

PRIMARY RESULTS OF A PROSPECTIVE ANALYSIS OF H. PYLORI ASSOCIATED GASTROINTESTINAL DISEASES IN AZERBAIJAN

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The problem of *Helicobacter pylori* infection and associated gastrointestinal tract lesions continues to be a topical issue in the field of gastroenterology. Given the high rates of proximal gastrointestinal tract cancer in our country (in particular, stomach cancer), the study of *Helicobacter pylori*-associated diseases should be of real interest and is a popular area of national gastroenterology and oncology. Thus, as revealed by the authors as a result of the primary analysis, one of the key problems of seeking medical care among young and middle-aged patients was the manifestations of dyspepsia. The obtained results confirm the choice of non-invasive methods as the main diagnostic principles for dyspepsia. The results provide valuable information for the creation of national screening strategies and opportunities for its improvement, treatment issues, as well as prevention among the local population.

Keywords: *Helicobacter pylori*, endoscopic gastroduodenoscopy, stomach cancer.

Introduction. *Helicobacter pylori* is a gram-negative, spiral-shaped bacterium that can infect the mucosa of the stomach and upper small intestine. This bacterium is an important risk factor for a number of diseases of the proximal gastrointestinal tract, such as gastritis, gastric ulcer and duodenal ulcer, and is also associated with the development of gastric cancer [1].

The effect of *Helicobacter pylori* on gastrointestinal diseases is multi-spectral, for example:

- *H. pylori* infection can lead to inflammation of the gastric mucosa, causing both acute and chronic forms of gastritis. The bacterium secretes substances that damage the mucosa and stimulate the body's immune response, which contributes to the development of inflammation.
- *Helicobacter pylori* is one of the main causes of peptic ulcer disease. It disrupts the protective mechanisms of the mucosa and increases the production of gastric acid, which contributes to the formation of ulcers. Ulcers associated with *H. pylori* often tend to recur.
- Chronic *H. pylori* infection increases the risk of developing stomach cancer, especially if the infection causes mucosal atrophy and cellular changes. The bacterium can affect genetic processes in cells, which contributes to the development of tumor diseases. The World Health Organization has recognized *H. pylori* as carcinogenic to humans (Group 1).
- *Helicobacter pylori* can cause inflammation

of the duodenal mucosa, which often leads to duodenitis, which is associated with peptic ulcer disease. This disease can manifest itself with pain in the upper abdomen, dyspepsia and increased acidity.

- *H. pylori* infection is also associated with functional dyspepsia, a condition in which there is chronic pain and discomfort in the upper abdomen, as well as symptoms such as nausea, heartburn and bloating. This can be due to both inflammation and gastric motility disorders.

H. pylori secretes enzymes, such as urease, that neutralize the acidic environment of the stomach, creating conditions for the bacteria to survive. It attaches to the cells of the stomach lining and causes inflammation, which disrupts the normal functioning of the organ. *Helicobacter* also increases the secretion of gastrin, a hormone that stimulates the production of acid, which can worsen the damage to the lining [1, 2].

Various methods are used to diagnose *H. pylori* infection, such as:

- urea breath test: used to detect the bacteria through exhaled air;
- stool antigen test: helps to detect the presence of bacteria in feces;
- endoscopy with biopsy: allows you to examine the lining of the stomach and intestines, as well as conduct laboratory tests;
- serological tests: used to detect antibodies against *H. pylori* in the blood [2].

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Thus, *Helicobacter pylori* plays a key role in the development of diseases of the proximal digestive tract, such as gastritis, gastric and duodenal ulcers, and gastric cancer. Early detection and treatment of infection can significantly reduce the risk of complications and improve the patient's quality of life.

Material and Methods. A total of 3500 patients who underwent endoscopic gastroduodenoscopy (EGDS) in 2017 and 2023 for any indication at Mediland Hospital were included in this study. We conducted a prospective observational study including EGDS performed at Mediland, a large private freestanding hospital in Baku, between November 2017 and April 2023. This study was approved by the AGIES (Azerbaijan Gastroenterology and Invasive Endoscopy Society) Review Board on April 15, 2023. SPSS 26.0 statistical software was used to perform the statistical analyses. Measurement data are expressed as mean $\pm$ SD, comparisons between groups were performed using chi-square value. Countable data were analyzed

using the odds ratio (OR) for each endoscopic finding and its associated 95% Confidence Interval (CI), $p < 0.05$ indicated statistically significant differences.

Patient selection. The patient selection process was designed to identify patients undergoing initial diagnostic endoscopy. In this single-center retrospective observational study, the youngest patient was 14 years old, and the oldest patient was 88 years old. Exclusion criteria included patient age younger than age fourteen years, and patients undergoing repeated endoscopy.

Limitations. Prospective nature of the study, limitation to a single center, and simplification of complex patient presentations to a single indication.

Results. Among these patients, 45% were females, while males accounted for 55% of the sample. The youngest patient was 14 years old, while the oldest patient was 88 years old, mean age 38. The age group that sought medical attention the most was the 30-44 age group (Tab. 1).

Table 1

The distribution of patients by sex and across different age groups

Gender	Number of Patients	Proportion (%)
Male	1575	45
Female	1925	55
Age groups	Patient (n)	
14-29 years	449	
30-44 years	1389	
45-59 years	896	
60-74 years	664	
75 years and above	102	
	Total: 3500	

Indications for Endoscopy Procedures. The most commonly observed symptom among patients attending gastroenterologists was continuous dyspepsia (94.57%) (Fig. 1). The third most common symptom was retrosternal heartburn, which is typically associated with reflux diseases (Tab. 2). It is important to note that dyspepsia is a common symptom that can be caused by a variety of conditions, including acid reflux, gastritis, and peptic ulcer disease, among others. According to the Rome IV criteria, dyspepsia is defined as one or more of the following symptoms such as postprandial fullness, early satiation, epigastric pain or burning, epigastric pain syndrome.

