

Role of different types of Helicobacter organisms in hepato gastro-intestinal diseases and malignancies

Essay

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By

Noha Abd Elhamid Elmahdy
M.B.B.CH

Under Supervision of

Prof. Dr.Mohsen Moustafa Maher

Professor of Internal Medicine
Faculty of Medicine
Ain Shams University

Prof. Dr.Emad Ahmed Awad

Professor of Internal Medicine
Faculty of Medicine
Ain Shams University

Dr. Manal Sabry

Lecturer of Internal Medicine
Faculty of Medicine
Ain Shams University

Ain Shams University
Faculty of Medicine

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List of abbreviations:

ALT	Alanine aminotransferase.
BabA	Blood group antigen binding adhesion .
C.jejuni	Campylobacter jejuni.
CagA	Cytotoxin-Associated Antigen A.
CDT	Cytolethal distending toxin.
¹³ C	Carbon-13.
DU	Duodenal ulcer.
ELISA	Enzyme-linked immunoassay.
ESR	Erythrocyte sedimentation rate.
GBS	Guillain-Barré syndrome.
H&E.	Haematoxylin & Eosin
H.pylori	Helicobacter pylori.
HIV	Human immunodeficiency virus.
HLA-B27	Human lymphocyte antigen- B27.
HpSA	Helicobacter pylori stool antigen.
IBD	Inflammatory bowel disease.
IgA	Immuno globulin A.
IgG	Immuno globulin G.
IgM	Immuno globulin M.
IL	Interleukin.
INOS	Inducible nitric oxide synthase.
Leb antigen	Lewis b antigen.
LPS	Lipopoly saccharides.
MALT	Mucosa-associated Lymphoid Tissue Lymphoma.
NUD	Non ulcer dyspepsia.
PCR	Polymerase Chain Reaction.
PPIs	Proton pump inhibitors.
PUD	Peptic ulcer disease.
TD	Travelers' diarrhea.
TLR	Toll-like receptors.
Vac	Vacuolating cytotoxin antigen.

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Introduction & Aim of the Work

Introduction

Helicobacter pylori organism is a gram negative spirally curved motile rods. It is associated with an increased risk of peptic ulcer disease development & recurrence, ulcer healing is dependent upon angiogenesis, requiring endothelial cell proliferation & chemotaxis. *Helicobacter pylori* & *jejuni* have the ability to inhibit one of the key stages of angiogenesis which have implications in peptic ulcer disease (**Pearce *et al.*, 2004**).

Also *Helicobacter pylori* & other *Helicobacter* organisms present in gall bladder & liver of patients with chronic cholecystitis detected by immunological & molecular methods (**Apostolov *et al.*, 2007**).

Helicobacter pylori is prevalent in patients with liver cirrhosis and HCC (**Leone *et al.*, 2003**).

Helicobacter pylori can be detected in association with colorectal neoplasia (**Jones *et al.*, 2007**).

Campylobacter jejuni is an infrequent cause of self-limiting acute diarrhea in adults & occurrence of a life-threatening diarrhea (**Ryan *et al.*, 2004**).

Campylobacter jejuni can cause immunoproliferative small intestinal diseases (in a form of lymphoma) that arises in small intestinal mucosa (**Lecuit *et al.*, 2004**).

H. hepaticus has a cytolethal distending toxin activity which is a potential virulence of *H. hepaticus* that may play a role in its pathogenesis of hepatitis & enterocolitis (**Young *et al.*, 2000**).

H.hepaticus might be the no. 1 for the gall stone formation that ultimately leads to malignancy or itself acts as a risk factor for pathogenesis of gall bladder carcinoma (**Pradhan *et al.*,2004**).

Its cytolethal distending toxin (CDTS) containing DNase-like activity can induce dysplastic changes in infected mice livers (**Ge *et al.*, 2007**).

Aim of work

The aim of this work is to evaluate the role of Helicobacter pylori, Helicobacter hepaticus & Campylobacter jejuni in Hepato gastro-intestinal diseases and malignancies.

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Review of Literature



Genus Helicobacter and Campylobacter

Genus Helicobacter and Campylobacter:

I-Helicobacter Species:

Helicobacter is a genus of Gram-negative bacteria possessing a characteristic helix shape (**Figure 1**). They were initially considered to be members of the campylobacter genus, but since 1989 they have been grouped in their own genus, some species have been found living in the lining of the upper gastrointestinal tract, as well as the liver of mammals and some birds (**Ryan *et al.*, 2004**).

Helicobacter organisms are gram –ve curved or spiral shaped, strictly microaerophilic bacilli and motile by means of sheathed flagella. Helicobacter species had several Campylobacter like characters they were separated from the genus Campylobacter on the basis of their unique specific fatty acid profile, specific ultra-structure, respiratory quinines, growth requirements, enzyme characteristics and a very different RNA sequence. There are at least 14 species within the genus Helicobacter (**Glupenzynski, 1998**).