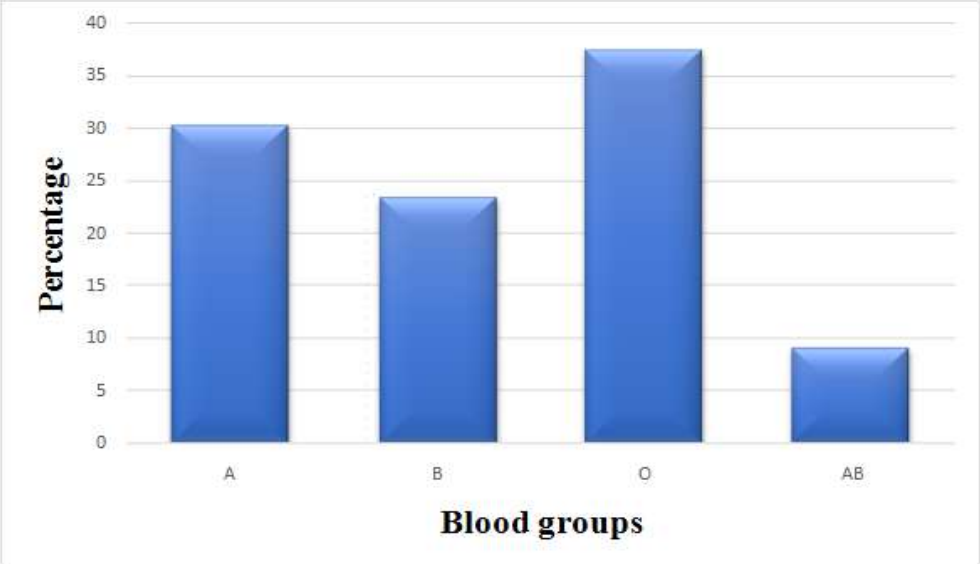

Figure 1 Distribution Of Abo Blood Groups Among Donors In Albyda City, Libya

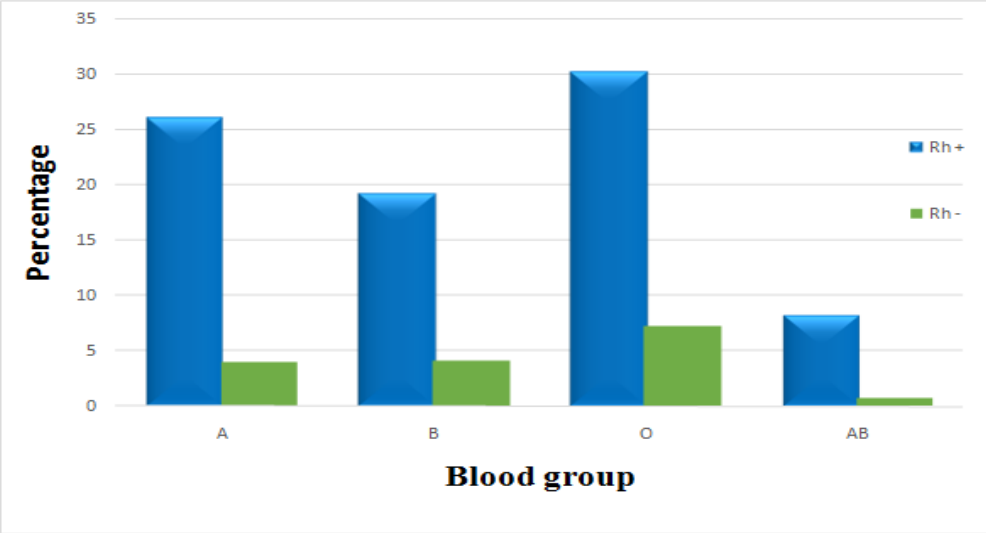

Figure 2 Distribution of ABO and Rh blood groups among donors in ALBYDA CITY, LIBYA

IV. DISCUSSION

Usually, the distribution of ABO blood group varies from one population to another. In many other studies, blood group O has been found to be the most common blood group. In this study, A, B, AB and O blood groups were analysis for 1309 voluntary donors whom attend the blood bank in the central hospital in ALBYDA CITY 37.44% , 23.43% 30.17%, and 8.96%, blood types O ,A, B, and AB were determined respectively as depicted in Table 1. In the Present study blood group O was found to be more prevalent among the donors and blood group AB being the rarest, F Noor, FIN Eldin (2013), they studied the ABO frequency in western part of Libya and they found that the percentage of blood group O (48.9%) is the highest, followed by A(33.1%) and B (12.8%) [9] which is similar to frequency in this study.

O has also been found in other Arabian countries like Saudi Arabia [10, 11] Iran [12], and other countries as England[13].

Moreover, this study further confirmed that Rh+ positive has the highest percentage frequency 84% donors are detected as Rh+, while Rh- negative has the lowest percentage frequency 16% table 2 and figure 2 as observed in previous studies among different ethnic groups [14, 15].

