Prevalence of *Helicobacter pylori* in asymptomatic patients at surgical outpatient department: Harare hospitals

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ABSTRACT

Background: *Helicobacter pylori* infection is present in more than 50% of the world's population. The estimated life time risk of peptic ulcer disease is 20 percent and of gastric cancer is 1–2 percent.

Materials and methods: A cross sectional study was done at two Central hospitals in Harare, Zimbabwe, with the objective being to estimate the prevalence of *Helicobacter pylori* infection in asymptomatic individuals. Other objectives were to determine the association of the *Helicobacter pylori* infection with potential risk factors.

Four hundred and fifty patients visiting the outpatient surgical clinics for other complaints other than upper gastrointestinal symptoms were recruited in the study. Drops of whole blood were obtained by fingertip puncture from each patient. The Onsite *H. pylori* Combo Rapid Test was used to confirm the presence or absence of antibodies against *Helicobacter pylori*. A questionnaire was used to record the sociodemographics of the participants.

Results: Three hundred patients, 186 males (62%) and 114 females (38%) participated. The prevalence of *Helicobacter pylori* infection was 67.7 percent (203/300). The prevalence of H pylori infection was significantly correlated with increasing age ($p = 0.012$), sharing of a bed with siblings during childhood ($p = 0.013$) and the mode of sanitation methods ($p = 0.023$). There was no association found between H pylori infection and other risk factors such as; gender, level of education, employment status or number of rooms in a house.

Conclusion: *H. pylori* infection prevalence was significantly associated with increasing age, sharing of a bed with siblings during childhood and the mode of sanitation used. Clinicians and the public have to be aware of the important role of H pylori in upper gastrointestinal disease. Use of better sanitation methods, appropriate hygiene, avoidance of over-crowding amongst other measures should be encouraged as a means to reduce the acquisition and transmission of H pylori.

1. Introduction

Helicobacter pylori (*H. pylori*) is a spiral shaped, gram negative, microaerophilic bacterium that persistently colonizes the gastric mucosa of humans. The estimated lifetime risk of peptic ulcer disease is 20 percent and gastric cancer is 1–2 percent with H pylori infection [1]. The prevalence of H pylori infection is as low as 14 percent in developed countries and as high as 92 percent in under developed countries [2–4]. The spread and acquisition of *H. pylori* has generally been linked to a number of factors including crowding/density, poor sanitization methods, social factors (such as smoking), waterborne exposure, occupational exposure and poor hygienic practices [5]. Epidemiological knowledge of *H. pylori* infection in early studies emphasized on *H. pylori* infection in symptomatic patients presenting for endoscopy and hence little information is known about the frequency of H pylori in the general population [6]. This study enhances the knowledge of the important role of H pylori in upper gastrointestinal disease worldwide.

The specific objectives of this study were to:

1. Estimate the prevalence of *Helicobacter pylori* in asymptomatic individuals and,
2. Determine the association of the *Helicobacter pylori* with potential risk factors such as age, gender and the sociodemographic status (level of education, number of rooms and family member living in/with, source of drinking water, sharing of a bed and animal ownership).

2. Materials and methods

A cross-sectional study was done. Sample size calculated using the

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Dobson's formula was 185. Between July 2014 to November 2014 four hundred and fifty patients were approached for the study.

Patients visiting the outpatient surgical clinics at two central, public and teaching hospitals for other complaints other than upper gastro-intestinal symptoms were recruited in the study. The targeted surgical clinics were the general surgery, orthopaedic, urology, cardiothoracic, neurosurgery and paediatric surgery clinics Eligibility criteria was all individuals who did not have upper gastrointestinal symptoms pre-senting to the surgical outpatients' clinics. Patients were excluded if; a) they had upper gastrointestinal tract symptoms such as epigastric pain, indigestion and nausea/vomiting, b) they had a history of peptic ulcer disease or any use of antacids regularly, c) they took antibiotics for the past 6–8 weeks, d) they were below the age of 1 year and e) if patients refused to be included in the study. The patients were recruited in the order of who was first in the outpatients' queue.

Drops of whole blood were obtained by fingertip puncture from each patient. The commercial sandwich lateral flow chromatography kit (Onsite H. Pylori Combo Rapid Test, CTK Biotech) was then used to detect the presence of antibodies; immunoglobulin (Ig) G, Ig M or Ig A to confirm presence or absence of *Helicobacter pylori*. The Onsite *H. pylori* Combo Rapid Test has a relative sensitivity of 86.7 percent and relative specificity of 91 percent. A questionnaire was used to record the age, sex and socioeconomic status of the participants.

