Original Article

RISK FACTORS FOR PEPTIC ULCER AMONG PATIENTS UNDERGOING UPPER GASTROINTESTINAL TRACT ENDOSCOPY AT AL SALAM TEACHING HOSPITAL IN MOSUL, IRAQ

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ABSTRACT

Background: The stomach or the first and second sections of the duodenum are the most common locations for peptic ulcers, which are erosions brought on by discontinuation or disruption in the inner lining of the gastrointestinal tract (GIT) as a result of hyperacidity. The commonest risk factors of peptic ulceration are *Helicobacter pylori* infection, nonsteroidal anti-inflammatory drug (NSAID), oral steroid use, and tobacco consumption. **Objectives:** Is to assess the risk factors for having peptic ulcer among patients undergoing upper GIT endoscopy at Al Salam Teaching Hospital in Mosul City. **Methods:** The study is case control study done at endoscopy unit- Al Salam Teaching Hospital in Mosul, Iraq from the 1st of July 2023 to the end of December 2024. The questionnaire includes three parts, part one for sociodemographic information, part two for anthropometric measures and part three for various risk factors for peptic ulcer disease. **Results:** The study includes 300 patients, of them 100 patients with peptic ulcer (cases) and 200 patients with normal OGD findings (controls). Among patients 87 (87%) patients had duodenal ulcer while 13 (13%) patients had gastric ulcer. The mean age of the study participants was 46.64 ± 28.32 years. It was evident that male gender, active smoking, NSAIDs and steroid drugs intake, the presence of previous peptic ulcer or having positive family history, positive *H. pylori* infection, coffee consumption and spicy food and lastly; extreme stressful life event were founded to be risky for peptic ulcer disease. **Conclusion:** The inflammatory and ulcerative processes are complex and impacted by both genetic predisposition and environmental variables. There may be variation in the risk factors linked to peptic ulcer disease. To fully examine how many factors contribute to the development of peptic ulcer disease, more researches are necessary.

KEYWORDS: Peptic ulcer, Endoscopy, Risk factors, Mosul, Iraq.

1- INTRODUCTION

The stomach or the first and second sections of the duodenum are the most common locations for peptic ulcers, which are erosions brought on by discontinuation or disruption in the inner lining of the gastrointestinal tract (GIT) as a result of hyperacidity. However, they can also occur in the lower esophagus, the duodenum's end, or the jejunum.[1-3] The disease's severe form may cause a variety of symptoms, such as nausea, vomiting, abdominal pain, weight loss, bleeding, and perforation.[4-5] The commonest risk factors of peptic ulceration are *Helicobacter pylori* infection, nonsteroidal anti-inflammatory drug (NSAID), oral steroid use, and tobacco consumption.[6-8] Peptic ulcers, which include both gastric and duodenal ulcers, are typically not distinguished solely by history.[9] However, the most prevalent symptom of both types of ulcers is epigastric pain, which is characterized by a burning sensation that appears two to three hours after a meal in the case of a duodenal ulcer and shortly (15 to 30 minutes) after a meal in the case of a gastric ulcer.[10] Helicobacter pylori, which can colonize the stomach mucosa, produce inflammation and prevent the release of bicarbonate which promotes the development of gastric acidity, is responsible for 70–90% of gastric ulcers and 90% of duodenal ulcers.[11] These ulcers are often acquiring during childhood.[12-13]

Upper endoscopy may be used to diagnose peptic ulcer disease in patients with dyspepsia and alarm signs such

as weight loss, age over 60, family history of gastrointestinal tract (GIT) cancer, dysphagia, early satiety, GIT bleeding, vomiting, and iron deficiency anemia.[14-15] Endoscopy allows for the differentiation of benign and malignant etiology.[16] Due to substantial changes in risk factors, such as the decline in *H. pylori* infection and the limited use of NSAID medications, the prevalence of peptic ulcer disease has decreased globally in recent years.[17-18] Every year, almost four million people suffer from peptic ulcers. Duodenal ulcers are typically more prevalent than stomach ulcers.[12] While gastric ulcers happen after the age of 60, duodenal ulcers typically develop between the ages of 30 and 50 and are more common in men.[19-20]

The aim of the study is to assess the risk factors for having peptic ulcer among patients undergoing upper GIT endoscopy at Al Salam Teaching Hospital in Mosul City.

2- PATIENTS AND METHODS
The study is case control study done at endoscopy unit-Al Salam Teaching Hospital in Mosul, Iraq from the 1st of July 2023 to the end of December 2024. Ethical approval was given by Nineveh Health Directorate. The study is confidential and did not include any information that might be used to identify a specific individual. To be eligible to participate in the study, participants had to be at least eighteen years old. In contrast, those taking proton pump inhibitors (PPI), those who were younger than 18 or older than 85, and those whose questionnaires contained missing or incomplete information were not included. A flexible endoscope known as the PENTAXI-scan 5000 was used by the author to do the endoscopies. It was placed into the mouth and proceeded down to the esophagus, stomach and duodenum. A 2% lidocaine HCL gel was applied prior to the endoscope tube being inserted. In few instances, intravenous sedation (injection of midazolam) was used to reduce procedure-related anxiety and discomfort. Patients fasted for 8 hours before the procedure, typically lasting 5 - 15 minutes. The patients were signing a consent before the procedure.

