



# **Determination of Helicobacter Pylori Antibiotic Resistance Patterns in Pediatric Gastroenterology Patients**

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سبحانك لا علم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

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# List of Contents

Title	Page No.
List of Tables .....	i
List of Figures .....	v
List of Abbreviations .....	vii
Introduction .....	1
Aim of the Work .....	17
Review of Literature	
▪ Helicobacter Pylori .....	21
▪ Treatment of H. Pylori .....	46
▪ Drug Resistance Mechanisms and Trends .....	54
Patients and Methods .....	62
Results .....	78
Discussion .....	127
Conclusion .....	138
Recommendations .....	140
Summary .....	143
References .....	146
Arabic Summary .....	—

# List of Tables

Table No.	Title	Page No.
Table (1):	Invasive diagnostic tests based on stomach biopsies for H. pylori.....	38
Table (2):	Noninvasive diagnostic tests for H. pylori.....	39
Table (3):	Demographic data. ....	80
Table (4):	Analysis of symptoms.....	82
Table (5):	Dietetic history. ....	84
Table (6):	Associated loss of weight and loss of appetite. ....	85
Table (7):	Relevant past and family history. ....	86
Table (8):	Previous treatment to H. pylori. ....	86
Table (9):	History of previous intake of metronidazole.....	87
Table (10):	Weight of patient.....	88
Table (11):	Hemoglobin of patients. ....	88
Table (12):	Cardiac and chest examination.....	88
Table (13):	Endoscopic findings. ....	89
Table (14):	Pattern of resistance of antibiotics.....	91
Table (15):	Comparisons between the group sensitive and the group resistant of amoxicillin regarding age and analysis of symptoms.....	92
Table (16):	Comparisons between the group sensitive and the group resistant of amoxicillin regarding dietetic history. ....	94
Table (17):	Comparisons between the group sensitive and the group resistant of amoxicillin regarding previous ttt to H. pylori. ....	95
Table (18):	Comparisons between the group sensitive and the group resistant of amoxicillin regarding weight on centile.....	95
Table (19):	Comparisons between the group sensitive and the group resistant of amoxicillin regarding endoscopic findings. ....	96
Table (20):	Logistic regression analysis for predictors of resistance on amoxicillin. ....	97

## List of Tables Cont...

Table No.	Title	Page No.
Table (21):	Comparisons between the group sensitive and the group resistant of clarithromycin regarding age and analysis of symptoms.....	98
Table (22):	Comparisons between the group sensitive and the group resistant of clarithromycin regarding dietetic history. ....	99
Table (23):	Comparisons between the group sensitive and the group resistant of clarithromycin regarding previous ttt to H. pylori. ....	100
Table (24):	Comparisons between the group sensitive and the group resistant of clarithromycin regarding weight on centile .....	100
Table (25):	Comparisons between the group sensitive and the group resistant of clarithromycin regarding endoscopic findings. ....	101
Table (26):	Logistic regression analysis for predictors of resistance on clarithromycin .....	102
Table (27):	Comparisons between the group sensitive and the group resistant of metronidazole regarding age and analysis of symptoms.....	103
Table (28):	Comparisons between the group sensitive and the group resistant of metronidazole regarding dietetic history. ....	104
Table (29):	Comparisons between the group sensitive and the group resistant of metronidazole regarding previous ttt to H. pylori and history of previous intake of metronidazole. ....	105
Table (30):	Comparisons between the group sensitive and the group resistant of metronidazole regarding weight on centile. ....	106
Table (31):	Comparisons between the group sensitive and the group resistant of metronidazole regarding endoscopic findings. ....	107

## List of Tables Cont...

Table No.	Title	Page No.
<b>Table (32):</b>	Logistic regression analysis for predictors of resistance on metronidazole. ....	108
<b>Table (33):</b>	Comparisons between the group sensitive and the group resistant of tetracycline regarding age and analysis of symptoms. ....	109
<b>Table (34):</b>	Comparisons between the group sensitive and the group resistant of tetracycline regarding dietetic history. ....	110
<b>Table (35):</b>	Comparisons between the group sensitive and the group resistant of tetracycline regarding previous ttt of H. pylori. ....	110
<b>Table (36):</b>	Comparisons between the group sensitive and the group resistant of tetracycline regarding weight on centile. ....	111
<b>Table (37):</b>	Comparisons between the group sensitive and the group resistant of tetracycline regarding endoscopic finding. ....	112
<b>Table (38):</b>	Logistic regression analysis for predictors of resistance on Tetracycline. ....	114
<b>Table (39):</b>	Comparisons between the group sensitive and the group resistant of levofloxacin regarding age and analysis of symptoms. ....	115
<b>Table (40):</b>	Comparisons between the group sensitive and the group resistant of levofloxacin regarding dietetic history. ....	116
<b>Table (41):</b>	Comparisons between the group sensitive and the group resistant of levofloxacin regarding previous ttt to H. pylori. ....	116
<b>Table (42):</b>	Comparisons between the group sensitive and the group resistant of levofloxacin regarding weight on centile. ....	117



