

PREVALENCE OF HELICOBACTER PYLORI IN BLEEDING AND NON-BLEEDING ULCER PATIENTS IN ABA NORTH L. G. A.

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ABSTRACT

Qualitative detection of antibodies to *H. pylori* in serum of patient with peptic ulcer disease was carried out to determine the prevalence of *H. pylori* in bleeding and non-bleeding patients. A total of two hundred and fifty (250) stool and blood samples were collected and tested for the present of ulcer and *H. pylori* using fecal occult blood (FOB). From the result, 185 samples tested positive. Also the result showed that 97(52.43%) had history of bleeding while 88(47.57%) had no record of bleeding. However, 77(60.63%) of the bleeding patient had *H. pylori* while 50(39.37%) were positive for the non-bleeding patients. The result also showed that there was a significant different ($P < 0.05$) between the bleeding and non-bleeding patients with peptic ulcer.

Keywords: Helicobacter pylori, Peptic ulcer, FOB, Prevalence.

INTRODUCTION

Helicobacter pylori are one of the most common chronic bacterial infections of human affecting about 50% of the world's population. The organism has been causally linked to serious gastric pathology with about 20% of adults developing complications which causes a chronic low level inflammation of the stomach lining and is strongly linked to the development of duodenal and gastric ulcer (Blaser, 2005). Knowledge of transmission pathway for this infection is still evolving. However, it is currently known that the risk of acquiring *H. pylori* infection may be increased by the number of environmental condition particularly among population groups of lower socioeconomic status where overcrowding and poor sanitation are prevalent. Human appear to be the only primary natural reservoir of *H. pylori*. The precise mechanism of transmission of infection from person to person is not clearly understood but studies suggest transmission through fecal-oral, gastric- oral, and oral-oral routes. Studies have shown that children are more susceptible to *H. pylori* infection and most infections are acquired in childhood and may persist into adulthood, increasing the risk of severe gastric pathology among affected persons (Khean-Lee, *et al*; 2011).

H. pylori infection is more prevalent in the developing countries than developed countries. In Africa, most studies have been done in adults and indicate high prevalence rates ranging from 61-100%. Individuals infected with *H. pylori* have a 10 to 20% lifetime risk of developing peptic ulcers and a 1 to 2% risk of acquiring stomach cancer (Kusters *et al.*, 2006). Inflammation of the pyloric antrum is more likely to lead to duodenal ulcers, while inflammation of the corpus (body of the stomach) is more likely to lead to gastric ulcers and gastric carcinoma (Suerbaum and Michetti, 2002). However, it is possible that *H. pylori* plays a role only in the first stage that leads to common chronic inflammation, but not in further stages leading to carcinogenesis (Brown, 2000).

Over 80% of individuals infected with the bacterium are asymptomatic and it is also believed to play an important role in the natural stomach ecology. Because up to half the world's population is infected by the bacterium, it is about the most widespread infection in the world (Blaser, 2006, Pounder and Ng, 1995, Bytzer *et al*, 2011). Studies to address the role of *H. pylori* in bleeding peptic ulcer are few with conflicting results. In a study conducted in Iran, it was found that *H. pylori* infection has a protective role in bleeding peptic ulcer after controlling for confounders (crude odds ratio 0.24, 95% CI 0.21- 0.79)". The study went on to conclude that, "H. pylori infection was found less frequently in bleeding compared to non-bleeding peptic ulcer disease" (Nguyen, *et al*; 2010). A case-control study in elderly patients concluded that in this population, risk of upper gastrointestinal bleeding increases with NSAID use, "While *H. pylori* infection was associated with a low risk for gastric bleeding" (Ozen, *et al*; 2011 and Kgomo, *et al*; 2016). The present study aim at evaluating the prevalence of *Helicobacter pylori* in bleeding and non-bleeding ulcer patients in Aba North Local Government area of Abia State, Nigeria.

Materials and Methods

Study Area

Aba North is a Local Government Area of Abia State, Nigeria. Its headquarters are in the town of Eziama Urata, 05°20'N 07°19'E. It has an area of 23 km² with an estimated population of 107,488 at the 2006 census. Aba is a major settlement and commercial center in the southeastern part of Nigeria. The people are predominantly traders, artisans, farmers and civil servants. Compounded with the socioeconomic nature of the people, personal and environmental hygiene related infections are common.

Ethical Consideration

Ethical clearance was sought for and obtained from the clinical ethical committee of the teaching Hospital, Aba North L.G.A State. Informed consent was also obtained from all the participants.

Sample Collection

A total of 250 venous blood and stool sample was collected for this study. 3ml of venous blood was collected from each informed and consenting adult into plain containers, allowed to clot and then centrifuged at 3000rpm for 5minutes and then the sera was separated and used for the test which was performed within one hour of sample collection. Stool sample was collected into sterile wide mouth screw cap containers. Persons who had previously been treated for *Helicobacter pylori* infection, gastritis, gastric or duodenal ulcers, persons who had been on medication with proton-pump inhibitors, antibiotic, steroids or non-steroidal anti-inflammatory drugs (NSAIDS) for the past one month were excluded from the exercise. Samples were transported to the Microbiology Laboratory of Abia State Polytechnic, Aba for analysis.

