

# Dedication

...To the heart of my life, my father and mother

...To my dear sisters

To my kind teachers and colleagues

*I dedicate this work*

# Acknowledgment

Many people contributed much to the success of this study. I would like to express my deep appreciation and gratitude to every one of them.

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## النتائج

هذه دراسة وصفية ، تحليلية أجريت في الفترة ما بين مارس و يونيو 2007، لتحديد نسبة وجود الزمر الوظيفية ل  $Kp^a$ ،  $Kp^b$  و  $ABO$ ،  $Rhesus(D)$  في قبيلة الحفاويين السودانية.

تم تجميع مائة عينة دم، في وعاء 2 مل يحتوي على مانع التخثر، من مائة شخص من هذه القبيلة بحيث يمثل الجد بفرصة واحدة في الدراسة.

تم اختبار كل العينات لتحديد وجود الزمر الوظيفية ل  $ABO$  و  $Rhesus(D)$  بواسطة طريقة الشريحة بينما  $Kp^a$  و  $Kp^b$  بواسطة تقنية الجل الحديثة.

كانت النتيجة على النحو التالي:  $ABO$  كانت الزمرة الوظيفية  $O$  هي الأكثر ترددا بنسبة (55%) بينما كانت الزمرة الوظيفية  $A$  متوسطة التردد بنسبة (24%) تتبعها الزمرة الوظيفية  $B$  بنسبة (17%) و الزمرة الوظيفية  $AB$  وجدت بنسبة (4%).

الزمرة الوظيفية  $Rhesus(D)$  كانت الأكثر ترددا بنسبة (96%). الزمرة الوظيفية  $Kp^b$  هي الأكثر شيوعا بنسبة (100%) بينما لم نجد الزمرة الوظيفية  $Kp^a$  (0%).

تم إدخال البيانات و فحصها وتحليلها بواسطة SPSS، ومن ثم تم تحديد نسب التشابه مع الإحصائيات الأخرى بواسطة قانون جاكرد للتشابه.

عند مقارنة النتائج ببعض القبائل السودانية الأخرى مثل المحس، الشكرية و الشاك ظهر التشابه بين هذه القبائل مما يشير إلى تشابه الأسلاف أو وجود سلف مشترك.

عندما قورنت النتائج مع الجنسيات الأخرى وجد أن نسبة فصيلة الدم من النوع  $ABO$  أقرب للدراسات التي أجريت على الجنسيات الأفريقية مثل النيجيريين و الكينيين، وأبعد من تلك الدراسات التي أجريت في الهند و البريطانيين.

ونسبة وجود الزمرة الوظيفية  $Rhesus(D)$  أقرب إلى النسبة التي وجدت عند النيجيريين والامريكان السود، وأبعد من تلك التي وجدت في الكينيين، البريطانيين و الامريكان البيض.

ونسبة الزمر الوظيفية  $Kp^a$  و  $Kp^b$  مشابهة للنسبة التي وجدت عند السود في الولايات المتحدة الأمريكية.

## ABSTRACT

This is descriptive, prospective analytical study conducted from March to June 2007, to determine the frequencies of ABO, Rh (D), Kp<sup>a</sup> and Kp<sup>b</sup> antigens among Al-Halfaween Sudanese tribe

The study was carried out on 100 predetermined random blood samples, collected into EDTA containers from this tribe and the grand father has one chance to be included in the study

Samples were tested for the presence of ABO and Rhesus (D) antigens using slide method and for Kp<sup>a</sup> and Kp<sup>b</sup> antigens using ID-Gel micro typing system

The frequency of ABO showed that the O blood group was found to be most frequent with frequency of (55%), whereas the A blood group was found with intermediate frequency (24%) followed by B blood group with frequency of (17%) and the least common was found to be AB blood group (4%). The Rhesus (D) was found to be (96%).Kp<sup>b</sup> was found to be 100%, while Kp<sup>a</sup> was not detected

Data was entered, checked, and analyzed using SPSS, and compared to other populations using Jacquard's similarity coefficient

The results were compared with some Sudanese tribes and revealed similarities between some tribes such as Al-Mahas, Al-Shukria and Al-Shuluk, which point to the common ancestry of most of Sudanese tribes

When results were compared with other populations, revealed that the frequency of ABO was found to be close to people from African region such as Nigerian and Kenyan populations and far from Indian and British populations

The frequency of Rhesus D was found to be close to Nigerian population and Black Americans, and far from Kenyan, British and White Americans .population

The frequency for Kell-3 and Kell-4 in Al-Halfaween Sudanese tribe was .found to be close to that found in Blacks of United states

## **List of abbreviations**

.Ab: Antibody  
.Ag: Antigen  
.AHG: Anti Human Globulin  
.AIHA: Autoimmune hemolytic anemia  
EDTA: Ethylene Diamine Tetra Acetic acid  
.HDN: Haemolytic Disease of the Newborn  
.HTR: Haemolytic Transfusion Reaction  
.ID: Immunodiffusion  
.IgG: Immunoglobulin G  
.IgM: Immunoglobulin M  
.ISBT: International Society of Blood Transfusion  
KD: Kilo Dalton  
.LW: Landsteiner and Wiener  
.LISS: Low Ionic Strength Solution  
.RBC: Red blood corpuscle  
.Rh: Rhesus  
.SPSS: Statistical Package for Social Sciences  
.UK: United Kingdom  
USA: United States of America

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