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Endoscopic and Histopathological Findings, and The Presence of Helicobacter Pylori in Diabetic and Non-Diabetic Patients Admitted to the Emergency Department with Dyspeptic Complaints

Mehmet Ali Bilgili

Van Education and Research Hospital, Department of Emergency, Van, Turkey

ABSTRACT

The patients presenting with dyspeptic complaints constitute a significant rate among all patients. We investigated the endoscopic findings and the presence of *Helicobacter pylori* (HP) in patients who presented to the emergency department with dyspeptic complaints.

Patients, who presented to the emergency department of our hospital with dyspeptic complaints and underwent an endoscopic examination of the upper gastrointestinal system between February/2018 and September/2019, were included in the study. The demographic characteristics of the patients, the treatments they were administered, and the data on smoking and alcohol consumption were documented. Endoscopic findings and histopathological data of the patients were documented. It was examined whether there was a statistical difference between the diabetic and non-diabetic groups.

A total of 100 patients were included in the study. The DM group consisted of 50 patients in total, 30(60%) female; and the non-DM group consisted of 50 patients in total, 28(56%) female. The most common endoscopic finding in both groups was pangastritis. According to the comparison made between the groups in terms of endoscopic findings; the laxity of the LES was found in the non-DM group with a statistically higher rate ($p=0.027$). However, other endoscopic findings and the presence of HP were similar in both groups ($p>0.05$).

While pangastritis was frequently present in patients presenting with dyspepsia in the emergency department, there was no significant difference between diabetic and non-diabetic groups in terms of endoscopic findings and presence of HP.

Keywords: Dyspepsia, Emergency, Histopathology

Introduction

Diabetes mellitus (DM) is the most common endocrine disease. Today, there are approximately 463 million patients in the world. This is approximately 9.3% of the world population. Developed countries have a higher incidence of DM compared to the developing countries (1-4). Complications that may occur during the course of DM constitute serious financial and social burdens. When these complications are managed poorly, a serious loss occurs in the labor, and the cost of treatment reaches extreme numbers (3,4). The importance of the management process of DM and its complications and the necessity of the treatment could be better understood with these numbers (1-4).

Dyspeptic complaints are observed in approximately 40% of patients with DM (5,6). Reflux, constipation, and burning pain in the epigastric region are the most common symptoms. These dyspeptic complaints are frequently observed in the community; however, their frequency is higher in the case of DM. In addition, the response to the treatment is lower compared to patients with no diabetes (5,6). Dyspeptic complaints are one of the common reasons for diabetic patients in presenting to the hospital and they decrease the quality of life in the patients (4-6).

Scientific studies have demonstrated that dyspeptic complaints are more frequent in patients with DM compared to healthy individuals; however, it is not clear whether there is a difference in terms of endoscopic findings. In our

*Corresponding Author: Mehmet Ali Bilgili, Department of Emergency Medicine, Van Education and Research Hospital, Van, Turkey
E-mail: drmalibilgili@gmail.com, Telephone: +90 (532) 253 79 73, Fax: 0 (432) 217 56 00
Van Education and Research Hospital, 65100, Van, Turkey
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study, we investigated the endoscopic findings and the presence of helicobacter pylori in diabetic and non-diabetic patients who presented to the emergency department with dyspeptic complaints.

Materials and Methods

Study Design: The study included 50 patients diagnosed with DM and 50 patients with no DM, who presented to the emergency department of our hospital with dyspeptic complaints and underwent an endoscopic examination of the upper gastrointestinal system (GIS) between February 2018 and September 2019. Our study had a retrospective research design. Pregnant patients and patients who underwent organ transplantation (liver, kidney, bone marrow) were not included in the study. Demographic characteristics of the patients (age, gender), treatments (oral antidiabetic drugs (OAD), insulin, OAD, NSAID, steroid, Acetylsalicylic Acid (ASA)), smoking and alcohol consumption were documented.

Clinical and Laboratory Measurements: The diagnosis of DM was made according to the criteria of ADA. Patients with fasting plasma glucose above 126 mg/dl, random blood glucose above 200 mg/dl, second-hour blood glucose above 200 in the oral glucose tolerance test (OGTT), and Hemoglobin (Hb)A1c level above 6.5% were accepted as DM according to the diagnostic criteria of DM (7,8). Patients diagnosed with DM, and non-diabetic (non-DM) patients were evaluated in two different groups. Their data were compared.

