Original Article

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What Predicts Peptic Ulcer in Patients Referred for Endoscopy?

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ABSTRACT

Background: Peptic ulcers and other gastric lesions are significant medical conditions. Endoscopy is one useful diagnostic tool, the use of which is dependent on patient selection.
Objectives: This study attempts to explore how predictive selected symptoms may be, along with their characteristics in diagnosing peptic ulcers and other gastric lesions in patients undergoing endoscopy.
Methods: A cross-sectional study was conducted with 152 patients referred to the endoscopic unit at Al-Sadr teaching hospital in Basrah. The patients were carefully interviewed to determine clinical and sociodemographic characteristics. They were subjected to endoscopic examination by a specialist physician, and their results were recorded on the same information sheet. Data were analyzed using the Statistical Package for Social Science, version 20.
Results: Given the complexity of the risk factors, clinical manifestations and diagnostic techniques, it seems difficult to predict which patients are likely to have peptic ulcers and which are not. In this study, only self-reported stress and H pylori infection were found to significantly predict the likelihood of peptic ulcers among patients subjected to endoscopic examination.
Conclusions: Patients subjected to endoscopy are expected to have a variety of gastric lesions, including peptic ulcer. A substantial proportion of these patients were entirely lesion free.
Key words: Prediction, peptic ulcer, Basrah, endoscopy

INTRODUCTION

The prevalence of peptic ulcer is decreasing in many western communities as a result of widespread use of Helicobacter pylori (H. pylori) eradication therapy.(1) Consequently, there has been a dramatic reduction in the number of patients undergoing elective surgery for peptic ulcer disease, probably as a result of a number of factors, including the H. pylori medical treatment.(2) However, H. pylori infection remains high in developing countries, probably due to the inadequate treatment of this causative agent. The high prevalence of H. pylori infection in developing countries contributes to the continuity of a relatively high risk of peptic ulcer and other related lesions in the stomach and other parts of the gastrointestinal tract.(3) Chronic H. pylori infection is also implicated in the risk of stomach

cancer.[4] The diagnosis of peptic ulcer and other gastric lesions is achieved through a number of investigations, including endoscopic examination. However, the selection of patients for endoscopic examination needs to be guided by clinical criteria, mainly a combination of history and physical examination. This article attempts to explore how predictive selected symptoms and patient characteristic are in diagnosing peptic ulcers and other gastric lesions.

MATERIAL AND METHODS

This study was carried out at the endoscopic unit of Al-Sadr teaching hospital. The study population included patients who complained of abdominal symptoms suggestive of gastric–duodenal pathology, who were referred by specialist doctors for endoscopic examination at Al-Sadr teaching hospital during the period from the beginning of January to the end of April, 2016. The cross-sectional study involved 152 consecutive patients who underwent endoscopic examination by specialist doctors. Prior to the endoscopic examination, all patients were interviewed regarding personal biodata (age, sex, education, job, marital status, and place of residence), selected risk factors (smoking status, NSAID use, alcohol use, whether food was spicy or not, family history of peptic ulcer, and presence of chronic comorbidities), along with details of selected symptoms of their conditions (epigastric pain, vomiting, nausea, and burning sensation). The endoscopic results were recorded on the same data sheet as that used by the examining doctor. In addition, H. pylori infection was tested for in 127 of the 152 patients studied. Data were fed into a computer program (specifically, the Statistical Package for Social Science, version 20) and analyzed for the results reported in this article.

RESULTS

Sociodemographic characteristics, age, sex, and marital status: Table 1 shows that patients with gastric problems who referred for endoscopic treatment covered a wide age range. The most common age groups were those of 30–39 and 40–49 years, which accounted for 21.1% and 19.7% respectively. Females were more common (55.3%), compared to males (44.7%). Also, most of the patients were married (74.3%).