Table 2 distribution of (rh) blood groups among donors in albyda city, libya

ABO	A		B		O		AB		
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**Total %**
Rh +	**342**	**26.18683**	**252**	**19.29556**	**395**	**30.24502**	**107**	**8.192956**	**83.92037**
Rh -	**52**	**3.981623**	**54**	**4.134763**	**94**	**7.19755**	**10**	**0.765697**	**16.07963**
Total N	**394**		**306**		**489**		**117**	**0.765697**	**100**

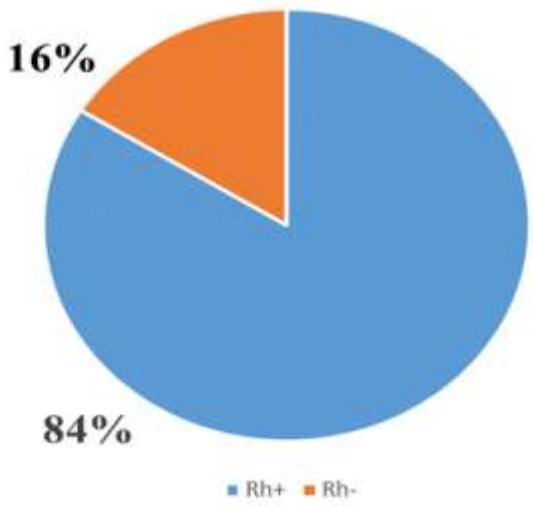

Figure 3 Distribution Of (Rh) Blood Groups Among Donors In Albyda City, Libya

V. CONCLUSION

Distribution of blood groups among the population in a specific geographic area helps us for a good inventory management. The knowledge of frequencies and distribution of the different blood groups is very important for blood banks and transfusion services so that they could contribute significantly to the National health system to formulate the policy. Having knowledge of own blood group is important for everyone. It saves lives when transfusion is needed and neonates. As blood groups are associated with a number of diseases, so this information is also used to predict who is disposed to which of the linked diseases. This study will definitely helpful for blood banks management and blood donation in crisis. This data can also be associated with different disease rate and data regarding the study area.

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REFERENCES

[1]. Landsteiner, K., Ueber agglutinationserscheinungen normalen menschlichen blutes. Wien Kli Wchnschr, 1901. **14**: p. 1132-1134.
[2]. Landsteiner, K. and A.S. Wiener, An agglutinable factor in human blood recognized by immune sera for rhesus blood, in Rhesus haemolytic disease. 1940, Springer. p. 41-42.

[3]. Worlledge, S., et al., Blood group antigens and antibodies in Nigeria. Annals of Tropical Medicine & Parasitology, 1974. **68**(3): p. 249-264.
[4]. Worlledge, S.M., A.E., A.C. Kopec and K. Domaniewskasobczak, , The Distribution of the Human Blood Groups and Other Polymorphsisms. 1966: Oxford University Press, London.
[5]. Seeley. RR, S.T., Tate. P, Anatomy and Physiology. 4TH ed. 1998: The McGraw Hill Companies, USA.
[6]. Yamamoto, F.-i., P.D. McNeill, and S.-i. Hakomori, Genomic organization of human histo-blood group ABO genes. Glycobiology, 1995. **5**(1): p. 51-58.
[7]. Daniels, G., ABO, Hh and Lewis systems. Daniels G, Human blood groups, ed. 2nd. 2002, Oxford, UK: Blackwell Scientific. 40-1.
[8]. Skaik, Y. and N.R. El-Zyan, Spectrum of ABO and Rh (D) blood groups amongst the Palestinian students at Al-Azhar University-Gaza. Pakistan Journal of Medical Sciences, 2006. **22**(3): p. 333.
[9]. Noor, F. and F.I.N. Eldin, ABO, Rh, Gene Frequency: A Comparative Study between Different Countries. Indian Internet Journal of Forensic Medicine & Toxicology, 2013. **11**(2): p. 23-32.
[10]. Sarhan, M.A., K.A. Saleh, and S.M. Bin-Dajem, Distribution of ABO blood groups and rhesus factor in Southwest Saudi Arabia. Saudi medical journal, 2009. **30**(1): p. 116-119.
[11]. Abdullah, S.M., Frequency of ABO and Rh blood groups in the Jazan region of Saudi Arabia. Pak J Med Sci, 2010. **26**(4): p. 818-821.
[12]. Mohallatee, E. and M. Haghshenas, Frequency and distribution of ABO and RHO (D) blood groups in Shiraz. Israel journal of medical sciences, 1969. **5**(5): p. 1081.
[13]. Kpec, A.C., The distribution of the blood groups in the United Kingdom. oxford University Press. , 1970 **10**: p. 146.
[14]. Nwauche, C. and O. Ejele, ABO and rhesus antigens in a cosmopolitan Nigeria population. Nigerian journal of medicine: journal of the National Association of Resident Doctors of Nigeria, 2003. **13**(3): p. 263-266.
[15]. Falusi, A., et al., Distribution of ABO and RH genes in Nigeria. African journal of medicine and medical sciences, 2000. **29**(1): p. 23-26.