Determination of Helicobacter Pylori Antibiotic Resistance Patterns in Pediatric Gastroenterology Patients

Thesis
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Reem Mohamed Ezzat Morsy

Dedication

This work is dedicated to …

My beloved father, to whom I owe everything I ever did in my life and will achieve.

My mother for always being there for me and all the nights she stayed with me.

My brother and my sisters for their support

My new Family, Father in law and brothers and my late Mother in law whom I know she prays for us.

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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 Nutririon
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