DOI: https://doi.org/10.53350/pjmhs22161627

ORIGINAL ARTICLE

Assessment of the Simultaneous Presence of Helicobacter Pylori in the Gastric Mucosa and Gallbladder Mucosa in Patients Suffering from Cholecystitis: a cross Sectional Study

ASMA KAFEEL[1], JAMSHED BASHIR[2], ISHFAQ AHMAD KHAN[3], MUHAMMAD ADNAN BAWANY[4], MUHAMMAD JAVAID RASHID[5], JAHANA ARA[6]

[1]Woman Medical Officer General Surgery, Liaquat University Hospital Hyderabad, Pakistan.
[2]Associate Professor Surgery, Muhammad Medical Collage Mirpurkhas, Pakistan.
[3]Specialist Registrar Surgery, Barnsely Hospital, Barnsely United Kingdom.
[4]Consultant Physician, Isra University Hyderabad Pakistan.
[5]Registrar Surgery, Rustaq Hospital Rustaq, Oman.
[6]District Head Quarter Hospital Mirpur Mathelo District Ghotki, Pakistan.
Corresponding author: Asma Kafeel, Email: asmakafeel01@gmail.com

ABSTRACT

Aim: The current study was designed to assess the simultaneous presence of H. pylori in gastric and gallbladder mucosa in the patients of acute cholecystitis or symptomatic cholelithiasis.

Study design: Cross sectional study

Place and duration: This study was conducted at Liaquat University Hospital Hyderabad, Pakistan from March 2020 to March 2021.

Methodology: A total of 43 patients suffering from acute cholecystitis and symptomatic cholelithiasis were selected. Their age, gender, and the presence of H. pylori in the gallbladder and gastric mucosa was determined and recorded. The results were statistically analyzed by SPSS version 22.

Results: Out of the 43 patients, 20 were male, and 23 were female. Recorded mean age was 54.8±9.9 years and 22 (51.2%) had acute cholecystitis and the remaining 21 (48.8%) had cholelithiasis. In the gastric mucosa, in 14 patients (32.6%) H. pylori was positive. Similarly, in the gall bladder; it was positive in 19 patients (44.2%). In 6 patients (13.9%) i.e. in 4 men and 2 women, H pylori was simultaneously present in both gallbladder and gastric mucosa. No particular relationship was observed in the H. pylori's presence or absence in gallbladder and gastric mucosa.

Conclusion: The presence of H. pylori in gallbladder plays a critical role in the gallbladder's infection. However, its simultaneous presence in gastric mucosa is not a good standard to assess biliary diseases.

Keywords: H. pylori, Cholecystitis, Cholelithiasis, Gallbladder, Gastric mucosa

INTRODUCTION

Helicobacter pylori (H. pylori) is the ubiquitous bacteria present in almost 50% of the global population.[1] Its infection is observed in almost 80% adults of developing countries.[2] H. pylori colonizes itself in the gastric mucosa and is responsible for causing different gastrointestinal disorders such as intestinal disorders, infections in gallbladder, and liver, and stomach cancer.[3] It is suggested that the infection of H. pylori in the gall bladder and stomach is concurrent.[4]As it has already been reported in previous that in almost 10-80% cases of H. pylori across the world concurrency was observed. Not only in gastrointestinal disorders but now a days in certain cases of inflammatory bowel diseases, heart and lung diseases, and in fatty liver diseases, the concurrent infections of H. pylori are being discussed.[5] It is also a proven fact that regional differences are responsible for the concurrency of infections of H. pylori.[6] The current study is designed to assess the prevalence of concurrent H. pylori infection in the patients suffering from the infections of gallbladder.