Residence, education, and occupation: About two-fifths (i.e., 62 patients, or 40.8%) were residents in Basrah city center. Just under one-fifth (19.1%) were from each of the southern districts of Abul-Khasib and Fao and the western district of Zubair. The northern districts (Qurna and Al-Madinah) and eastern district (Shatt Al-Arab) contributed fewer patients (9.9% and 11.2% respectively). Patients were fairly distributed across educational groups, but those who had attained a primary education level were the most common (32.9%). Most of the female patients were housewives (representing 79.8% of the females and 44.1% of all patients). Employed and non-employed shared close percentages, at 19.1% and 21.1% respectively. The remaining

were either students (7.9%) or retired (7.9%).

Endoscopic findings: About one-fourth (25.7%) of the patients who underwent endoscopic examination showed no gastric lesion whatsoever (Table 3). The three main lesions found were gastritis alone or gastritis combined with others, which was found in 34 patients (22.4%); peptic ulcer in 30 (19.8%); and hiatal hernia in 32 patients (21.1%). However, the number of patients with lesions other than peptic ulcer was 83 (54.6%).

H. pylori infection was found in 58 out of the 127 tested patients, or 45.7%.

Table 1: Age, sex, and marital status of the studied patients

Characteristic	No.	%
Age		
<20	15	9.9
20–29	21	13.8
30–39	32	21.1
40–49	30	19.7
50–59	24	15.8
60–69	30	19.7
Sex		
Male	68	44.7
female	84	55.3
Marital status		
Single	22	14.5
Married	113	74.3
Divorce	4	2.6
Widowed	13	8.6
Total	152	100

Predictors of Peptic Ulcer

To identify predictors of peptic ulcer, we used the endoscopic results for each patient as the dependent variable (peptic ulcer versus no peptic ulcer). The list of the predictors included age, sex, marital status, education, history of epigastric pain, vomiting, nausea, heartburn, history of use of non-steroidal anti-inflammatory drugs, smoking, alcohol use, consumption of spicy food, patients' self-reported experience of stress, and place of residence (urban, rural).

Table 2: Residence, education, and current job of the studied patients

Characteristic	No.	%
Residence		
Basrah city	62	40.8
South of Basrah	29	19.1
North of Basrah	15	9.9
West of Basrah	29	19.1
East of Basrah	17	11.2
Education		
No schooling	20	13.2
Primary	50	32.9
Intermediate	32	21.1
Secondary	25	16.4
College or more	25	16.4
Occupation		
Housewife	67	44.1 (79.8% of female patients
Employed	29	19.1
Retired	12	7.9
Student	12	7.9
Unemployed	32	21.1
Total	152	100.0

Two significant predictors were identified: H. pylori infection and reported stress. All other variables could not be found to predict peptic ulcer in patients undergoing endoscopic examination.

Table 3: Endoscopic findings among the studied patients

Endoscope finding (details)	No.	%
No lesion	39	25.7
Gastritis	27	17.8
Peptic ulcer	22	14.5
Hiatal hernia	15	9.9
Gastropathy	14	9.2
GERD	5	3.2
Tumor	5	3.2
Hiatal hernia + gastritis	6	3.9
Hiatal hernia + GERD	5	3.2
Peptic ulcer + GERD	4	2.6
Hiatal hernia + gastropathy	4	2.6
Peptic ulcer + gastropathy	2	1.3
Gastritis + peptic ulcer	1	0.7
Peptic ulcer + hiatal hernia	1	0.7
GERD + gastropathy	1	0.7
Hiatal hernia + tumor	1	0.7
Total	152	100.0
Endoscopic findings (ulcer versus others) Peptic ulcer All other lesions Normal	 30 83 39	 19.7 54.6 25.7

Table 4: Predictors of peptic ulcer

Variables	Beta	Exponential	Confidence interval		P Value
Significant predictors			Lower	Upper	
Stress	1.219	5.357	1.205	9.534	0.021
H. pylori infection	1.007	3.859	1.002	7.415	0.049
Nonsignificant predictors					
Age	-.134	.874	.627	1.219	.428
Sex	.873	2.395	.753	7.614	.139
Education	.172	1.188	.832	1.695	.344
Occupation	-.213	.808	.565	1.156	.243
Family history	.904	2.470	.796	7.663	.118
Epigastric pain	.828	2.289	.295	17.740	.428
Nausea	.482	1.620	.495	5.304	.425
Vomiting	.509	1.664	.630	4.393	.304
Burning sensation	-.307	.736	.269	2.015	.551
NSAID2	-.864	.421	.146	1.219	.111