Endoscopy Findings. Based on endoscopy diag-

nosis, the following findings were observed: erosion (492, 14.06%), nodularity (198, 5.66%), duodenal ulcer (90, 2.57%), gastric ulcer (128, 3.66%), and intestinal metaplasia biopsy approved (14, 0.40%), hiatal hernia (928, 26.51%), and esophagitis (1448, 41.37%). The chart above displays the distribution of different diagnoses observed during endoscopy in a sample of total patients (Fig. 2). The high prevalence of esophagitis observed in this sample suggests that it is a common condition in patients undergoing endoscopy. Hiatal hernias were also found to be prevalent in this sample, which is consistent with previous studies that have linked the two conditions.

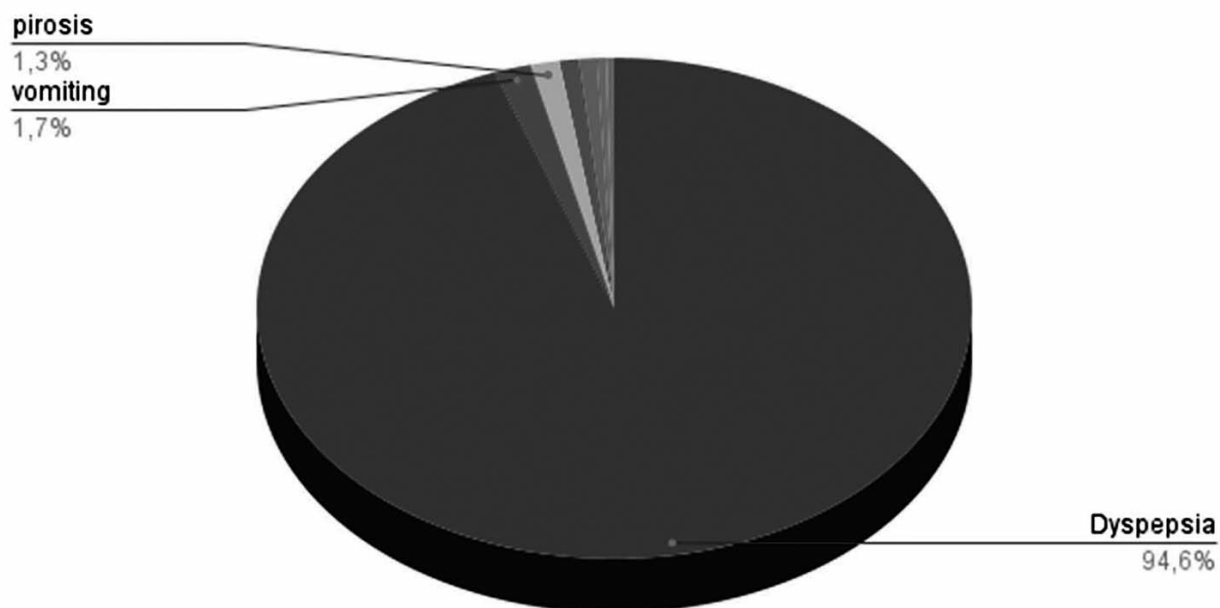


Fig. 1. Indications for endoscopy

Table 2

Main symptoms in patients when choosing a diagnostic method (endoscopy)

Indication	Number of Cases	Percentage
Dyspepsia	3300	94.57%
Vomiting	58	1.66%
Retrosternal Pyrosis	46	1.31%
Dysphagia	30	0.86%
Melena	29	0.83%
Halitosis	14	0.40%
Anemia	13	0.37%

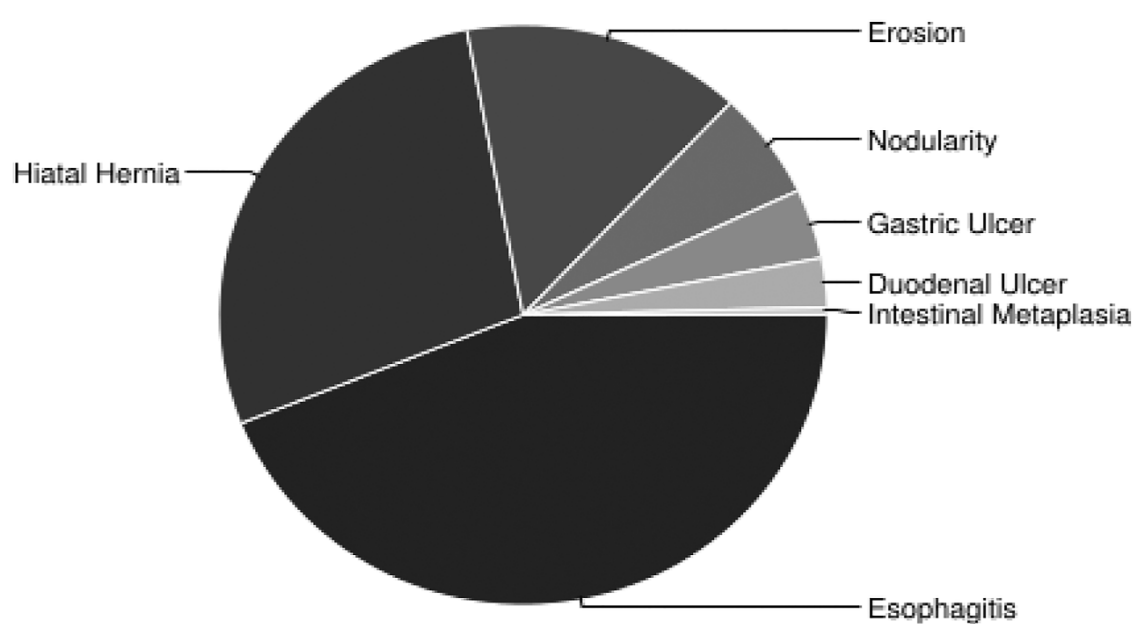


Fig. 2. Prevalence of Diagnoses

Among patients who underwent gastroscopy, the five most common abnormal endoscopy results were as follows (Tab. 3): Esophagitis (41.37% %), gastric erosions (14.06%), peptic ulcers (6.23%), and polyps (4.77%). Diseases such as esophageal candidiasis (1.29%), Hepatic

gastropathy (1.23%), esophageal varices (2.4%), and ectopic pancreas (0.20%) were rare (Tab. 1). In this sample, the most common finding was esophagitis, which had an overall prevalence of 41.4%. Hiatal hernia was the second most commonly observed finding.