METHODOLOGY

It was a cross sectional study which included 43 patients. This study was conducted at Liaquat University Hospital Hyderabad, Pakistan from March 2020 to March 2021. Permission was taken from the ethical review committee of the institute. An informed consent was obtained from each patient in written and it was made sure that all the information regarding the patients was kept confidential. For their inclusion, it was made sure that all the patients must have undergone cholecystectomy. Other key points of the inclusion criteria were the presence of and confirmation of disease on the basis of history, and clinical examination, must have their ultrasound reports with them, the age should be more than 40 years, and must have dyspepsia symptoms. Patients who had to undergo emergency surgery, or have symptomatic cholelithiasis after being treated with H. pylori infection were not included in the study. Biopsy was conducted of the patients to determine H. pylori's presence in the gastric mucosa by obtaining the sample from antral gastric mucosa. Similarly, during the cholecystectomy, the sampling was done from the gallbladder. Giemsa staining was performed to visualize the presence of H. pylori in the sample. The data was assessed on the basis of frequency percentage, frequency distribution, and their mean values were calculated. Estimating the relationship between gender of patients and the presence of bacteria in the gallbladder and the gastric mucosa, and the relationship between the smoking pattern, and gender of patients along with their pathological status, chi square test was used. All patients who were diagnosed by transabdominal ultrasound as having gallstones, underwent upper GI Endoscopy, biopsy taken and data collected in predesigned proforma, |Patient underwent cholecystectomy and GB sample for culture and

histopathology sent ,directed for giemsa stain.Sample, selection by convenient sampling and patient in study informed for pre-cholecystectomy Endoscopy and those found positive for H.Pylori , eradication therapy given post cholecystectomy. Statistical analysis was performed on SPSSversion 22.

RESULTS

In the current cross sectional study, out of the 43 patients from whom the biopsy samples were collected, 20 were male, and 23 were female. The recorded mean age was 54.8±9.9 years with a minimum age of 40 years and a maximum age of 80 years. Out of the 43 patients, 22 (51.2%) had acute cholecystitis and the remaining 21 (48.8%) had cholelithiasis. After Giemsa staining, in the gastric mucosa, in 14 patients (32.6%) H. pylori was positive; in 9 men and 5 women, while it was negative in 29 patients (67.4%) i.e. in 11 men and 18 women. Similarly, in the gall bladder; it was positive in 19 patients (44.2%) i.e.in 11 men and 8 women, and negative in 24 patients (55.8%) i.e. in 9 men and 15 women. In 6 patients (13.9%) i.e. in 4 men and 2 women, H pylori was simultaneously present in both gallbladder and gastric mucosa. No particular relationship was observed in the H. pylori's presence or absence in gallbladder and gastric mucosa. Similarly, it was observed that in the patients, whom the bacteria was simultaneously present in both gallbladder and gastric mucosa had the pathological conditions such as cholelithiasis, and acute cholecystitis with a p value of 0.035. It was also found that out of our 43 patients, 10 (23.2%) were smokers, and 33 (76.7%) were nonsmokers. However, we were failed to establish any relationship between the simultaneous presence of bacteria in the gallbladder and gastric mucosa and the gender as the obtained p value was 0.603, and no relationship was observed between the smoking status and gender with the pathological status of patients as its obtained p value was 0.520.

DISCUSSION

Current study was conducted to evaluate the concurrency of the H. pylori infection in the gallbladder and gastric mucosa of the patients suffering from symptomatic cholelithiasis and acute cholecystitis. The frequency of H. pylori's prevalence determined that more H. pylori was present in the biliary mucosa than in the stomach. It was also assessed that no significant relationship was present between the simultaneous presences of H. pylori in the gastric mucosa, stomach, and gall bladder of the patients suffering from biliary disease.