Following visualization of the esophagus, stomach, and duodenum, biopsies were obtained from the lesions and sent to the hospital's histopathology lab. The biopsy which was obtained during the endoscopy was placed in quick urease test slides. When H. pylori is present in the biopsy sample, the bacteria's urease enzyme breaks down the test solution's urea. The color changes to pink or red as a result of this process, raising pH and signifying a positive *H. pylori* test result. In addition to documenting the results, several of the lesions were photographed. The patient's sociodemographic information, such as age, sex, educational background, marital status, and employment status, were asked in part one of the questionnaire. Anthropometric information was covered in part two. Other variables were covered in part three including smoking, unusual coffee consumption, using NSAIDs, steroid, having previous or family history of peptic ulcer disease, eating spicy meals, and having stressful life event. The statistical software SPSS-30 (Statistical Packages for Social Sciences, version 30) was used to analyze the data. Data were interpreted in simple measures of frequency, percentage, mean and standard deviation. The association between peptic ulcers and related risk factors was investigated using the chi-Square test. P-values less than 0.05 were regarded as statistically significant.

3- RESULTS
The study includes 300 patients, of them 100 patients with peptic ulcer (cases) and 200 patients with normal OGD findings (controls). Among patients 87 (87%) patients had duodenal ulcer while 13 (13%) patients had gastric ulcer. The mean age of the study participants was 46.64 ± 28.32 years. It was evident that male gender is in risky association (odds' ratio = 2.82) and statistically significant different from female gender (P value = 0.029). Moreover; patient with secondary level of education were shown risky association (odds' ratio = 2.025) while patients with university and post graduate education had a protective association (odds' ratio = 0.526 and 0.599 respectively) but statistically with no significant differences (P value = 0.223). The same with obesity grade II and morbid obesity, which had risky association (odds' ratio = 1.421 and 1.430 respectively) but with no statistically significant differences (P value = 0.447). No significant association or statistically significant differences was found regarding ages interval, marital state, residency, illiterate and primary educational level, underweight, normal weight, overweight and obesity grade I. As shown in table 1.

Table 1: Demographic and anthropometric parameters of the study participants.

Variables	Cases		Controls		Odds' ratio (CI)	P- value
	No.	%	No.	%		
Genders: -Male	79	79	114	57	**2.82 (1.356-4.213)**	**0.029**
-Female	21	21	86	43	0.352 (0.178-1.087)	
Ages: -18-25	15	15	37	16.5	0.300 (0.023-1.301)	
-26-35	35	35	67	33.5	0.265 (0.009-1.078)	
- 36-45	27	27	61	30.5	0.236 (0.103-1.108)	0.346
- 46-55	12	12	23	11.5	0.456 (0.147-1.398)	
- More than 55	11	11	12	6	1.936 (0.187-2.890)	
Marital State: -Single	21	21	34	17	1.297 (0.874-1.523)	0.812
-Married	64	64	131	65.5	0.936 (0.439-1.719)	

-Widow	6	6	18	9	0.645 (0.378-1.295)	
-Divorce	9	9	17	8.5	1.064 (0.379-1.498)	
Residency: - Urban	78	78	144	72	1.083 (0.649-1.271)	0.105
- Rural	22	22	56	28	0.725 (0.461-0.178)	
Educational level: Illiterate	21	21	53	26.5	0.729 (0.284-1.601)	
- Primary	29	29	54	27	1.104 (0.054-1.787)	
- Secondary	35	35	42	21	**2.025 (1.377-3.457)**	0.183
- University	11	11	38	19	**0.526 (0.049-0.908)**	
- Post graduate	4	4	13	6.5	**0.599 (0.356-0.789)**	
Body mass index: Underweight	6	6	17	8.5	0.687 (0.339-1.265)	
- Normal	19	19	43	21.5	0.856 (0.259-1.176)	
- Overweight	39	39	75	37.5	1.065 (0.678-1.468)	
- Obesity grade I	18	18	39	19.5	0.906 (0.754-1.439)	0.447
- Obesity grade II	11	11	16	8	**1.421 (1.146-1.879)**	
- Morbid obesity	7	7	10	5	**1.430 (1.179-2.004)**	

Table 2 shows the association and study the statistical differences between patients with peptic ulcer (cases) and those without peptic ulcer (controls) regarding different parameters. Active smoking shown to have risky association (odds' ratio = 1.450) and statistically significant different (P value = 0.007). Non-steroidal anti-inflammatory and steroid drugs intake were shown to have risky association (odds' ratio = 1.576 and 2.342) and statistically significant different (P value = 0.009 and 0.021 respectively). Additionally; the presence of previous peptic ulcer or having positive family history were explored risky association (odds' ratio = 3.690 and 4.000) and statistically significant different (P value = 0.001 and 0.028 respectively). Moreover; positive *H. pylori* infection was been in risky association (odds' ratio = 1.864) and statistically significant different (P value < 0.001). Furthermore; coffee consumption and spicy food intake were shown to be in risky association (odds' ratio = 1.567 and 4.049) and statistically significant different (P value = 0.021 and < 0.001 respectively). Lastly; extreme stressful life event was founded to be risky (odds' ratio = 4.188) and statistically significant different (P value = < 0.001).