Table 3

Endoscopy diagnosis findings

Condition	Number of Patients	Percentage
Esophagitis	1448	41.37%
Hiatal Hernia	928	26.51%
Erosion	492	14.06%
Nodularity	198	5.66%
Polyps	167	4.77%
Gastric Ulcer	128	3.66%
Duodenal Ulcer	90	2.57%
Esophageal varices	84	2.4%
Esophageal candidiasis	45	1.29%
Hepatic gastropathy	43	1.23%
Intestinal Metaplasia	14	0.40%
Ectopic pancreas	7	0.20%
Achalasia	3	0.09%
Esophageal papilloma	3	0.09%
Celiac	2	0.06%
Lymphoma	2	0.06%
Normal endoscopy	78	2.23%

Furthermore, within the 1448 esophagitis cases, the prevalence of different grades was as follows: Grade A

(1016, 70%), Grade B (401, 28%), Grade C (31, 2%), and Barrett's esophagus (71, 5%) overall cases (Fig. 3).

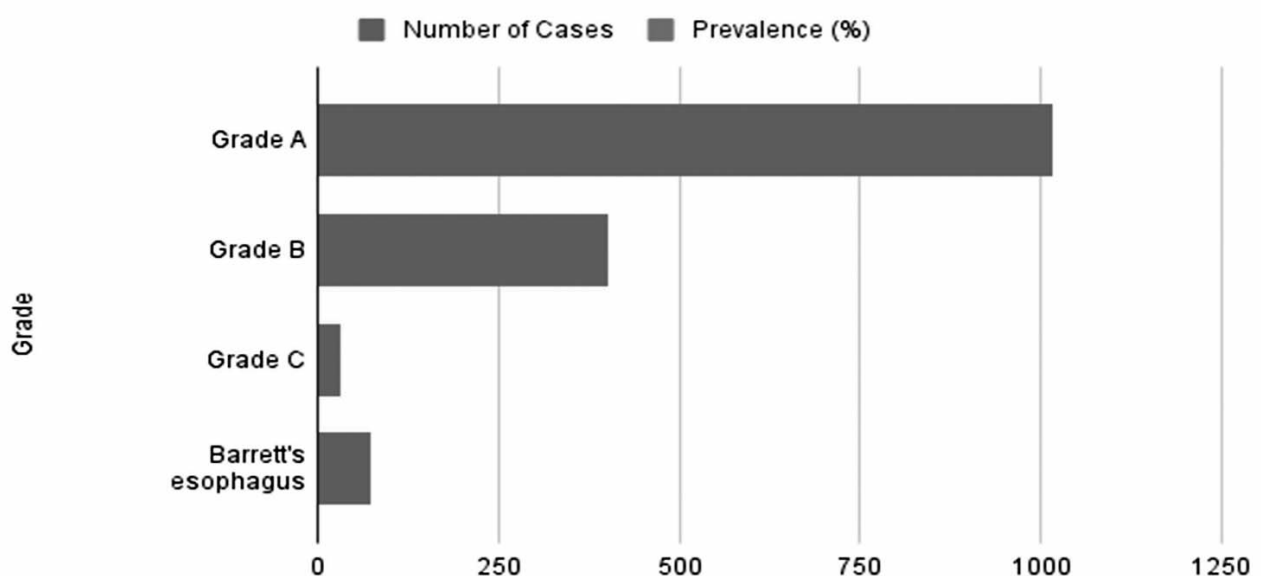


Fig. 3. Prevalence of esophagitis and Barrett's esophagus among EGDs patients

Prevalence of *H. pylori* in EGDS Patients. Among 3500 EGDS patients, 2333 were tested for *H. pylori* infection using rapid urea tests. Minimum two biopsy samples were taken for the test. Any observed lesions from the stomach were biopsied for histological assessment. The prevalence of *H. pylori*

infection was 48.3% (1126 positive cases) and the incidence was 64.4% per person-year. Female (517, 46.0%), Male (609, 54.0%) (see Fig. 4, Tab. 4). *H. Pylori* positive gastritis assessed by Kyoto classification scores (atrophies, intestinal metaplasia, enlarged folds, nodularity, and diffuse redness).