## List of Tables Cont...

Table No.	Title	Page No.
<b>Table (43):</b>	Comparisons between the group sensitive and the group resistant of levofloxacin regarding endoscopic finding. ....	118
<b>Table (44):</b>	Relation between multi drug resistance and age, analysis of symptoms. ....	120
<b>Table (45):</b>	Relation between multidrug resistance pattern and dietetic history. ....	122
<b>Table (46):</b>	Relation between multidrug resistance pattern and previous ttt of H. pylori, history of previous intake of metronidazole. ....	123
<b>Table (47):</b>	Relation between multidrug resistance pattern and weight on centile. ....	124
<b>Table (48):</b>	Relation between multidrug resistance pattern and endoscopic finding. ....	124
<b>Table (49):</b>	Logistic regression analysis for predictors of multi-drug resistance. ....	126
<b>Table (50):</b>	Correlation between hemoglobin level and the other studied parameters. ....	126

# List of Figures

Fig. No.	Title	Page No.
Figure (1):	H. pylori virulence factors. ....	25
Figure (2):	Bacterial factors responsible for virulence of H. pylori. ....	30
Figure (3):	Rapid Urease Ttest. ....	41
Figure (4):	Resistance mechanism of antibiotics ....	56
Figure (5):	Helicobacter pylori associated peptic ulcer in the duodenal bulb. ....	69
Figure (6):	Helicobacter pylori nodular gastropathy. ....	69
Figure (7):	Helicobacter pylori induced marked gastric erythema. ....	69
Figure (8):	Rapid urease positive test. ....	70
Figure (9):	H. pylori colonies. ....	73
Figure (10):	H. pylori by gram stain. ....	73
Figure (11):	TE sensitive isolate. ....	76
Figure (12):	MTZ resistant and LEV sensitive isolate. ....	76
Figure (13):	AML sensitive and MTZ resistant isolate. ....	76
Figure (14):	TE, CLA and LEV sensitive isolate. ....	76
Figure (15):	MTZ resistant and LEV sensitive isolate. ....	76
Figure (16):	AML and MTZ resistant isolate. ....	76
Figure (17):	Shows the percentage of male patients 60% while female patients 40%. ....	81
Figure (18):	Shows the percentage of presenting symptom. ....	83
Figure (19):	Shows the location of pain. ....	83
Figure (20):	Shows the descriptive analysis of dietetic history. ....	84
Figure (21):	Shows associated loss of weight and loss of appetite. ....	85
Figure (22):	Shows that relevant past and family history. ....	87
Figure (23):	Shows the percentage of endoscopic findings. ....	90
Figure (24):	Shows classification of gastric erythema. ....	90

## List of Figures Cont...

Fig. No.	Title	Page No.
<b>Figure (25):</b>	Shows pattern of resistance of antibiotics.....	91
<b>Figure (26):</b>	Shows that increase age in resistant group to amoxicillin. ....	93
<b>Figure (27):</b>	Shows the relation between amoxicillin resistance and excessive intake of fat.....	94
<b>Figure (28):</b>	Shows the relation between clarithromycin resistance and excessive intake of fat. ....	99
<b>Figure (29):</b>	Relation between metronidazole resistance history of previous intake of metronidazole.....	105
<b>Figure (30):</b>	Relation between metronidazole resistance and gastric erythema. ....	108
<b>Figure (31):</b>	Relation between tetracycline resistance and gastric erythema. ....	113
<b>Figure (32):</b>	Relation between tetracycline resistance and duodenal ulcer.....	113
<b>Figure (33):</b>	Relation between levofloxacin resistance and duodenal nodularity.....	119
<b>Figure (34):</b>	Relation between multi drug resistance and age.....	121
<b>Figure (35):</b>	Relation between multidrug resistance pattern and excessive intake of fat. ....	123
<b>Figure (36):</b>	Antibiotics resistance rates to 4 most common used antibiotics in different continental areas .....	136

