# HELICOBACTER PYLORI SERUM SPECIFIC IgG IN PATIENTS WITH GASTRIC CARCINOMA

Thesis submitted for partial fulfillment of M.S. Degree of Clinical and Chemical Pathology

By

Seham Ibrahim Mikhail M.B., B.Ch.

**Under Supervision of** 

Ass. Prof. Dr. Amira Mohamed Moukhtar Assistant Professor of Clinical and Chemical Pathology Ain-Shams University

Dr. Fatma El-Sayed Metwally

Lecturer of Clinical and Chemical Pathology
Ain-Shams University

Dr. Omnia Abu El-Makarem Shaker

Lecturer of Clinical and Chemical Pathology
Ain-Shams University

Faculty of Medicine Ain-Shams University 1996







### ACKNOWLEDGMENT

Words can never express my deepest gratitude and appreciation to Prof. Dr. Amira Mohamed Moukhtar, assistant professor of clinical and chemical pathology, Ain-Shams University, for her great supervision, unforgettable valuable generous advice and faithful guidance.

My particular and deepest thanks to Dr. Fatma El-Sayed Metwally, lecturer of clinical and chemical pathology, Ain-Shams University, who showed extraordinary care and guidance to me all through this study.

I am most grateful to Dr. Omnia Abu El-Makarem Shaker, lecturer of clinical and chemical pathology, Ain-Shams University, for her great support, great help and endless guidance in preparing and finishing this work.



# LIST OF CONTENTS

Introduction and Aim of the Work	1
Review of Literature	4
Helicobacter pylori	4
Historical aspect	5
Morphology and Ultrastructure	6
Staining methods	7
Growth requirements	9
Culture media	10
<ul> <li>Colonial morphology</li> </ul>	11
Biochemical reaction	12
• Habitat	13
Antigenic structure	15
Immunological response	16
Strain typing	18
Epidemiological aspect of H. pylori	22
Incidence of H. pylori in Egypt	23
<ul> <li>Incidence of H. pylori in the world</li> </ul>	23
Risk factors	23
<ul> <li>Mode of transmission</li> </ul>	26
Helicobacter pylori infection	29
<ul> <li>Non-ulcer dyspepsia (NUD) and gastritis</li> </ul>	30
Peptic ulcer	35
Gastric carcinoma	42
Gastric lymphoma	45
Diagnosis of H. pylori	47
Direct	48
a) Invasive:	48
1-Urease test	49
2-Histological	52
3-Smear	52
4-Culture	53
5-PCR	53
6-Flow cytometry	54
b) Non-invasive	54
1-Culture	54

2-PCR	54
Indirect	55
1-Antibodies detection	55
2-Breath test	56
3-Biochemical analysis of gastric juice	57
Treatment of H. pylori	58
Eradication and Immunization	63
SUBJECTS AND METHODS	66
RESULTS	73
DISCUSSION	92
CONCLUSION AND RECOMMENDATION	97
SUMMARY	98
REFERENCES	101
ARABIC SUMMARY	131

## LIST OF FIGURES

	EIST OF FIGURES	
Figure (1)	Clinical consequences of H. pylori	31
	infection.	
Figure (2)	Correlation between concentration	72
	and absorbance.	
Figure (3)	Microtitration plate	74
Figure (4)	Incidence of H. pylori IgG antibodies	<i>75</i>
	among group I (gastric carcinoma).	
Figure (5)	Incidence of H. pylori IgG antibodies	81
	among group II (peptic ulcer).	
Figure (6)	Incidence of H. pylori IgG antibodies	83
	among control group.	
Figure (7)	Number of posittive H. pylori IgG	88
	antibodies for all studied groups.	
Figure (8)	Percentage of positive and negative	89
	IgG for all studied groups.	
Figure (9)	Percentage of IgG positivity for group	90
	I (gastric carcinoma) according to the	
	histology.	
Figure (10)	Percentage of IgG positivity for group	91
	I (gastric carcinoma) according to the	
	grading of adenocarcinoma.	



### LIST OF TABLES

	LIST OF TABLES	
Table (1)	Biochemical characteristics of H. pylori.	14
Table (2)	Selected H. pylori products that may contribute to gastric colonization and induction of gastric injury.	33
Table (3)	Comparison of different tests used for diagnosis of H. pylori.	50
Table (4)	Diagnosis modalities for H. pylori infection.	51
Table (5)	Drug regimens in treatment of H. pylori.	62
Table (6)	Results of ELISA IgG in serum of patients with gastric carcinoma.	76
Table (7)	Results of ELISA IgG in serum of patients with peptic ulcer disease.	82
Table (8)	Results of ELISA IgG in serum of control group.	84
Table (9)	H. pylori serum IgG in patients and control group.	86



# INTRODUCTION AND AMOFAHE WORK