Evaluation of the clinical manifestations in cases of intestinal parasites and *Helicobacter pylori* co-infection in young age group.

THESIS

Submitted for Partial fulfillment of MasterDegree in Medical Parasitology

Presented by

Yasmin Farouk Abd El Hameed
M.B.B.CH
Demonstartor of Medical Parasitology
Faculty of Medicine,
Cairo University

Supervised By

Prof. Dr. Abdallah Michel Boghdadi
Professor of Medical Parasitology
Faculty of Medicine
Cairo University

Dr. Marwa Adel Hassan
Lecturer of Medical Parasitology
Faculty of Medicine
Cairo University

Dr. Carolyne Morcos Ibrahim
Lecturer of Pediatrics
Faculty of Medicine
Cairo University

Faculty of Medicine
Cairo University
2016

تقييم الأعراض الأكلينيكية فى حالات العدوى المشتركة بالطفيليات المعوية والبكتريا الحلزونية فى مجموعة صغار السن

رسالة مقدمة من الطبيبة

ياسمين فاروق عبد الحميد
معيد بقسم الطفيليات كلية طب القاهرة

توطئة للحصول على درجة الماجستير

فى
العلوم الطبية الاساسية
علم الطفيليات

تحت اشراف

ا.د . عبد الله ميشيل بغدادى
استاذ علم الطفيليات
كلية الطب- جامعة القاهرة

د . مروة عادل حسن
مدرس علم الطفيليات
كلية الطب- جامعة القاهرة

د . كارولين مرقص إبراهيم
مدرس طب الأطفال
كلية الطب- جامعة القاهرة

كلية الطب-جامعة القاهرة
٢٠١٦

Acknowledgment

First of all I would like to thank "ALLAH" for helping me getting this work done.

I wish to express my deepest appreciation and respect to ***Prof. Dr. Abdallah Michel,*** Professor of Parasitology Department, Faculty of Medicine, Cairo University, for his outstanding support and patience supervising this thesis and for his valuable advice and great encouragement without which this work could never be successfully accomplished. I have really learned a great deal and gained valuable experience.

I would like also to convey my profound gratitude and my sincere appreciation to ***Dr. Marwa Adel Hassan***, Lecturer of medical parasitology, Faculty of Medicine, Cairo University, for her great support, guidance and for her overwhelming kindness. I really appreciate her continuous patience through the work. I had learned from her how to be accurate, patient, and responsible. No words can express my great thanks to her.

I offer my profound appreciation to ***Dr. Carolyne Marcoos,*** lecturer of pediaterics, Faculty of Medicine, Cairo University, for her valuable guidance, constant encouragement and helpful advice.

I wish to thank all staff members and my colleagues in the Parasitology Department for their cooperation during this work.

I am particularly and deeply thankful to the staff members of Tropical Medicine Unit at Abo El –Reesh pediateric Hospital, Faculty of Medicine, Cairo University for their assistance and providing all facilities for the successful completion of this work.

I owe a lot to my family especially my father and my sister for their encouragement, patience and endless support. Finally I present this work to the soul of my dear mother, hoping GOD to bless her.

Abstract

Background: Gastrointestinal (GI) symptoms are common complaints among children. Several etiological studies have recognized intestinal parasitic infections (including giadiasis) and *Helicobacter pylori (H. pylori)* infection as possible etiological factors. Due to poor hygiene and lack of appropriate water treatment facilities, polymicrobial infections are more frequently observed in developing countries but can also occur within developed countries. The association of *H. pylori* infection with parasites, especially *Giardia lamblia*, is widely known to be high in developing countries**.**

Subjects & Methods: 150 patients (1 to15 years of age) of both sexes were classified into four groups; group A included 49 cases with parasitic infection only, group B included 24 cases with *Helicobacter pylori* only, group C included 39 cases with co-infection with both *Helicobacter pylori* and intestinal parasites, and group D included 38 cases not infected with either intestinal parasites or *Helicobacter pylori*. All patients were subjected to history taking, clinical examination, stool analysis, and detection of stool coproantigen test for *H.pylori.*

Results: Intestinal parasites were recorded in 88 cases (58.6%) with intestinal protozoa (92%) more frequent than intestinal helminthes (8%).Cases infected with *H.pylori* were 63 (42%) cases. Of these cases, co-infection with intestinal parasites and *H.pylori* was detected in 39 cases which represent 44% of cases with intestinal parasites and 62% of cases with *H.pylori* infection. Abdominal pain was the most recorded complaint in all groups. Diarrhea was most recorded in group A (63%), while it was recorded in less frequency in co-infected group C (36%). Diarrhea was recorded also in cases with *H.pylori* infection only in 29%. There was no statistical difference of symptoms among different groups except for diarrhea (*P value was*

0.0008).*G.lamblia* was the most frequently detected parasites (35.2%) and it was the commenst parasites in co-infection with *H.pylori* (35.8%). Diarrhea was the most frequent compliant in cases with *G.lamblia* infection only (65%) while it was recorded in coinfected cases with *H.pylori* in 50%. Abdominal distension was the most recorded in coinfected cases with *H.pylori* (71%) while it was recorded in cases with *G.lamblia* only in 59%, however there was no statistical significant difference of symptoms.