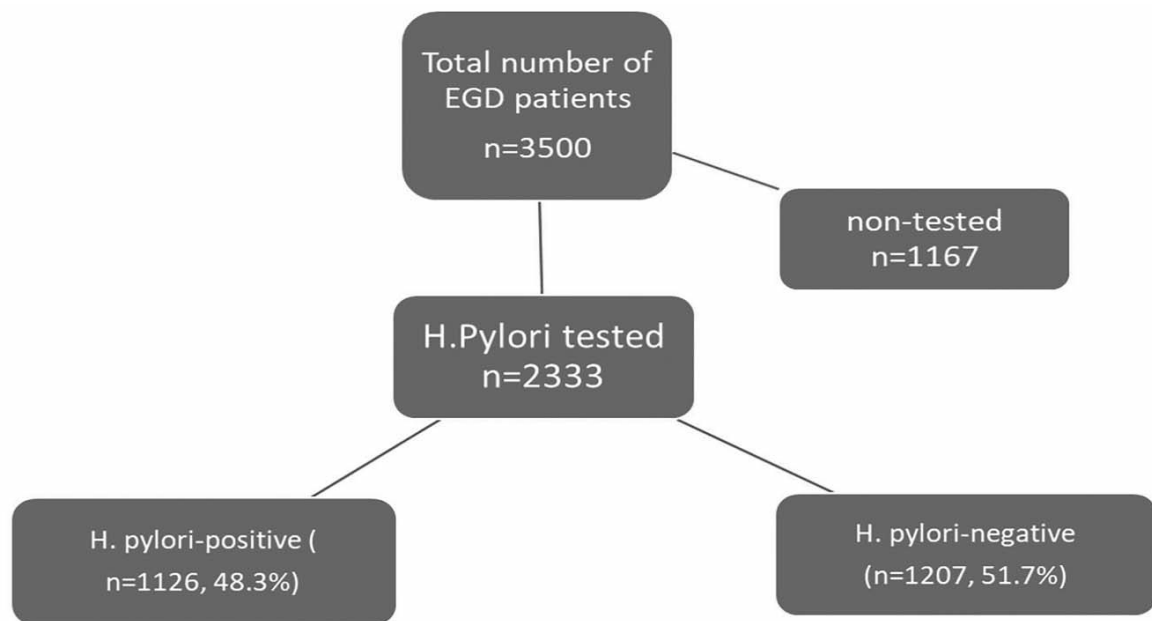


Fig. 4. Details related to *H. Pylori* diagnoses

Table 4

Prevalence of *H. pylori* in EGDS Patients

Endoscopic Finding	<i>H. pylori</i> Positive (n=1126), %	<i>H. pylori</i> Negative (n=1207), %	Odds Ration (OR)	Confidence Intervals (95% CI)	<i>P</i> value	Total
Erosion	340 (30.2%)	152 (12.6%)	2.2958	1.73 - 3.05	<0.0001	492
Gastric Ulcer	41 (3.64%)	30 (2.5%)	1.6364	1.24 - 2.19	0.0573	71
Duodenal Ulcer	83 (7.4%)	7 (0.6%)	10.8823	5.28 - 22.4	<0.0001	90
Normal	390 (34.6%)	516 (42.8%)	1.0131	0.91 - 1.11	<0.0001	906
Nodularity	178 (15.8%)	20 (1.7%)	10.2728	5.21 - 20.21	<0.0001	198
Reflux Esophagitis	250 (22.2%)	675 (55.9%)	0.4846	0.37 - 0.62	<0.0001	925
Intestinal Metaplasia	10 (0.89%)	4 (0.33%)	0.3360	0.23 - 0.49	0.1171	14
Total	1126 (100%)	1207 (100%)				2333

Out of a total of 3500 patients who underwent endoscopy, 2333 individuals were tested for *H. pylori* infection, while the remaining 1167 patients did not undergo *H. pylori* testing. Among the tested patients, 1126 were positive for *H. pylori* infection, while 1207 tested negative for the infection. We conducted a comparison of endoscopic findings between the *H. pylori* tested patients, considering their positive or negative *H. pylori* status.

Tab. 4 presents the number and percentage of

each endoscopic finding for both *H. pylori* positive and negative groups. The calculated *P*-values for each finding using the chi-square test, along with their corresponding Odds ratios and confidence intervals, are also provided. The data demonstrate statistically meaningful relationships between *H. pylori* status and specific endoscopic findings, indicating potential clinical implications. The analysis demonstrated a significant association between *H. pylori* infection and the presence of erosions in the

stomach or duodenum (odds ratio [OR], 2.29; 95% confidence interval [CI], 1.72–3.05), indicating an increased risk of gastrointestinal erosions with H. pylori infection. While there was a notable trend towards an elevated risk of gastric ulcers in H. pylori positive patients, the association did not reach statistical significance (OR, 1.63; 95% CI, 1.24– 2.19), suggesting that factors beyond H. pylori may contribute to gastric ulcer development. In contrast, the odds of duodenal ulcers were significantly higher in H. pylori positive patients compared to H. pylori negative individuals (OR, 10.88; 95% CI, 5.28– 22.42), indicating a strong association between H. pylori infection and duodenal ulcer formation. Interestingly, there was only a marginal difference in the odds of having a normal endoscopic finding between the H. pylori positive and negative groups (OR, 1.01; 95% CI, 0.91 to 1.11), suggesting that the presence of H. pylori may not substantially impact a normal endoscopic examination. However, H. pylori positive patients exhibited significantly higher risk of nodularity (OR, 10.27; 95% CI: 5.21 – 20.21), indicating a potential association between H. pylori infection and nodular endoscopic patterns. Furthermore, H. pylori positive patients demonstrated a significantly lower risk of having reflux esophagitis compared to H. pylori negative individuals (OR, 0.48; 95% CI: 0.37– 0.62), suggesting a potential protective effect of H. pylori against the development of reflux esophagitis. Nevertheless, the association between H. pylori infection and intestinal metaplasia was not statistically significant (OR, 0.33; 95% CI, 0.23–0.49), warranting further exploration through research with an expanded sample size. However, as with any study, it is essential to consider the limitations, such as the cross-sectional design, and further longitudinal studies are encouraged to establish causality and explore potential confounding factors.

Upper GI cancer prevalence. In this study, we collected data on patients who underwent endoscopy and were histopathologically confirmed to have either esophageal or gastric cancer. A total of 43 cancer cases were observed, with 14 occurring in females and 29 in males. The ages of the patients ranged from 40 to 85 years, with a median age of 69. Tab. 5 provides a detailed breakdown of the distribution of cancer cases by age groups in our study

population. We observed a total of 43 cancer cases, with the lowest incidence (1 case) occurring in patients between the ages of 40–44 and the highest incidence (12 cases) occurring in patients between the ages of 70–74.