# List of Abbreviations

Abb.	Full term
13C.....	13 Carbon
AML.....	Amoxicillin
ASA.....	Anesthesiologists
BabA .....	Blood group antigen-binding adhesion
CagA,.....	Cytotoxin associated gene
CagPAI.....	Cytotoxin associated gene pathogenicity island
CBC.....	Complete blood picture
CLA.....	Clarithromycin
CLSI.....	Clinical and Laboratory Standards Institute
DU.....	Duodenal Ulcer
dupA .....	Duodenal Ulcer Promoting Gene
ELISA .....	Enzyme-linked immune sorbent assay
ESPAGHAN .....	European Society for Pediatric Gastroenterology Hepatology and Nutrition
FAT .....	Fecal antigen test
FD .....	Functional Dyspepsia
Fig.....	Figure
FISH .....	Fluorescence in situ hybridization
GC .....	Gastric cancer
GERD.....	Gastro esophageal reflux disease
GIE.....	Gastrointestinal endoscopy
GU.....	Gastric ulcer
H. pylori.....	Helicobacter pylori
iceA .....	Induced by Contact with Epithelium Gene
IDA.....	Iron deficiency anemia
IL-8 .....	Interleukin-8
ITP .....	Idiopathic thrombocytopenic purpura
Leb .....	Lewis b
LEV.....	levofloxacin

## List of Abbreviations Cont...

Abb.	Full term
MALT.....	Mucosa associated lymphoid tissue
MIC .....	Minimum inhibitory concentrations
MTZ .....	Metronidazole
NASPGHAN .....	North America Society for Pediatric Gastroenterology Hepatology and Nutrition
NPV .....	Negative predictive value
OipA.....	Outer inflammatory protein
pbp1 .....	penicillin binding proteins
PCR.....	Polymerase Chain Reaction
PPI .....	proton pump inhibitor
PPV .....	Positive predictive value
PUD .....	Peptic ulcer disease
RAP .....	Recurrent Abdominal pain
RUT .....	Rapid urease test
SabA.....	Sialic acid-binding adhesion
TE .....	Tetracycline
UBT .....	Urea Breath tests
vacA .....	Vacuolating Cytotoxin Gene
vs.....	versus
wk .....	week

## ABSTRACT

**INTRODUCTION:** *Helicobacter pylori* proved to be highly prevalent all over the world, where it infects the gastric mucosa of about half of the world's population and also cause extra gastric manifestations. According to the World organization of gastroenterology, the prevalence of *H. pylori* in Egyptian children aged 3 years is 50% Moreover, that the prevalence of HP in Egyptian school children by urea breath test was 72.38%.

**Aim of the study:** The present Study that was carried out on patients presented to Endoscopy Unit, Children Hospital, ASU underlying upper GI endoscopy procedures: for complaints of upper GI symptoms. This cross Sectional study aimed to evaluate the antibiotic resistance patterns of *Helicobacter pylori* (*H. pylori*) strains isolated from pediatric patients who will undergo upper GI endoscopy for various gastrointestinal symptoms at Endoscopy Unite, Children Hospital, Ain Shams University.

**Patients and Methods:** Sampling 30 positive isolates are obtained. Culture of *H pylori* was done on gastric biopsy samples from patients with positive rapid urease test. They were 18 males (60%) and 12 females (40%). Their ages ranged from 5-16 year. Patients in the study were subjected to

thorough medical history and examination, CBC, iron profile, blood grouping and upper GI endoscopy, 2 antral biopsies, one for rapid urease test a, another for culture and sensitivity.

**Results:** In this study high resistance to Clarithromycin and metronidazole have been reported to be 50% and 86.7%, respectively. While resistance to amoxicillin 20% but tetracycline and levofloxacin is rare 13.3% and 6.7%, respectively.

**Conclusion:** The most common causes of treatment failure are poor compliance, resistance to antibiotics and re-infection. Secondary resistance (resistance developed in vivo in previously susceptible organisms) has been documented in cases of therapeutic failures. The combined effect of spontaneous mutation and recombination during infection could be responsible for the emergence of antimicrobial resistance.

**Keywords:** Helicobacter pylori – Clarithromycin – Metronidazole - Tetracycline – levofloxacin - Amoxicillin