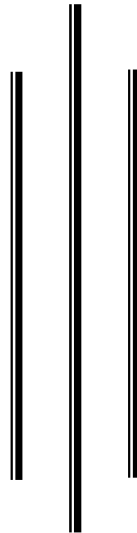


**PREVALENCE OF *HELICOBACTER PYLORI* INFECTIONS
AMONG PATIENTS ATTENDING ENDOSCOPY UNIT OF
TRIBHUVAN UNIVERSITY TEACHING HOSPITAL AND
ANTIBIOTIC SUSCEPTIBILITY PATTERN OF THE ISOLATES
TO CONTEMPORARY ANTIBIOTICS**



A

DISSERTATION

**SUBMITTED TO THE CENTRAL DEPARTMENT OF MICROBIOLOGY
TRIBHUVAN UNIVERSITY**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF
DEGREE OF MASTER OF SCIENCE IN MICROBIOLOGY
(MEDICAL)**

BY

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2011

RECOMMENDATION

This is to certify that **Miss Anju Dangol** has completed this dissertation work entitled "**PREVALENCE OF *HELICOBACTER PYLORI* INFECTIONS AMONG PATIENTS ATTENDING ENDOSCOPY UNIT OF TRIBHUVAN UNIVERSITY TEACHING HOSPITAL AND ANTIBIOTIC SUSCEPTIBILITY PATTERN OF THE ISOLATES TO CONTEMPORARY ANTIBIOTICS**" as a partial fulfillment for the degree of Master of Science in Microbiology under our supervision. To our knowledge, this thesis work has not been submitted for any other degree.

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On the recommendation of **Dr. Jeevan Bahadur Sherchand, Dr. Pradeep Vaidya** and **Ms. Shaila Basnyat**, this dissertation work of **Miss Anju Dangol**, entitled "**PREVALENCE OF *HELICOBACTER PYLORI* INFECTIONS AMONG PATIENTS ATTENDING ENDOSCOPY UNIT OF TRIBHUVAN UNIVERSITY TEACHING HOSPITAL AND ANTIBIOTIC SUSCEPTIBILITY PATTERN OF THE ISOLATES TO CONTEMPORARY ANTIBIOTICS**" has been approved for the examination and is submitted to Tribhuvan University in partial fulfillment of the requirements for the degree of Master of Science in Microbiology (Medical).

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ABSTRACT

Helicobacter pylori (*H. pylori*), a flagellate gram negative rod, infects over half of the world's population and plays a pivotal role in the etiology of a number of gastroduodenal diseases and development of gastric malignancy. The total of 300 gastric biopsy specimens (3 samples from each subject) and 100 serum samples of the patients attending endoscopy unit of Tribhuvan University Teaching Hospital were collected from May to October, 2009. Biopsy specimens were processed for rapid urease test, histology and culture respectively. Serum samples were used for detecting *H. pylori* IgG, IgA and IgM antibodies using commercially available kit (HEXAGON H. PYLORI, Germany). Bacterial isolates were identified by standard microbiological techniques and biochemical tests. The confirmed *H. pylori* isolates were subcultured and subjected to antibiotic susceptibility test by disk diffusion method. Of them 32 (32%) subjects were positive by rapid urease test, 47 (47%) by histology and 32 (32%) by culture. The prevalence of *H. pylori* infection among 100 subjects was 36 (36%) considering at least two of the three tests gave positive results and the seroprevalence was 63%. Statistically serological test was associated with other diagnostic tests. The male to female ratio for *H. pylori* infection was 1.22:1. *H. pylori* infection rate was higher in the age group of 20-29 years and the infection rate was higher in duodenal ulcer cases. Among 32 culture positive cases, only 30 of the bacterial isolates were subcultured and further processed for antibiotic susceptibility test. Among them 16 bacterial isolates (53.3%) were resistant to metronidazole, 8 bacterial isolates (26.6%) were resistant to amoxycillin, 4 bacterial isolates (13.3%) were resistant to clarithromycin and 2 bacterial isolates (6.6%) were resistant to tetracycline while resistant to levofloxacin was not observed. Five bacterial isolates (16.6%) were resistant to both amoxycillin and metronidazole, 2 bacterial isolates (6.6%) were resistant to both clarithromycin and metronidazole while 2 bacterial isolates (6.6%) were resistant to amoxycillin, clarithromycin, metronidazole and tetracycline. In this way the *H. pylori* infections assessed by four diagnostic tests revealed the prevalence to be 36%, taking at least two of the three diagnostic tests (rapid urease test, culture and histology) positive while seroprevalence was 63% among the 100 patients. Prevalence of resistance was optimal for metronidazole, followed by amoxycillin, clarithromycin and tetracycline. Few multi drug resistant cases were also noticed. Levofloxacin was found to be sensitive in all cases.

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LIST OF ABBREVIATIONS

CagA	Cytotoxin-associated protein
<i>cagA</i>	Cytotoxin-associated gene
CDC	Centres for Disease Control and Prevention
CLSI	Clinical and Laboratory Standards Institute
DoHS	Department of Health Services
DU	Duodenal Ulcer
ELISA	Enzyme-Linked Immunosorbent Assay
FISH	Fluorescent In-Situ Hybridization
<i>flaA</i> and <i>flaB</i>	Flagellin -associated genes
GI	Gastrointestinal
GU	Gastric Ulcer
<i>H. pylori</i>	<i>Helicobacter pylori</i>
IARC	International Agency for Research on Cancer
IVR	Initiative for Vaccine Research
LPS	Lipopolysaccharide
MALT	Mucosa Associated Lymphoid Tissue
MIC	Minimum Inhibitory Concentration
NADPH	Nicotineamide Adenine Dinucleotide Phosphate
NIH	National Institutes of Health
NSAID	Non-Steroidal Anti-Inflammatory Drug
NUD	Non-ulcer Dyspepsia
OPD	Outpatient Department
PCR	Polymerase Chain Reaction
PPI	Proton Pump Inhibitor
PUD	Peptic Ulcer Disease
RUT	Rapid Urease Test
TUTH	Tribhuvan University Teaching Hospital
UBT	Urea Breath Test
VacA	Vacuolating Cytotoxin A
<i>vacA</i>	Vacuolating Cytotoxin gene
WHO	World Health Organization

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