Table 5

Upper GI cancer cases by age groups

Age groups:	Cancer cases (n=43)
40-44	1
45-49	4
50-54	2
55-59	4
60-64	5
65-69	8
70-74	12
75-79	3
80-85	4

Interestingly, we found that the incidence of cancer varied by age group, with the highest number of cases occurring in patients between the ages of 65–69 (8 cases). This finding is consistent with previous studies that have identified age as a significant risk factor for the development of esophageal and gastric cancer. Furthermore, our data suggests that the incidence of cancer may peak in the 70–74 age group, and then decline in patients over the age of 75. This trend may be due to a variety of factors, including changes in lifestyle behaviors, genetic predisposition, or medical comorbidities. The prevalence of upper GI cancer among the studied population was approximately 1.23% (Fig. 5).

We further investigated the types of cancer based on their location, and found that the majority of cases were cardiac cancer (22 cases). Other observed cancer types included gastric antrum cancer (3 cases), esophageal cancer (7 cases), GEJ cancer (7 cases), GIST (2 cases), and NET (1 case) (Tab. 6).

These findings suggest that cardiac cancer may be the most prevalent type of cancer in this patient population (57.9%), esophageal and GEJ cancer have the same prevalence (18.4%). Our findings highlight the importance of age-specific cancer screening and prevention strategies, particularly in older individuals who may be at increased risk for developing esophageal and gastric cancer.

Discussion. The initial results of our study indicate that endoscopy is the most frequently used examination method for dyspepsia and is apparent-

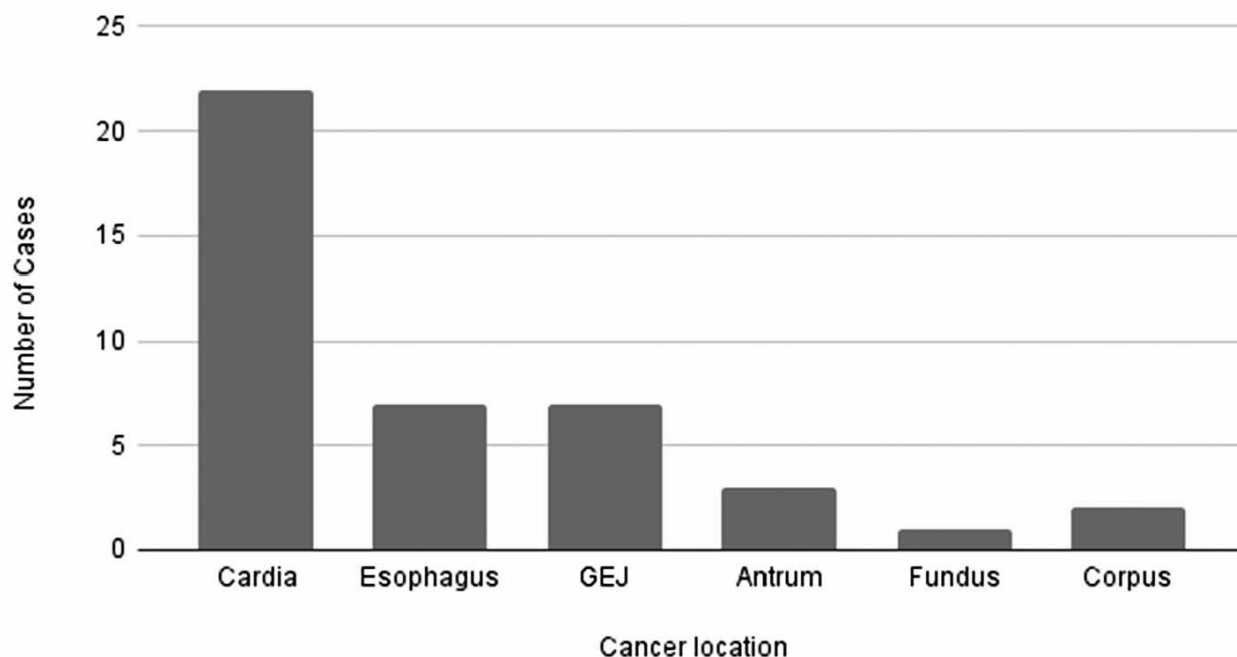


Fig 5. Types of cancer by location and number of cases

Table 6

Cancer cases by location and type

Cancer location	Number of Cases	Cancer Type
Cardia <i>N</i> (%)	22 (57.9%)	AdenoCA
Esophagus <i>N</i> (%)	7(18.4%)	SCC
GEJ <i>N</i> (%)	7(18.4%)	AdenoCA
Antrum <i>N</i> (%)	3(7.9%)	AdenoCA
Corpus <i>N</i> (%)	2(5.3%)	GIST
Fundus <i>N</i> (%)	1(2.6%)	NET

ly the most frequently performed procedure during private clinical outpatient examinations. Dyspepsia without alarm signs does not necessarily require endoscopic examination, but it may be useful for the diagnosis of structural disorders in a certain subgroup of patients. The risk of malignancy is low in young patients without alarm signs [1, 2]. It can be concluded that most likely the young cohort of patients with simple dyspepsia was overexamined. As is well known, the main purpose of esophagogastroduodenoscopy is to detect organic diseases that may be the cause of the patient's symptoms, in particular to exclude proximal gastrointestinal malignancies. However, the potential benefits of using EGDS as an opportunistic screening tool for malignancies such as gastric cancer have not been sufficiently emphasized. It is important to consider

the potential benefits of opportunistic screening when deciding whether a patient with proximal gastrointestinal symptoms should undergo EGDS. For patients with dyspepsia whose symptoms are well controlled with long-term use of proton pump inhibitors (PPIs), the need for endoscopy is uncertain. However, endoscopy should still be considered in patients who have not responded to therapy to exclude structural diseases [3]. In patients who choose to undergo endoscopy as a voluntary test, anxiety associated with their health status is partly high. Undergoing this procedure not only alleviates health concerns but also alleviates the fear of illness and death in those with severe anxiety. These beneficial results are maintained for a significant duration of 6 months, offering a noteworthy respite from the burdensome psychological impact experienced

by these patients [4]. The decision to perform endoscopy in patients with dyspepsia should be based on individual risk factors, clinical judgment, and the presence of anxiety features.