Conclusion: Infection with intestinal parasites, *H.pylori* and co-infection with both organisms is common in childhood. Epigastric abdominal pain is a common clinical manifestation in childhood, not specifically attributed to *H.pylori* infection. Diarrhea is well documented in parasitic infection. However, it is not found to be a prominent symptom in cases infected with *H.pylori* only. Co-infection of intestinal parasites with *H.pylori* could modulate the clinical manifestations.

Key words:

Intestinal parasites, *Helicobacter pylori* , Co-infection , *Giardia lamblia* ,Clinical manifestations.

Content

List of abbreviations

AF stain	Acid-fast stain
C line	Control line
CagA	Cytotoxin-associated gene A
EGFR	Epidermal growth factor receptor
EHEC	Enterohemorrhagic *Escherichia coli*
EIA	Enzyme immunoassay
ELISA	Enzyme-linked immunosorbent assay
FEA	Formalin-ethyl acetat
GERD	Gastroesophageal reflux disease
GIT	Gastrointestinal tract
HCL	Hydrochloric acid
HUS	Hemolytic uremic syndrome
IBS	Irritable bowel syndrome
ICT	Immunochromatographic test
IDA	Iron deficiency anaemia
IFA	Immunofluorescent antibody
IL-6	Interleukin 6
ITP	Idiopathic thrombocytopenic purpura
MZN	Modified Ziehl-Neelsen stain
PCR	Polymerase chain reaction

PPIs	Proton pump inhibitors
PS	Pyloric stenosis
PUD	Peptic ulcer disease
PVA	Polyvinyl-alcohol
RAP	Recurrent abdominal pain
RUT	Rapid urease testing
SAF	Sodium acetate acetic acid-formalin
STEC	Shiga toxin-producing E. Coli
T line	Test line
TNF-α	Tumor necrosis factor α
UBT	Urea breath test
VAC A	Vacuolating cytotoxin A
WHO	World health organization
ZN	Ziehl-Neelsen stain

List of tables

List of figures

Introduction

Abdominal pain, diarrhea and other gastrointestinal (GI) symptoms are common complaints among children ***(Abu-Zekry et al.,2013) .*** Several etiological studies have recognized intestinal parasitic infections (including giadiasis) ***(Balani et al.,2000 and Buch et al.,2002)*** and *Helicobacter pylori (H. pylori)* infection as possible etiological factors for recurrent abdominal pain (RAP) ***(Frank et al.,2000 and Das et al.,2003).***

Diarrhea is common in childhood. World Health Organization (WHO) ranks diarrheal diseases as the second (after acute respiratory infections) most common cause of morbidity and mortality in children in the developing world ***(WHO, 2008).*** A wide range of etiological agents of infectious diarrhoea includes viruses, bacteria, and parasites. Some of the most important members of the latter group are *Entamoeba histolytica, Giardia lamblia, and Cryptosporidium spp****. (WHO, 2008).***

Intestinal parasites are responsible for morbidity and mortality worldwide, especially in low income countries and in people with other diseases and are more prevalent in hot and humid environments, with poor sanitation, contaminated water, poor housing and overcrowding ***(Oliveira et al.2015).*** Children from resource-poor countries are more prone to intestinal and extra-intestinal parasitic diseases ***(Mbae et al.2013).***

Infection by *H. pylori* became one of the most common infections in the world. *H. pylori* has been changing over the last decades with a progressive decline in developed countries (20%-30%) (***Eusebi et al.2014).*** On the other hand, the prevalence is still over 50% in most of the developing countries ***(Ortiz-Princz et al.2016).*** *H. pylori* is mainly acquired during childhood and it may persist throughout life ***(Dore et al.2012)***. *H. pylori* infection in children is commonly

thought to be largely asymptomatic, but it has also been implicated in the pathogenesis of gastrointestinal symptoms including epigastric pain, hematemesis, and vomiting ***(Dore et al., 2012 and Abu-Zekry et al., 2013).*** In addition, the possible association between diarrhea and *H. pylori* infection in children have been conflicting ***(Dore et al.2012).***

Due to poor hygiene and lack of appropriate water treatment facilities, polymicrobial infections are more frequently observed in developing countries but can also occur within developed countries ***(Mahmoudi et al.,2013 and Mohamed et al.,2014).*** *H. pylori* and intestinal parasites are frequent among individuals living in low socioeconomical countries. This co-existence has a negative effect on the development and the iron levels in children, being very important public health issues. The association of *H. pylori* infection with *Giardia lamblia*, is widely known to be high in developing countries ***(Kazemian et al.2104).***

Although both infectious agents share the same transmission route and their association may be responsible for symptoms like emesis, diarrhea, and abdominal pain, it is not routinely looked for *giardia* with *H.pylori* ***(Moreira et al.2005)***. Knowing the association of infectious agents is important to select an adequate treatment to ensure eradication of infections. ***(Ortiz-Princz et al.2016).***

Aim of the work

The aim of this study was focused on the assessment of the impact of associated intestinal parasites and *H. pylori* infections on the clinical presentation of the patients, if any.