DISCUSSION

The significance of the study: Peptic ulcer disease remains of global significance to human health. The incidence of peptic ulcers has decreased in many countries following the falling prevalence of H. pylori infection, but it has nonetheless remained an important clinical issue. The lifetime risk of peptic ulcer among persons infected with H. pylori is 10–25%. This is much greater than the risk among non-infected persons. [(5)] The prediction of peptic ulcer on the basis of clinical features and a package of risk factors could help identify in a more refined manner the patients who require endoscopy. This is a cross-sectional epidemiological study performed on 152 patients at Al Sadr teaching hospital who had symptoms of peptic ulcer and underwent endoscopic examination. This study was designed to answer two specific questions: ***(1) Is it possible to predict peptic ulcer based on a package of clinical and sociodemographic characteristics? (2) Is it possible to predict H. pylori infection among patients with gastric problems?***

The major limitation of the present study was the difficulty of recruiting a larger number of patients within a limited time span. A further limitation was the difficulty the investigator faced in securing laboratory tests for all patients in the study in order to identify H. pylori.

Patient Characteristics: Socio-demographic characteristics of the study population showed that most of the patients were aged from 30 to 49 years. This pattern was similar to the results of a study carried out in Al-Diwaniyah

city.[6] Regarding sex, females outnumbered males, but this mix is very different from the results obtained in the study of Al-Diwaniyah city, where males accounted for 80% and female patients represented only 20% of the study population.[6] These differences might not be a true reflection of the patient mix. Rather, they are likely to be a function of the sampling technique used, coupled with selective referral to the facilities where the patients had been recruited; they may also reflect differential access to healthcare.[7] Most of the patients it the study were married and, in this sense, they seem representative of the general adult population in the Basrah governorate.[8–10]

With respect to other characteristics, it seems that the patients reflect a fair mix of the adult Basrah population and a fair accessibility to/acceptance of endoscopic examination, or both. In the general female population in Basrah, working women represent less than 20% of the population, [9,10] which is very similar to the results of the present study. The clinical and risk profiles were variable but were within the range reported by other researchers. [11–15]

Pattern of Lesions: According to the endoscopic examination and laboratory finding, 25.7% of the patients had no gastric lesions at all; the three main findings were gastritis, peptic ulcer, and hiatal hernia. The extent of peptic ulcer in the present study was much lower than that reported in the study in Al-Diwaniyah, which reported that the proportion of peptic ulcers in their series represented 55% of the cases.[6] A higher proportion was also reported in another study, published in the *Tikrit Medical Journal*, where peptic ulcers represented 43.6% of total endoscoped patients.[16] The differences in the pattern of endoscopic findings are likely methodological in nature, reflecting selection of patients for endoscopy. However, they could also reflect a true difference in the risk of peptic ulcer.

Risk of Peptic Ulcer: Using logistic regression analysis, the significant predictors of peptic ulcer were stress (p=0.021) and H. pylori infection (p=0.049). This is similar to a study at Al-Anbar university, which found that the H. pylori infection was a significant predictor of peptic ulcer.[7] In another study, in which the authors looked into gastric and duodenal ulcers separately, the predictive role of H. pylori was significant in gastric ulcer only, but not in duodenal ulcer.[17] Our results are similar to those in a study carried out in Korea, where it was found that H. pylori infection and male gender were strong risk factors for peptic ulcer.[18] The results are also similar to those of an earlier study which found that psychological factors and stress likely interact with H. pylori and other risk factors to cause ulcer disease by inducing acid secretion and promoting H. pylori colonization by neutralizing the inhibitory effect of the bile.[19] A study in Iran reported H. pylori infection, smoking, NSAIDs, and male gender were significant predictors of peptic ulcer.[14]

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