All data from data collection sheet was entered into a computer using Epidemiological Information -programme software and was analyzed using Statistical Package for Social Scientist (SPSS) version 16. Descriptive statistics were used to report measures of central tendencies for quantitative variables. Student's t-test for independent groups was used to test and also check relationships on continuous variables. T-test were two tailed. Categorical variables were expressed as percentages and frequencies, and compared using the Chi-square analysis. Graphs were used to present categorical variables in pictorial view. Statistical analysis was carried out and P-value of 0.05 was considered significant at 95% confidence interval.

3. Results

The flow chart (Fig. 1) below shows the results of the recruitment of patients. Three hundred individuals were recruited for the study. Most of the patients (n = 80) excluded from the study had been on anti-biotics. Ten patients who were eligible and had agreed, did not turn up for the study after they been attended for their primary presenting complaints.
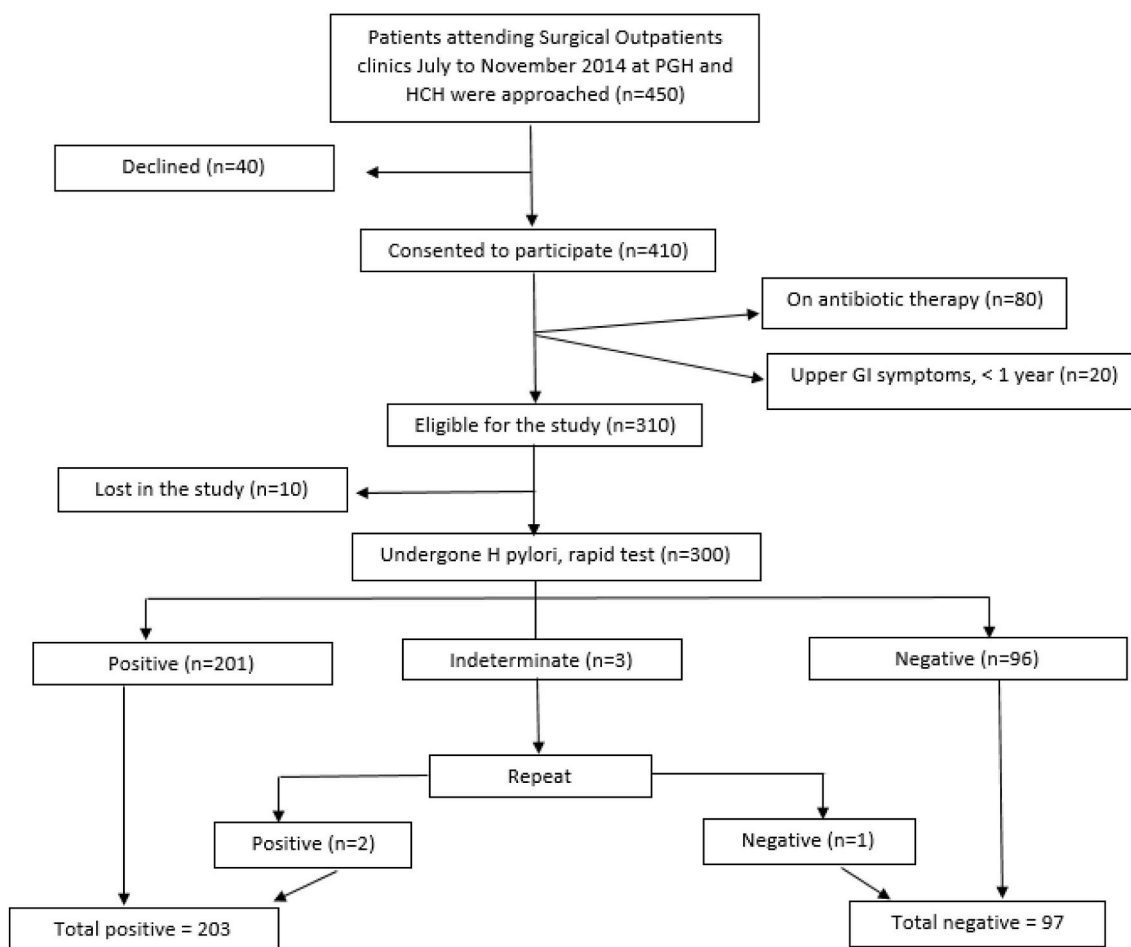

Fig. 1. Flow chart.