As already mentioned above, the most common reason for endoscopic examinations was dyspepsia, which accounted for 3300 cases (94%). Endoscopy is recommended as the first examination in a patient with dyspeptic symptoms [5, 6]. Few studies report the prevalence of endoscopic examinations in individuals with dyspepsia. Our study allows us to determine the prevalence of dyspepsia in this population, especially emphasizing the high frequency of dyspeptic symptoms in young and middle-aged patients.

There is ongoing controversy and uncertainty regarding the relationship between some gastrointestinal diseases and dyspeptic symptoms. For example, resolution of dyspeptic symptoms after *Helicobacter pylori* eradication and healing of peptic ulcers is often incomplete or absent. According to McColl et al., only 55% of patients with peptic ulcer achieved complete symptom relief three years after *H. pylori* eradication [7]. The relationship between gastroduodenal erosions and dyspeptic symptoms is also difficult to determine [8-10].

During endoscopy, small erosions of less than 5 mm and more were macroscopically observed and diagnosed using the LA grade. In our study, among the identified esophagitis (1448 patients, (41.37%)), grade A (LA) esophagitis accounted for 70% (1016 patients). In patients with dyspeptic complaints, heartburn is almost always accompanied by a complex of additional symptoms, which usually leads to an increase in the prescription of PPIs.

Although LA grade A may indicate the presence of GERD, it is not considered sufficient for a definitive diagnosis. Other clinical factors and symptoms should be considered, and additional diagnostic tests may be needed to confirm the diagnosis of GERD [11]. In particular, the use of questionnaires, a similar study was conducted in Azerbaijan by our colleagues [12]. Another noteworthy finding is the high incidence of hiatal hernia. In particular, the minimum diagnosis of first-degree hiatal hernia was established in 928 patients, which is 26.51% of the total sample. All diagnoses of hiatal hernia were assessed exclusively in patients assessed under

sedation. The incidence of symptomatic hiatal hernia appears to be associated with the diagnosis of gastroesophageal reflux disease (GERD), the two conditions being closely related [11, 13].

Helicobacter pylori (*H. pylori*) is a bacterial pathogen that is found in more than 50% of the world's population. *H. pylori* infection usually occurs in early childhood and can often be asymptomatic. However, symptoms do occur, usually consisting of nausea, vomiting, peptic ulcers, and abdominal pain. In addition, *H. pylori* is classified as a type I carcinogen and is the leading cause of bacterial malignancies [11, 13-15].

Although *H. pylori* infection at an early age significantly increases the risk of gastric cancer, only 2% of infected people worldwide actually develop gastric malignancy [15-18].

H. pylori infection can be attributed to factors such as poor sanitation and low socioeconomic status [18, 19]. However, the incidence of gastric cancer and other gastrointestinal malignancies does not always follow these patterns, suggesting that multiple factors are involved in the development of gastric cancer. Significant differences in the prevalence of *H. pylori* and gastric cancer can be seen in low-income countries where infection rates are high but regional gastric cancer rates vary. Such discrepancies highlight the interaction of various risk factors in the carcinogenesis of gastric cancer, including *H. pylori* genetic variation, co-infections, and dietary patterns [19, 20]. A study in Hong Kong showed that *H. pylori* eradication significantly reduced the risk of gastric cancer in individuals aged 60 years and older. Furthermore, in individuals aged 40-59 years, the risk was lower after 10 or more years of treatment. This highlights the long-term benefits of *H. pylori* eradication in the prevention of gastric cancer [20, 21]. In our study, *H. pylori* was tested using rapid urea tests. Any observed gastric lesions were biopsied for histological evaluation. The prevalence of *H. pylori* infection was 48.3% (1126 positive cases; women (517, 46.0%), men (609, 54.0%)) and the incidence was 64.4% per person-year. All patients received *H. pylori* eradication. The effectiveness of the eradication was assessed by the results of the faecal monoclonal antibody test, the treatment success rate was (912; 81%). According to the TURHEP study, the prevalence of

H. pylori in our neighboring country Turkey is 82.5%, and the eradication success rate has decreased to 55.7% [21, 22]. One study confirmed that endoscopy can detect early gastric cancer with high sensitivity and aimed to evaluate the cost-effectiveness of annual endoscopy versus biennial endoscopy versus no screening for gastric cancer screening in patients after successful *Helicobacter pylori* eradication [23, 24]. Another study discussed the current understanding and approaches to identifying high-risk individuals for gastric cancer surveillance from Western and Eastern perspectives. It also discussed the possibility of an integrated, resource-sensitive approach; the main approach in Western countries is histology-based, whereas in Eastern countries with a high prevalence of gastric cancer, endoscopy-based [24, 25].

Our main findings are that majority of the patients (39.69%) are in the age group of 30-44 years followed by 45-59 years (25.60%). Least number of patients (2.91%) are in the age group above 75 years. Most of the cancer cases (27.91%) are in the age group of 70-74 years followed by 65-69 years (18.60%). Least number of cancer cases (2.33%) are in the age group of 40-44 years. There is a positive correlation between age and cancer cases which means that older patients are more likely to have cancer than younger patients. The most common location of cancer was gastric cardia (upper part of the stomach) with 22 cases (57.9%) followed by esophagus and gastroesophageal junction with 7 cases each (18.4%). The least common sites were the fundus and body of the stomach - 1 case (2.6%) and 2 cases (5.3%), respectively. The most common type of cancer was adenocarcinoma - 36 cases (83.7%), followed by squamous cell carcinoma - 7 cases (16.3%).

