

# **IMMUNE-DEPENDENT THROMBOSIS**

**Essay Submitted for Partial Fulfillment of Master Degree  
in Clinical and Chemical Pathology**

By

*Rasha Abd El-Rahman El-Gamal*  
**M.B.B.Ch.**



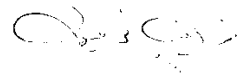
516.07561  
R. A

Supervised by

*Prof. Dr. Tareef Hamza Sallam*

Professor of Clinical and Chemical Pathology  
Faculty of Medicine- Ain Shams University

56123



*Ass. Prof. Dr. Azza M. Sadek El-Danasoury*

Assistant Professor of Clinical and Chemical Pathology  
Faculty of Medicine- Ain Shams University

*Dr. Nabela Ahmed Shalaby*

Lecturer of Clinical and Chemical Pathology  
Faculty of Medicine- Ain Shams University



**Faculty of Medicine- Ain Shams University**

**1999**





# **IMMUNE-DEPENDENT THROMBOSIS**

**Essay Submitted for Partial Fulfillment of Master Degree  
in Clinical and Chemical Pathology**

By 

*Rasha Abd El-Rahman El-Gamal*  
**M.B.B.Ch.**

**Supervised by**

*Prof. Dr. Tareef Hamza Sallam*

Professor of Clinical and Chemical Pathology  
Faculty of Medicine- Ain Shams University

*Ass. Prof. Dr. Azza M. Sadek El-Danasoury*

Assistant Professor of Clinical and Chemical Pathology  
Faculty of Medicine- Ain Shams University

*Dr. Nabela Ahmed Shalaby*

Lecturer of Clinical and Chemical Pathology  
Faculty of Medicine- Ain Shams University

***Faculty of Medicine- Ain Shams University***

**1999**



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

"سبحانك لا علم لنا الا ما علمتنا

انك أنت العليم الحكيم"

صدق الله العظيم

سورة البقرة - آية ٣٢



## ***Acknowledgements***

I would like to offer my cordial thanks to ***Prof. Dr. Tareef Hamza Sallam***, Professor of Clinical and Chemical Pathology, Faculty of Medicine, Ain Shams University, for his kind supervision, valuable remarks, encouragement and unlimited willingness for guiding me.

I would like to express my special thanks and utmost appreciation to ***Prof. Dr. Fekry Gobran Eskander***, Professor of Clinical and Chemical Pathology, Faculty of Medicine, Suez Canal University, for his generous cooperation by providing me with valuable sources in the very early stages of my work

I would like to convey my sincerest thanks and gratitude to ***Dr. Azza M. Sadek El-Danasoury***, Assistant Professor of Clinical and Chemical Pathology, Faculty of Medicine, Ain Shams University, for her encouragement, meticulous supervision, and valuable suggestions during conducting this study.

I am deeply grateful to ***Dr. Nahela Ahmed Shalaby***, Lecturer of Clinical and Chemical Pathology, Faculty of Medicine, Ain Shams University for her patience, support, continuous effort and constant guidance throughout this work.





# *Contents*

	<i>Page</i>
<b>List of Abbreviations</b>	
<b>List of Tables</b>	
<b>List of Figures</b>	
<b>Introduction and aim of the work</b>	1
<b>Review of literature</b>	
♦ <b>Chapter I:</b> Hemostasis and Thrombosis	3
♦ <b>Chapter II:</b> Immune-Dependent Thrombosis	19
- Thrombosis and specific humoral antibodies	21
• <i>Antiphospholipid antibody syndrome</i>	22
• <i>Heparin-induced thrombocytopenia</i>	69
• <i>Quinine and quinidine antibody-mediated thrombosis</i>	90
• <i>Antiendothelial antibody-mediated thrombosis</i>	91
<i>Kawasaki syndrome</i>	91
<i>Hemolytic-uremic syndrome</i>	93
- Thrombosis and abnormalities of cellular immunity	96
• <i>Behçet's disease</i>	99
• <i>Buerger's disease</i>	103
- Thrombosis and abnormalities of the complement system	106
• <i>Paroxysmal nocturnal hemoglobiuria</i>	107



• <i>Acquired angioneurotic edema</i>	110
<b>Summary</b>	111
<b>References</b>	117
<b>Arabic Summary</b>	165



## ***LIST OF ABBREVIATIONS***

<b><i>aCLs</i></b>	Anticardiolipin antibodies
<b><i>ADP</i></b>	Adenosine diphosphate
<b><i>APC</i></b>	Activated protein C
<b><i>aPLs</i></b>	Antiphospholipid antibodies
<b><i>APS</i></b>	Antiphospholipid antibody syndrome
<b><i>aPTT</i></b>	Activated partial thromboplastin time
<b><i>ATIII</i></b>	Antithrombin III
<b><i>β<sub>2</sub> GPI</i></b>	β <sub>2</sub> -glycoprotein I
<b><i>C</i></b>	Complement
<b><i>CD</i></b>	Cluster of differentiation
<b><i>C-SRA</i></b>	C-serotonin release assay
<b><i>DIC</i></b>	Disseminated intravascular coagulation
<b><i>DNA</i></b>	Deoxyribonucleic acid
<b><i>d-PT</i></b>	Diluted prothrombin time
<b><i>d-RVVT</i></b>	diluted Russel viper venom time
<b><i>DVT</i></b>	Deep vein thrombosis
<b><i>ECs</i></b>	Endothelial cells
<b><i>EDRF</i></b>	Endothelial-derived relaxing factor
<b><i>ELISA</i></b>	Enzyme-linked immunosorbent assay
<b><i>GPs</i></b>	Glycoproteins
<b><i>HCF-II</i></b>	Heparin cofactor II
<b><i>HIPAA</i></b>	Heparin-induced platelet activation assay
<b><i>HIT</i></b>	Heparin-induced thrombocytopenia