Endoscopic Evaluation: Endoscopic findings and histopathological data of the patients were documented. The endoscopy of the patients was performed by using the Fujinon EG530WR endoscopy device in the endoscopy unit of our hospital. Oral and written consents were obtained from the families before the endoscopy. All patients fasted for 6 hours before the endoscopy, and after the local pharyngeal xylocaine anesthesia, the endoscopy procedure was performed. The duodenum was examined in detail during the endoscopy, and biopsies were taken for helicobacter pylori infection. The relationship between patients with DM and non-DM patients was investigated in terms of the correlation between endoscopic and histopathological findings.

Tissue Biopsy and Histopathological Evaluation: A punch biopsy was taken using biopsy forceps from the antrum of the patients, who underwent endoscopic evaluation. The biopsy materials were sent to the pathology laboratory in 10% formaldehyde. Following the routine tissue monitoring procedures, paraffin-embedded tissue samples were cut at 5-micron thickness, stained with routine Giemsa Stain Kit, and evaluated under the light microscope. Samples without the required competence for evaluation were excluded from the study. The materials taken were evaluated by three different experienced pathologists without disclosing clinical information. The presence of HP in the tissue was evaluated.

Statistical Analysis: The results of our study were analyzed using "The Statistical Package for the Social Sciences 19.0 (SPSS Armonk, NY: IBM Corp.)". Data with continuous values were given as mean ± standard deviation; and the categorical data were given as frequency and percentage (n, %). Data were tested for compliance with normal distribution using the Kolmogorov-Smirnov test, histogram, and ± sd. Data were tested using the Chi-square test and t-student test. The cases with $p<0.05$ were considered statistically significant.

Results

A total of 50 patients, 30 (60%) female and 20 (40%) male in the DM group, and 50 patients, 28 (56%) female and 22 (44%) male in the non-DM group, were included in the study. Demographically, the mean age of the patients in the DM group was significantly higher ($p<0.001$). There was no significant difference in terms of gender. Looking at the drugs and bad habits of the patients in the DM group, it was observed that 10 (20%) patients were smokers, 1 (2%) patient was an alcohol consumer, 18 (36%) patients were taking NSAIDs, 12 (24%) patients were using ASA, and 5 (10%) patients were under steroid therapy (Table-1). In terms of the drugs and bad habits of the patients in the non-DM group, it was observed that 12 (24%) patients were smokers, 7 (14%) patients were alcohol consumers, 31 (62%) patients were taking NSAIDs, 10 (20%) patients were using ASA, and 10 (20%) patients were under steroid therapy (Table-2). There was no statistically significant difference between the groups in terms of smoking and alcohol consumption ($p=0.405$, 0.059, respectively). NSAID use was statistically higher in the non-DM group ($p=0.016$). There was no difference between the groups in terms of the use of other drugs ($p>0.05$) (Table-3).

Tablo 1. Drug and Bad Habit Distribution of Diabetic Patients

	Use	Not use
Cigarette (n,%)	10 (20)	40 (80)
Alcohol (n,%)	1 (2)	49 (98)
NSAID (n,%)	18 (36)	32 (64)
ASA (n,%)	12 (24)	38 (76)
Steroid (n,%)	5 (10)	45 (90)
Metformine (n,%)	43 (86)	7 (14)
OAD (n,%)	34 (68)	16 (32)
Insulin (n,%)	27 (54)	23 (46)

Tablo 2. Drug and Bad Habit Distribution of Non-Diabetic Patients

	Use	Not use
Cigarette (n,%)	12 (24)	38(76)
Alcohol (n,%)	7 (14)	43 (86)
NSAID (n,%)	31 (62)	19 (38)
ASA (n,%)	10 (20)	40 (80)
Steroid (n,%)	10 (20)	40 (80)
Metformine (n,%)	0 (0)	50 (100)
OAD (n,%)	0 (0)	50 (100)
Insulin (n,%)	0 (0)	50 (100)

When the groups were compared in terms of endoscopic findings, it was observed that the laxity of the LES was significantly more common in the non-DM group. This difference was statistically significant (p=0.027). However, other endoscopic findings were similar in both groups. There was no statistically significant difference (p>0.05) (Table-4).

When both groups were compared in terms of HP, there was no statistically significant difference between the groups (p=0.838) (Table-4).

Discussion

DM is a chronic, metabolic disease; and it is the most common endocrine disease in the world. The incidence has been increasing day by day (8-11). The prevalence was determined as 7.7% in the first of TURDEP (The Turkish Epidemiology Survey of Hypertension, Obesity, and Endocrinological Diseases Prevalence) studies, which were carried out in 1998 and 1999. However, the prevalence was observed to have reached 13.7% in the TURDEP II study, which was carried out in 2010 (12,13). DM continues to be a global health problem with increasing momentum.