The data reflect global cancer incidence trends by site and type. According to the World Health Organization (WHO) [26-29], gastric cancer is the fifth most common cancer worldwide, with 1.09 million new cases in 2020, and esophageal cancer is the seventh most common, with 604,000 new cases in 2020. The most common histological type of gastric cancer is adenocarcinoma, accounting for more than 90% of cases [27-29]. Population-based studies from Western countries [27-31] have shown a rapid increase in the incidence of esophageal ade-

nocarcinoma and gastroesophageal junction adenocarcinoma. Although these two types of adenocarcinoma share common risk factors [27-32], their incidence rates differ, with gastroesophageal junction adenocarcinoma progressing more slowly than esophageal adenocarcinoma. GERD is a significant risk factor for both esophageal adenocarcinoma and gastroesophageal junction adenocarcinoma [29-35]. In Western countries, the rates of *H. pylori* infection in cardiac gastric cancer are significantly lower than in controls. However, in Asian countries, where gastric cancer is common, both non-cardiac and cardiac cancers are characterized by high rates of *H. pylori* infection, and it is considered a carcinogenic risk factor for both cancer types [31-37].

In Asian countries with a high incidence of gastric cancer, two types of gastroesophageal junction adenocarcinoma have been reported: one not associated with *H. pylori* infection as in Western countries and one associated with *H. pylori* infection [32-37]. Studies have shown a higher incidence of esophageal adenocarcinoma with persistent *H. pylori* infection compared to that after eradication therapy. However, the concept of a “protective effect” of *H. pylori* infection on esophageal adenocarcinoma may be overestimated [33-37]. Based on the data provided by the State Statistical Committee, the official statistical agency of the Republic of Azerbaijan, an increase in the overall number of newly diagnosed patients with cancer as well as an increase in the number of cases specifically associated with esophageal and gastric cancers from 2005 to 2022 has been shown [38]. This highlights the importance of ongoing research and development of effective approaches to the prevention, early detection and treatment of these types of cancer.

According to Globalcan [39], the number of new cases of gastric cancer in Azerbaijan in 2020 was 1453, including 995 cases in men and 458 cases in women. The estimated number of deaths from gastric cancer in Azerbaijan in 2020 was 895, including 545 deaths in men and 350 deaths in women. These results have important implications for health policy and practice. They suggest that more resources and attention should be devoted to cancer prevention and treatment among elderly patients, as they are at higher risk of developing this disease [40].

Conclusion. Our study allowed us to determine

the prevalence of dyspepsia in a defined cohort, especially emphasizing the high frequency of dyspeptic manifestations among young and middle-aged patients who actively sought medical care. Erosive esophagitis was the predominant finding during esophagogastroduodenoscopy. The results obtained by the authors highlight the clinical significance of *H. pylori* infection in the context of interpretation of endoscopic findings. Significantly higher risks observed for erosions, duodenal ulcers,

and a protective effect against reflux esophagitis emphasize the need for early detection and appropriate treatment of *H. pylori* infection to prevent potential gastrointestinal complications. These observations support the need to adopt non-invasive strategies for the treatment of dyspepsia in community settings, provide an initial understanding of the prevalence and incidence of *H. pylori* infection in the population of Azerbaijan, as well as the trend of proximal gastrointestinal cancer in this region.