Table 2: Comparison between patients and controls regarding different risk factors.

Variables	Cases		Controls		Odds' ratio (CI)	P- value
	No.	%	No.	%		
Smoking: Active smoker	32	32	49	24.5	**1.450 (1.278-1.987)**	
- Passive smoker	23	23	51	25.5	0.872 (0.456-0.991)	**0.007**
- X -smoker	12	12	45	22.5	0.469 (0.278-1.496)	
- Not smoker	33	33	55	27.5	1.298 (0.883-1.736)	
NSAIDs use	27	27	38	19	**1.576 (1.298-2.389)**	**0.009**
Iron use	18	18	33	16.5	1.110 (0.728-1.879)	0.441
Steroid use	12	12	11	5.5	**2.342 (2.198-2.836)**	**0.021**
Presence of previous peptic ulcer	16	16	9	4.5	**3.690 (1.996-5.984)**	**0.001**
Positive family history of peptic ulcer	8	8	4	2	**4.000 (1.879-7.772)**	**0.028**
Positive *H. pylori* infection	45	45	61	30.5	**1.864 (1.371-2.702)**	**< 0.001**
Unusual coffee consumption	21	21	29	14.5	**1.567 (1.023-2.001)**	**0.021**
Spicy Food	71	71	99	45.5	**4.049 (2.762-5.289)**	**<0.001**
Extreme stressful life event	85	85	115	57.5	**4.188 (2.349-6.019)**	**<0.001**

4-DISCUSSION

Peptic ulcer disease has continued to be a major causal factor for hospital admissions and a menace in terms of morbidity and mortality. The current study highlighted the risk factors associated with peptic ulcer disease among patient diagnosed by esophagogastroduodeno scopy to have peptic ulcer. The disease was shown in the study to affect wide spectrum of ages (the mean was 46.6 years) which is comparable to the study finding of Nazish Butt et al from Pakistan.[21] Male gender was shown in the current study to have a risky association with peptic ulcer disease in comparison to female gender with statistically significant difference, the findings which is goes with Laween Hashim Dawood et al from Kurdistan Region/ Iraq.[22] From the other hand; the study illustrates that patients with lower educational levels had a risky association with peptic ulcer disease versus those with higher educational levels had a protective association with peptic ulcer disease. Moreover; active smoking, obesity grade II and morbid obesity were had a risky association; these results were parallel to Fu-Wei Wang et al study results.[23] Both steroid and non-steroidal anti-inflammatory drugs intake were shown in the current study to have risky association with peptic ulcer, which is consistent with Camryn L Keller et al[24] and Yaser M Alsinnari et al[25] study results.

The presence of previous history or family history of peptic ulcer disease were founded to be risk factor for new onset peptic ulcer which runs with Mi Hong Yim et al[26] and Aydin Dadfar[27] Not surprisingly; patients infected with *H. pylori* were shown to have a risk for peptic ulcer disease, comparably the World Health Organization (WHO) now considers it a class 1 carcinogen leading to peptic ulcer disease.[28, 29] Another risk factors which were obtained from the study were coffee consumption, spicy food intake and having extreme stressful life, which were consistent with Ahmed Ali Khesbak et al study finding.[30] While this study breaks new ground in analyzing peptic ulcer risk factors for a sample from Iraq population, its impact is tempered by some limitations. Its pioneering nature and focus on clinically relevant factors such as iron, steroids and non-steroidal anti-inflammatory drug use which offer a valuable importance for treating other diseases. However, its generalizability is limited by the small sample size and single-center design, requiring for additional study with larger, more varied samples. Finally, this research, when combined with other studies, may help develop customized clinical practice guidelines for Iraqi patients suffering from peptic ulcer disease, which could greatly enhance preventive measures.

5- CONCLUSION
In conclusion, this study revealed that among individuals undergoing upper gastrointestinal endoscopy exhibit peptic ulcers. Male gender, having BMI of more than 35 Kg/ m^2, active smoking, NSAIDs, Steroid use, presence of previous peptic ulcer or family history of peptic ulcer disease, *H. pylori* infection, unusual coffee consumption, spicy food intake and stressful life events emerged as identified risk factors for peptic ulcer disease. Because the inflammatory and ulcerative processes are complex and impacted by both genetic predisposition and environmental variables, there may be variation in the risk factors linked to peptic ulcer disease. To fully examine how many factors contribute to the development of peptic ulcer disease, more researches are necessary.

Conflict of intertest: About this study, the authors disclose no conflicts of interest.

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