

# Dedication

❖ To my .....

Precious and beloved parents who are  
Always for me.

And who have always been my guiding  
Light, shining on every single step in my life.

❖ To my .....

Wife for the help and support.

❖ To my .....

Lovely sons Mohammed, Moazmeal and Modasear.

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## ملخص الدراسة

هذه دراسة وصفية ، تحليلية اجريت لتحديد نسبه تردد الاليل و الانماط الظاهرية لانظمه ABO والعامل الريصي Rh(D) و  $(Kp^a \& Kp^b)$ kell في قبيلة الشايقية.

اجريت هذه الدراسة خلال ثلثه شهور(من مارس الي يونيو 2007م) في ولاية الخرطوم وقد تضمن العمل اخذ 100 عينه من القبيلة اصحاء ظاهرياً بعد كتابتهم للاقرار ملحق (2) واخضاعهم لاستبيان خاص ملحق (3) حيث تم اخذ عينات الدم من الوريد من المتطوعين (غير اقرباء) في وعاء سعته 2,5مل يحتوي علي ماده مانعة للتجلط.(EDTA) كل العينات تم تحليلها لمعرفة نسبه تردد ال ABO والعامل الريصي Rh(D) باستخدام طريقه الشريحه ، اما الطريقة الحديثة (جل gel) ((مانعة النفاذية) قد تم استخدامها لمعرفة نسبه ال.  $(Kp^a \& Kp^b)$  kell antigens. اوضحت النتائج أن نسبه فصيله الدم (O) اعلي نسبه (48%) ، تليها فصيله الدم (A 26% و B 23%) اما نسبه AB فكان اقل نسبه (3%) اما العمل الريصي Rh(D) كان اعلي نسبه حيث كان تردده (96%) . اعلي نسبه للانتجينات  $(kell(Kp^a Kp^b))$  حيث ان  $Kp^b$  حقق اعلي نسبه تردد (100%) اما نسبه تردد  $Kp^a$  فكان الاقل (2%) . تم ادخال البيانات المأخوذة وتحليلها باستخدام نظام SPSS لمعرفة الزمر الوظيفيه والانماط الظاهرية وتحديد نسبه التشابه بين هذه القبيلة و القبائل السودانية والدول الاخرى تم بواسطة قانون جاكارد للتشابه. نجد ان هناك تشابها في الزمر الوظيفيه لانظمه ABO والعامل الريصي ونظام Kell بين هذه القبائل السودانية التي تعيش في منطه جغرافيه واحده وهذا قد يكون بسبب التزاوج بين هذه القبائل ، وان الاختلاف الذي وجد في بعض القبائل يمكن ان يكون بسبب الاختلافات الوراثيه واختلاف المناطق .

# **Abstract**

*Objective:* This is a descriptive, prospective and analytical study aimed to determine the frequency of ABO, Rhesus (D) and Kell (Kp<sup>a</sup>&Kp<sup>b</sup>) antigens and phenotypes.

*Methods:* The study was carried out during the period of three months (March to June 2007) in Alshaigia Sudanese tribe. Following informed consent, a total of hundred venous blood samples were collected into 2.5 ml EDTA containers from unrelated individuals.

All samples were tested for ABO and Rhesus (D) antigens using slide method whereas the modern technique called the gel particle immunodiffusion was used for determination of Kell (Kp<sup>a</sup>&Kp<sup>b</sup>) antigens.

*Result:* Regarding to ABO blood group antigens the result revealed that: The O antigens was the most common (48%) followed by A antigens (26%) and B antigens (23) whereas the AB antigen was least common (3%).

Rhesus (D) was most frequent, with the frequency of (96%). Concerning Kell (Kp<sup>a</sup>&Kp<sup>b</sup>) antigens, the Kp<sup>b</sup> was the highly frequent (100%), while the Kp<sup>a</sup> was least common (2%).

*Method analyzed:* The results were analyzed by the SPSS computer program and to compare between study tribe and other Sudanese tribes and other countries determined by Jaccard's coefficient of similarities. In conclusion there were similarities between state them (due to intermarriage) and differences with the others (may explained by the differences in geographical locations).

## **List of abbreviations**

<b>Ab</b>	: Antibody
<b>Ag</b>	: Antigen
<b>AIHA</b>	: Autoimmune Hemolytic Anemia
<b>Appro.</b>	: Approximately
<b>DNA</b>	: Deoxyribonucleic acid
<b>Fy Ag.</b>	: Duffy associated glycoprotein
<b>HDN</b>	: Hemolytic Disease of the Newborn
<b>ID</b>	: Immunodiffusion
<b>Ig A</b>	: Immunoglobulin A
<b>IgD</b>	: Immunoglobulin D
<b>IgE</b>	: Immunoglobulin E
<b>IgG</b>	: Immunoglobulin G
<b>IgM</b>	: Immunoglobulin M
<b>Le</b>	: Lewis blood group system
<b>Lu</b>	: Lutheran blood group system
<b>LW</b>	: Landsteiner and Wiener
<b>RBC</b>	: Red Blood Corpuscle
<b>Rh Ag</b>	: Rhesus Associated
<b>Rh</b>	: Rhesus blood group system
<b>UK</b>	: United Kingdom

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