Today, more than 1 trillion United States Dollars are spent annually for the treatment of DM and management of its complications (4,9). The vast majority of expenses are made for the treatment of complications. Modern treatments increase the lifespan of patients with DM. This result seems to be positive; however, there is an increase in the frequency of complications, which bring serious burdens on health and economy (4,9).

Recent studies have shown that diabetic patients have a higher rate of dyspeptic complaints compared to healthy individuals (6,14-18). Similarly, previous studies have shown that there is a relationship between dyspeptic complaints and diabetic regulation and that dyspeptic complaints are more common in patients with DM and with poor glycemic control (17,18). Dyspeptic complaints are common in patients with DM; however, it is not clear whether endoscopic findings are different compared to non-diabetic patients. Previous studies have presented different results (15-19).

In a study conducted by Oner et al, in which the frequency of dyspeptic complaints among diabetic and non-diabetic groups was examined, it was reported that dyspeptic complaints were significantly higher in patients with DM. In the same study, the two groups were compared in

Table 3. Comparison of Demographic Characteristics and Drug Use Status of Diabetic and Non-Diabetic Patients

Medication and demographic features	DM (n:50)	Non-DM (n:50)	P value
Age (Year±SD)	57.6±14,2	42,5±11,7	<0,001*
Sex (Female,%)	30 (60)	28 (56)	0,840
Cigarette (n,%)	10 (20)	12 (24)	0,405
Alcohol (n,%)	1 (2)	7 (14)	0,059
NSAID (n,%)	18 (36)	31 (62)	0,016*
ASA (n,%)	12 (24)	10 (20)	0,810
Steroid (n,%)	5 (10)	10 (20)	0,262

Table 4. Comparison of endoscopic findings of diabetic and non-diabetic groups

Endoskopic signs	DM (n:50)	Non-DM (n:50)	P value
Antral gastritis (n,%)	18 (36)	18 (36)	0.100
Pangastritis (n,%)	32 (64)	32 (64)	0.100
Esophagitis (n,%)	17 (34)	16 (32)	0.832
Gastric ulcer (n,%)	3 (6)	4 (8)	0.695
Duodenal ulcer (n,%)	2 (4)	4 (8)	0.678
Bulbitis (n,%)	1 (2)	1 (2)	0.100
Hiatal hernia (n,%)	1 (2)	4 (8)	0.169
LES disfunction (n,%)	1 (2)	7 (14)	0.027*
Alkaline reflux gastritis (n,%)	1 (2)	1 (2)	0.100
Barret metaplasia (n,%)	1 (2)	1 (2)	0.100
Atrophic gastritis (n,%)	0 (0)	0 (0)	-
H.P (n,%)	30 (60)	31 (62)	0.838

terms of endoscopic findings and it was demonstrated that the incidence of gastric ulcer was higher in patients with DM and that there was no statistically significant difference in terms of other endoscopic findings (15). In our study, the laxity of the LES was observed at a higher rate in non-DM patients. However, no statistically significant difference was found between DM and non-DM groups in terms of other endoscopic findings.

HP infection is a major health problem. It is known that it may cause a clinical entity that can progress to gastric cancer and lymphoma. In addition, it has been reported that the frequency of HP is higher in some chronic diseases compared to the normal population (20,21). Stanciu et al. examined whether there was a difference in the presence of HP in diabetic and non-diabetic patients and concluded that there was no significant difference between the groups (22). Similarly, no statistically significant difference was found between the groups in our study in terms of the presence of HP.

Contrary to Oner et al, Koch et al found that glycemic control had no correlation with dyspeptic complaints and endoscopic findings (11). Vasihnav et al, compared diabetic and non-diabetic patients in terms of endoscopic findings. Vasihnav et al, found that the presence of pangastritis and bulbitis was higher and the presence of HP was more common in diabetic patients compared to non-diabetics (16). We did not obtain such results in our study. On the contrary, the laxity of the LES was observed to be present at a higher rate in the non-DM group. There was no statistically significant difference in terms of HP.

Our study has strengths and weaknesses. The small number of our patients and the retrospective design are the weaknesses of our study. The strengths of our study include the endoscopic and histopathological examinations that were performed on all patients in the study as well as the documentation of the demographic data, and the data regarding the drugs and bad habits, comparing them with endoscopic and histological data.