Our results coincided with the results obtained by Silva et al, in which they suggested that H. pylori has a significant role in mediating peptic ulcer, and treating H. pylori's infection results in the treatment of disease.[7] Different invasive and non-invasive methods are available to detect H. pylori but the gold standard is still the histological examination of the biopsy samples of H. pylori. Although, the role of H. pylori in forming the gallstones is still unclear but there are evidences which suggest the presence of bacterial DNA and antigen in the gallbladder, and have a significant relationship between cholelithiasis and gallbladder's inflammation. Different studies have been conducted in order to study the relationship between the H. pylori's presence in gallbladder and other biliary diseases. Silva et al, suggested that a significant relationship exists between the risk of developing cholelithiasis, and being a woman with an obtained p value 0.020, increasing age with a p value 0.002, and the presence of bacterial DNA in the biliary sac tissue with a p value 0.002, and they also determined that a significant correlation exist between H. pylori's presence in the gallbladder and the cholecystitis in women with a p value 0.009. In another study conducted by Bulajic et al., the association of H. pylori with biliary tumors was determined and it was found out that a significant relationship also exists between the H. pylori's presence in gallbladder and stomach and the clinical diagnosis.[8]Individuals having gallstones have a 3.5 times risk of developing H. pylori infection in the gallbladder when the results were compared with the control group. Similarly, in the patients having biliary carcinoma have 9.9 times risk of having H. pylori which suggests that there is a strong association between biliary carcinoma and H. pylori's presence. In our study, there was no significant relationship between smoking and disease status in the patients. H. pylori was simultaneously present in the gallbladder and gastric mucosa of patients in both the genders and no significant relationship was present between the pathological status and the gender of patients. These results were different from the results of other similar studies. It was also determined with our results that H. pylori is present in the gallbladder of patients who have biliary disease and its presence plays a critical role in developing acute infection.

CONCLUSION

It is concluded with the results that H. pylori is capable of causing infection independently in the two organs i.e. in stomach and gallbladder but its simultaneous presence is not a good marker to evaluate the biliary disease.

Permission: It was taken from the ethical review committee of the institute

Conflict of interest: None

Funding source: None

REFERENCES

1. Go MF. Natural history and epidemiology of Helicobacter pylori infection. Alimentary pharmacology & therapeutics. 2002 Mar; 16:3-15.
2. Torres J. Epidemiologic and clinical aspects of Helicobacter pylori infection in children. Revista de gastroenterologia de Mexico. 2000; 65(4 Suppl 2):13-9.
3. Kusters JG, Van Vliet AH, Kuipers EJ. Pathogenesis of Helicobacter pylori infection. Clinical microbiology reviews. 2006; 19(3):449-90.
4. Javaherzadeh M, Shekarchizadeh A, Sabet B, Mousavi-Almaleki SA, Mirafsharieh A. Simultaneous Helicobacter Pylori Infection in Gastric Mucosa and Gallbladder Mucosa in Patients with Cholecystitis; Is There Any Relationship?. Academic Journal of Surgery. 2016; 3(1-2):12-4.
5. IARC Working Group on the Evaluation of Carcinogenic Risks to Humans. Infection with Helicobacter pylori. InSchistosomes, Liver Flukes and Helicobacter pylori 1994. International Agency for Research on Cancer.
6. Castaneda CA, Castillo M, Chavez I, Barreda F, Suarez N, Nieves J, Bernabe LA, Valdivia D, Ruiz E, Dias-Neto E, Landa-Baella MP. Prevalence of Helicobacter pylori

infection, its virulent genotypes, and Epstein-Barr virus in Peruvian patients with chronic gastritis and gastric cancer. Journal of global oncology. 2019 Sep; 5:1-9.

7. Silva CP, Pereira-Lima JC, Oliveira AG, Guerra JB, Marques DL, Sarmanho L, Cabral MM, Queiroz DM. Association of the presence of Helicobacter in gallbladder tissue with cholelithiasis and cholecystitis. Journal of clinical microbiology. 2003;41(12):5615-8

8. Bulajic M, Maisonneuve P, Schneider-Brachert W, Müller P, Reischl U, Stimec B, Lehn N, Lowenfels AB, Löhr M. Helicobacter pylori and the risk of benign and malignant biliary tract disease. Cancer: Interdisciplinary International Journal of the American Cancer Society. 2002; 95(9):1946-53.