

Dedication

To the soul of father to

my mother

brothers and sisters,

. To my friends and colleagues

Acknowledgement

firstly I thank God for all gifts .I am grateful to my supervisor

Dr. Abdallah Abdelkarim , thank you for your help, precious advices, patience and kindness. Also I thank Dr. Malik Alfadnee the head department of haematology of Sudan University of Sciences and Technology and all members of the department. My thanks extend to my colleagues who helped me in specimens collection

الخلاصة

هذه دراسة وصفية تحليلية هدفت لدراسة تردد الزمر الوظيفية والنمط الظاهري لنظام الدم Duffy والنمط الظاهري لنظام الدم ABO والعامل الريصي (D). أجريت هذه الدراسة على قبيلة البني عامر في مدينة كسلا خلال فترة شهرين. بعد أخذ الموافقة تم تجميع 100 عينة دم في وعاء 2.5 مل يحتوي على مادة مانعة للتخثر EDTA من أشخاص لا تربطهم صلة قرابة.

تم فحص العينات لمعرفة الزمر الوظيفية لنظام Duffy بواسطة Gel technique . ولنظام الدم ABO والعامل الريصي (D) تم استخدام طريقة الشريحة المباشرة، أما بالنسبة للعينات سالبة العامل الريصي تم استخدام Indirect coomb's technique أو D^u method.

أوضحت الدراسة أن الزمرة الوظيفية O هي الأكثر شيوعاً بنسبة 58% (ثم B بنسبة 21%)، ثم A بنسبة 19% بينما الزمرة الوظيفية AB هي الأقل تردداً بنسبة 2% وكان موجبو العامل الريصي (D أكثر تردداً بنسبة 97%).

في نظام الدم Duffy وجد أن الزمرة الوظيفية Fy^a بنسبة 14% بينما الزمرة الوظيفية Fy^b بنسبة 19%. والنمط الظاهري -Fy(a-b) الأكثر تردداً بنسبة 70% (أما النمط الظاهري +Fy(a-b) بنسبة 30%، 16) أما النمط الظاهري -Fy(a+b) بنسبة 11%. أما النمط الظاهري +Fy(a+b) فهو الأقل تردداً بنسبة 3%.

تمت مقارنة النتائج المتحصلة في هذه الدراسة مع نتائج بعض القبائل السودانية في نفس الأنظمة فوجد أن هناك تشابه في بعض الزمر الوظيفية لنظام الدم ABO والعامل الريصي (D) مع قبائل العركيين، الشكرية، الدناقلة والشايقية ووجد أن هناك اختلاف مع قبائل الحلاويين، الميسيرية والنوبة، أما في نظام الدم Duffy فلم توجد دراسة سابقة في القبائل السودانية. نخلص إلى أن التشابه بين القبائل السودانية التي تقطن في منطقه واحده ناتج عن التداخل والتزاوج بين هذه القبائل. بينما نجد أن القبائل التي تبعد عن بعضها البعض جغرافياً يوجد بينها بعض الاختلاف.

Abstract

This descriptive, prospective and analytical study that aimed to determine the frequencies of Duffy antigens (Fy^a, Fy^b), phenotypes, ABO blood group system phenotypes and Rhesus (D) factor.

This study was conducted in Bunni Aamer tribe during the period of two months, following informed consent, a total of 100 venous blood samples were collected in 2.5 ml of blood EDTA container from unrelated individuals. The red cells were tested for Duffy antigens (Fy^a, Fy^b) by using the particle gel immunodiffusion, for ABO blood group system and Rhesus (D) factor using slide method and D^u method for the negative results.

The study showed that the O phenotype was common with the frequency of (58 %); followed by B phenotype with frequency of (21 %), A phenotype with the frequency of (19 %) and AB phenotype with low frequency (2%). The Rhesus (D) was high frequent (97%).

In Duffy blood group system the Fy^a antigen frequency was (14%), while the Fy^b antigen with the frequency was (19 %) among the study group. The phenotype Fy (a-b-) frequency was (70 %), while the phenotype Fy (a-b+) frequency was (16 %), while the phenotype Fy (a+b-) was (11 %), and the phenotype Fy (a+b+) was (3%).

The result of this study were compared with the results of other Sudanese ethnic groups it was found that there were similarity in some ABO blood group and Rh (D) factor with the Arrakein, Alshokria, Danagala and Shaigia and there were differences with the Halaween, Miseria and Nuba, while in the Duffy blood group system there was no previous study in other Sudanese ethnic groups.

We conclude that the similarity between Sudanese tribes living in one area resulting from intermarriage between them, while that there were differences between the tribes living in different geographical area.

List of Abbreviations

- EDTA: Ethylene Diamine Tetra Acetic acid.
- HDN: Haemolytic Disease of the Newborn.
- IgA: Immunoglobulin A.
- IgG: Immunoglobulin G.
- IgM: Immunoglobulin M.
- ISBT: International Society of Blood Transfusion.
- Rh: Rhesus blood group system.
- 2-ME: 2-mercapto ethanol.
- RBCs: Red Blood Cells.
- DHTR: Delayed Haemolytic Transfusion Reaction.
- AIHA: Auto Immune Haemolytic Anaemia.
- ID: ImmunoDiffusion.
- LISS: Low Ionic Strength Solution.
- AET: 2-aminoethylisothiuronium.
- DTT: Dithiothreitol

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