As a result, the presence of pangastritis was observed in both groups in endoscopic examinations. When the patients with dyspeptic complaints were analyzed, no significant difference was found between the diabetic and non-diabetic groups in terms of endoscopic findings and the presence of HP. However, more comprehensive prospective studies are required to confirm these results.

References

1. Sen S, Chakraborty R. Treatment and Diagnosis of Diabetes Mellitus and Its Complication: Advanced Approaches. Mini Rev Med Chem 2015; 15: 1132-1133.
2. Schmidt AM. Highlighting Diabetes Mellitus: The Epidemic Continues. Arterioscler Thromb Vasc Biol 2018; 38: 1-8.
3. Ruiz J. Diabetes Mellitus. Rev Med Suisse 2012; 8: 88-90.
4. Satman I, Imamoglu S, Yilmaz C, Akalin S ve Diabetes Mellitus Çalışma ve Eğitim Grubu. TEMD Diabetes Mellitus ve Komplikasyonlarının Tanı, Tedavi ve İzlem Kılavuzu, 5. Baskı. Bayt Matbaacılık, Ankara, 2011.
5. Y Kayar, A Ilhan, NB Kayar, et al. Relationship between the poor glycemic control and risk factors, life style and complications. Biomedical Research 2017; 28: 23-25.
6. Bharucha AE, Kudva YC, Prichard DO. Diabetic Gastroparesis. Endocrine Reviews October 2019; 40: 1318-1352.
7. Standards of Medical Care in diabetes 2020. Diabetes Care 2020; 43: 1-2.
8. American Diabetes Association. Standards of Medical Care in Diabetes. Diabetes Care 2015; 38: 8-67.
9. Guariguata L, Whiting DR, Hambleton I, Beagley J, Linnenkamp U, Shaw JE. Global estimates of diabetes prevalence for 2013 and projections for 2035. Diabetes Res Clin Pract 2014; 103: 137-149.
10. Kayar Y, Pamukcu O, Eroglu H, et al. Relationship between Helicobacter pylori infections in diabetic patients and inflammations, metabolic syndrome, and complications. Int J Chronic Dis. 2015; 2015: 290128.
11. Koch CA, Uwaifo GI. Are gastrointestinal symptoms related to diabetes mellitus and glycemic control? Eur J Gastroenterol Hepatol 2008; 20: 822-825.
12. The TURDEP Group. Population-Based Study of Diabetes and Risk Characteristics in Turkey. Diabetes Care 2002; 25: 1551-1556.
13. The TURDEP Group. Population-Based Study of Diabetes and Risk Characteristics in Turkey, Istanbul, 2010.
14. American Diabetes Association Professional Practice Committee. American Diabetes Association clinical practice recommendations. Diabetes Care January 2013; 36: 1-110.
15. Oner RI, Karincaoglu M. Correlation of dyspeptic symptoms and endoscopic findings in diabetic patient. Medical Science and Discovery 2018; 5: 130-136.
16. Vasihnav BT, Shaikh SR, Bamanikar AA at al. Diagnostic Upper, gastrointestinal Endoskopi and Prevalence of Helicobacter Pylori İnfection in Dispeptic Type 2 Diabetes Mellitus. J Dig Endosc 2018; 9: 53-60.
17. Meldgaard T, Keller J, Olesen AE, at al. Pathophysiology and management of diabetic gastroenteropathy. Ther Adv Gastroenterol 2019; 12: 1-17.
18. Osipenko M.F, Zhuk E.A, Medvedeva O.V. Diabetes mellitus and dyspepsia syndrome. Klin Med (Mosk) 2008; 86: 13-16.
19. Osipenko M.F, Zhuk E.A, Medvedeva O.V. Clinical characteristics of dyspepsia in patients with diabetes mellitus type 2. Ter Arkh 2013; 85: 43-47.
20. Agın M, Kayar Y, Dertli R, Konur S, Bilgili MA. The Relationship Between Helicobacter Pylori and Reflux Esophagitis in Children. Van Med J 2020; 27: 184-189.
21. Konur S, Surmeli N, Bilgili MA, Dertli R, Kayar Y. Is There a Relationship Between Helicobacter Pylori Eradication and Blood Group? East J Med 2020; 25: 422-426.
22. Stanciu OG, Trifan A, Sfarti C, Cojocariu C, Stanciu C. Helicobacter pylori infection in patients with diabetes mellitus. Rev Med Chir Soc Med Nat Iasi. Jan-Mar 2003; 107: 59-65.