Sample Analysis

Samples were analyzed for *H. pylori* antibodies using *H. pylori* rapid diagnostic kit (RDT) (Spodex limited USA) which is based on qualitative membrane immunoassay. In this test procedure, antihuman globulin (IgG) is immobilized in the test line region of the test. When sample is added to the sample well of the cassette, it reacts with *H. pylori* antigen coated

particles in the test. The mixture migrates chromatographically along the line of the test and interacts with the immobilized antihuman globulin. If the sample contains *H. pylori* antibodies a colored line will appear in the test line region indicating a positive result. The result of the test should be read at 10 minutes (Jemikalajah and Okogun, 2014).

FOB TEST

Faecal occult blood test was performed in emulsifying about 2g of each stool sample in 5mL of normal saline in a test tube (fecal occult blood test tube), using sterile rod, and each placed in a test tube rack. The emulsified stool samples were allowed to sediment, after which, a FOB test strip was dropped into the mixture and allowed to absorb it. Two red lines at the middle of the strip indicate a positive result (Stenstrom, *et al.*; 2008).

RESULT

TABLE 1: Number of Positive and Negative Faecal Occult Blood Test in Bleeding and Non-Bleeding Patients.

The result shows that bleeding patients had higher prevalence rate of 52.43% compared to the non-bleeding patients at 47.57%.

Samples	Positive (%)	Negative (%)
Bleeding	97(52.43)	24(36.92)
Non-bleeding	88(47.57)	41(63.07)
Total	185(74)	65(26)

TABLE 2: Prevalence of *H. Pylori* in Blood Samples Positive for FOB Test in Bleeding and Non-Bleeding Patients.

Samples	Positive (%)	Negative (%)
Bleeding	77(60.63)	20(34)
Non-bleeding	50(39.37)	38(66)
Total	127(68.64)	58(31.36)

DISCUSSION

H. pylori are a major cause of certain diseases of the upper gastrointestinal tract. Rising antibiotic resistance increases the need to search for new therapeutic strategies; this might include prevention in form of vaccination. Much work has been done on developing viable vaccines aimed at providing an alternative strategy to control *H. pylori* infection and related diseases, including stomach cancer. Researchers are studying different adjuvant, antigens, and routes of immunization to ascertain the most appropriate system of immune protection against the bacteria (Selgrad and Malfertheiner, 2008 and Blanchard and Nedrud, 2010). However, In the absence of treatment, *H. pylori* infection (once established in its gastric niche) is widely believed to persist for life. In the elderly, however, infection likely can disappear as the stomach's mucosa becomes increasingly atrophic and inhospitable to colonization (Goodman *et al*; 2005). In the present study, the prevalence of *Helicobacter pylori* in bleeding and non-bleeding ulcer patients in Aba North local government area of Abia state was investigated. The result revealed that 185 (74%) of the patients were positive for faecal occult blood (FOB) of which 97(52.43%) were bleeding and 88(47.57%) were non-bleeding. However, of the 185 positive cases of FOB, 127(68.64%) tested positive for *Helicobacter pylori*. These findings can be attested to that reported by Chika and Sarah (2016) who also reported a higher prevalence of *H. pylori* among residence patients.

The result of the present study also reported a strong relationship between faecal occult blood and *H. pylori* hence upper gastrointestinal ulcer (Pounder and Ng, 1995). 127(68.46%) patients out of 185(74%) positive FOB was positive for both FOB and *H. pylori*. This outcome can be attributed to poor sanitary condition which is common in developing countries and is in agreement with the research conducted by Smoiak, *et al*; (1994) who reported that socio-economic rather than racial factors contribute to high prevalence rate of *H.pylori*. Comparing the prevalence of *H. pylori* infection between bleeding and non-bleeding patients, it was found that the prevalence was higher in bleeding patients (60.63%) as compared to the non-bleeding patients (39.37%). This finding in our study is in contrast to that reported by Kgomo, *et al*; (2016) who reported a lower incidence among the bleeding patients. However in comparing our data with other literatures, we try to put into consideration the fact that demographic difference and personal hygiene may be a contributing factor to such prevalence.

Although, *H.pylori* infection is more prevalent in developing countries has earlier reported by Yamaoka (2008) and Brown (2000), this study has shown that the infection rates is high within Aba due to the socio-economic characteristic of the area. This high rate reported is of public health importance and requires urgent attention to help reduce the spread of the infection.

CONCLUSION

The analysis conducted revealed high rate of *H. pylori* among the inhabitants of Aba North L.G.A. the disease condition has been attributed to poor sanitary condition as well as poor personal hygiene. Therefore, people should be mindful of their environment as this disease has many route of transmission notably Oral- Oral and faecal-oral route.

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