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شبكة المعلومات الجامعية

التوثيق الالكتروني والميكرو فيلم

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

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لم ترد بالأصل

ANTENATAL SCREENING FOR SOME ALLOANTIBODIES: EVALUATION OF THE AUTOMATED MICROTYPING GEL SYSTEM

Thesis

**Submitted to the Faculty of Medicine
University of Alexandria**

**In partial fulfillment of the requirements of
the degree of**

Master of Clinical Pathology

By

**Amr Aly Ibrahim El Sherif
MBBCHAlex**

**Faculty of Medicine
University of Alexandria**

1999

B VCAI

Supervisors:

Prof Dr Elham Abdel Kareem Rizk
Professor of Clinical Pathology,
Faculty of Medicine,
University of Alexandria.

Dr Myriam Abou Seif Helmy
Assistant Professor of Clinical Pathology,
Faculty of Medicine,
University of Alexandria.

Dr Akram Abdel Moneim Deghady
Lecturer of Clinical Pathology,
Faculty of Medicine,
University of Alexandria.

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ACKNOWLEDGEMENTS

First of all I would like to express my deepest gratitude and appreciation to Prof. Dr. Elham Abdel Kareem Rizk, Professor of Clinical Pathology for her continuous help, encouragement and support throughout this work.

My deepest thanks to Dr. Myriam Abou Seif Helmy, Assistant Professor of Clinical Pathology, for her advice and helpful guidance.

Gratitude is also due to Dr. Akram Abdel Moneim Deghady, Lecturer of Clinical Pathology, for his sincere cooperation, continuous help and assistance.

I would like to thank Dr. Mohammed Abdel-Rahman Ahmed, Head of Haematology Department, Mostafa Kamel Hospital, for his kindness and valuable assistance.

Gratitude is also due to all members of the Clinical Pathology Department, no words can show my deepest thanks and appreciation to their role in this work.

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List of abbreviations

HDN	Haemolytic disease of the newborn.
IAT	Indirect antiglobulin test.
AHG	Anti human globulin test.
DAT	Direct antiglobulin test.
PNH	Paroxysmal nocturnal haemoglobinurea.
CAT	Column agglutination technology.
HLA	Human leucocytic antigen.
HEMPAS	Hereditary erythroblastic multinuclearity with positive acidified serum
RT	Room temperature.
HTR	Haemolytic transfusion reaction.
LISS	Low ionic strength saline.
PCR	Polymerase chain reaction.

INTRODUCTION

Blood Group Systems and Blood Groups

Since Landsteiner's discovery in 1901 that human blood groups existed, a vast body of serological, genetic and more recently biochemical data in red cell blood-group antigens has been accumulated.⁽¹⁾

About 600 red cell antigens have been described, most of which have been assigned to well defined blood-group system. Almost all blood-group antigens are expressed as co-dominant antigens i.e. both genes are expressed in the heterozygote. Some blood-group genes have been assigned to specific chromosomes e.g. ABO system on chromosome 9 and Rh system on chromosome 1.⁽¹⁾

The clinical importance of a blood-group antigen depends on the frequency of occurrence of the corresponding antibody and its ability to haemolyse red cells in vivo. On these criteria the ABO and the Rh systems are of major importance. Anti A and anti B occur regularly and are capable of causing severe intravascular haemolysis after an incompatible transfusion. The Rh D antigen is the most immunogenic red cell antigen after A and B antigens, being capable of stimulating anti D production after transfusion or pregnancy in the majority of Rh D-negative individuals.⁽¹⁾

ABO System:

There are four main blood groups: A, B, AB and O. The presence of A or B antigens on red cells is determined by the

inheritance of the allelic genes A, B and O on chromosome 9, which are inherited in pairs as Mendilian dominants.⁽²⁾ The relation between ABO phenotypes and genotypes is shown in table 1.

Phenotype	Genotype
A	AA
	AO
B	BB
	BO
AB	AB
O	OO

Table 1 : Different phenotypes and genotypes for ABO system.

The cellular expression of A and B is determined by a further gene (the H gene) which is inherited independently and it codes for an enzyme that converts a carbohydrate precursor into H substance on which the A and B gene products act. The A and B genes code for specific enzyme (glycosyl transferase) which converts H substance into A and B antigens by the terminal addition of N-acetyl-D-galactosamine and D galactose respectively. The O gene is a silent allele which doesn't produce an active transferase, so that H substance persists unchanged in group O. In the extremely rare Oh Bombay phenotype, the H genotype is silent (hh) and no H-transferase is produced; consequently no H substance is made and therefore A and B genes if present cannot be expressed.⁽¹⁾