ЛИТЕРАТУРА – ƏDƏBİYYAT – REFERENCES

1. Malfertheiner P, Megraud F, Rokkas T, Gisbert JP, Liou JM, Schulz Ch, Gasbarrini A, et al. Management of *Helicobacter pylori* infection: the Maastricht VI Florence consensus report // *Gut* 2022;0:1–39. doi:10.1136/gutjnl2022327745.
2. Jonaitis P, Nyssen OP, Saracino IM, Fiorini G, Vaira D, Tepes B, et al. Comparison of the management of *Helicobacter pylori* infection between the older and younger European populations // *Sci Rep*. 2023;13(1):17235. DOI: 10.1038/s41598-023-43287-4.
3. Rabeneck L, Wristers K, Soucek J, Ambriz E. Impact of upper endoscopy on satisfaction in patients with previously uninvestigated dyspepsia // *Gastrointest Endosc*. 2003 Mar;57(3):295-9. doi: 10.1067/mge.2003.122.
4. Quadri A, Vakil N. Health-related anxiety and the effect of open-access endoscopy in US patients with dyspepsia // *Aliment Pharmacol Ther*. 2003 Mar 15;17(6):835-40. doi: 10.1046/j.1365-2036.2003.01497.x.
5. Talley NJ, Stanghellini V, Heading RC, et al. Functional gastroduodenal disorders // *Gut* 1999;45(suppl II):II37–42.
6. ASGE Standards of Practice Committee; Shaikat A, Wang A, Acosta RD, Bruining DH, Chandrasekhara V, Chathadi KV, Eloubeidi MA, Fanelli RD, Faulx AL, Fonkalsrud L, Gurudu SR, Kelsey LR, Khashab MA, Kothari S, Lightdale JR, Muthusamy VR, Pasha SF, Saltzman JR, Yang J, Cash BD, DeWitt JM. The role of endoscopy in dyspepsia // *Gastrointest Endosc*. 2015 Aug;82(2):227-32. doi: 10.1016/j.gie.2015.04.003.
7. McColl KE, Dickson A, El-Nujumi A, El-Omar E, Kelman A. Symptomatic benefit 1-3 years after *H. pylori* eradication in ulcer patients: impact of gastroesophageal reflux disease // *Am J Gastroenterol*. 2000 Jan;95(1):101-5. doi: 10.1111/j.1572-0241.2000.01706.x.
8. Mao LQ, Wang SS, Zhou YL, Chen L, Yu LM, Li M, Lv B. Clinically significant endoscopic findings in patients of dyspepsia with no warning symptoms: A cross-sectional study // *World J Clin Cases*. 2021 May 26;9(15):3597-3606. doi: 10.12998/wjcc. v9.i15.3597.
9. Nasser-Moghaddam S, Mousavian AH, Kasaeian A. et. al. What is the prevalence of clinically significant endoscopic findings in subjects with dyspepsia? Updated Systematic Review and Meta-analysis // *Clin Gastroent. Hepatol*. 2022;20:S1542-3565(22)00594-8. doi: 10.1016/j.cgh.2022.05.041.
10. Huang H, Rong Y, Wang M, Guo Z, Yu Y, Long Z, Chen X, Wang H, Ding J, Yan L, Peng J. Analysis of gastroscopy results among healthy people undergoing a medical checkup: a retrospective study // *BMC Gastroenterol*. 2020 Dec 9;20(1):412. doi: 10.1186/s12876-020-01557-9.
11. Katz, Philip O., Dunbar, Kerry B., Schnoll-Sussman, Felice H., Greer, Katarina B., Yadlapati, Rena, Spechler, Stuart Jon. ACG Clinical Guideline for the Diagnosis and Management of Gastroesophageal Reflux Disease // *The American Journal of Gastroenterology* 117(1):p 27-56, January 2022. | DOI: 10.14309/ajg.0000000000001538.
12. Agayeva S., Katzka D., Afandiyeva N., Bor S., Babayeva G.H., Hidayatov A.A., Mammadzada G. The Prevalence of Gastroesophageal Reflux Disease in Azerbaijan: A Population-Based Cross-sectional Study // *Turk J Gastroenterol* 2023; 9: -1-10 DOI: 10.5152/tjg.2023.211042
13. Sugimoto M, Uotani T, Ichikawa H, Andoh A, Furuta T. Gastroesophageal Reflux Disease in Time Covering Eradication for All Patients Infected with *Helicobacter pylori* in Japan // *Digestion*. 2016; 93:24–31.
14. García-Morales N., Pérez-Aisa Á., Fiorini G, Tepes B., et al. *Helicobacter pylori* Diagnostic Tests Used in Europe: Results of over 34,000 Patients from the European Registry on *Helicobacter pylori* Management // *J. Clin. Med*. 2023, 12(13), 4363; <https://doi.org/10.3390/jcm12134363>
15. Burucoa, C., Axon, A. Epidemiology of *Helicobacter pylori* infection // *Helicobacter* 2017, 22, e12403.
16. Wroblewski, L.E.; Peek, R.M.; Wilson, K.T. *Helicobacter pylori* and gastric cancer: Factors that modulate disease risk // *Clin. Microbiol. Rev*. 2010, 23, 713–739.
17. Polk, D.B.; Peek, R.M. *Helicobacter pylori*: Gastric cancer and beyond // *Nat. Rev. Cancer* 2010, 10, 403–414.
18. Conteduca, V.; Sansonno, D.; Lauletta, G.; Russi, S.; Ingravalle, G.; Dammacco, F.H. *pylori* infection and gastric cancer: State of the art (review) // *Int. J. Oncol*. 2013, 42, 5–18.
19. Bourke, B.; Ceponis, P.; Chiba, N.; Czinn, S.; Ferraro, R.; Fischbach, L.; Gold, B.; Hyunh, H.; Jacobson, K.; Jones, N.L.; et al. Canadian *Helicobacter* Study Group Consensus Conference: Update on the approach to *Helicobacter pylori* infection in children and adolescents—An evidence-based evaluation / *Can. J. Gastroenterol*. 2005, 19, 399–408.
20. Rothenbacher, D., Brenner, H. Burden of *Helicobacter pylori* and *H. pylori*-related diseases in developed countries: Recent developments and future implications // *Microbes*.

Infect. 2003, 5, 693–703.

21. Jafri, W.; Yakoob, J.; Abid, S.; Siddiqui, S.; Awan, S.; Nizami, S.Q. Helicobacter pylori infection in children: Population-based age-specific prevalence and risk factors in a developing country // *Acta Paediatr.* 2010, 99, 279–282.

22. Ghoshal, U.C.; Chaturvedi, R.; Correa, P. The enigma of Helicobacter pylori infection and gastric cancer // *Indian J. Gastroenterol.* 2010, 29, 95–100.

23. Leung WK, Wong IOL, Cheung KS, Yeung KF, et al. Effects of Helicobacter pylori Treatment on Incidence of Gastric Cancer in Older Individuals // *Gastroenterology.* 2018 Jul;155(1):67-75. doi: 10.1053/j.gastro.2018.03.028.

24. Ozaydin N, Turkyilmaz SA, Cali S. Prevalence and risk factors of Helicobacter pylori in Turkey: a nationally-representative, cross-sectional, screening with the ¹³C-Urea breath test // *BMC Public Health.* 2013;13:1215.

25. Bayındır Bilman F, Özdemir M, Baysal B, Güzel Kurtoğlu M. Prevalence of H. pylori in gastric biopsy specimen in the southeastern region of Turkey // *J Infect Dev Ctries.* 2016;10:1177–82.

26. Kowada A. Endoscopy Is Cost-Effective for Gastric Cancer Screening After Successful Helicobacter Pylori Eradication // *Dig Dis Sci.* 2021; 66(12):4220-4226. doi: 10.1007/s10620-020-06813-2.

27. Quach DT, Hiyama T, Gotoda T. Identifying high-risk individuals for gastric cancer surveillance from western and eastern perspectives: Lessons to learn and possibility to develop an integrated approach for daily practice // *World J Gastroenterol.* 2019 Jul 21;25(27):3546-3562. doi: 10.3748/wjg.v25.i27.3546.

28. Stanghellini V, Chan FK, Hasler W.L. et. al. Gastrointestinal Disorders // *Gastroenterology.* 2016 May; 150(6):1380-92. doi:10.1053/j.gastro.2016.02.011.

29. Costa, José. "Cancer". *Encyclopedia Britannica*, 2023, <https://www.britannica.com/science/cancer-disease>. Accessed 14 June 2023.

30. Keighley MR. Gastrointestinal cancers in Europe // *Aliment Pharmacol Ther.* 2003 Nov;18 (Suppl 3):7–30.

doi:10.1046/j.0953-0673.2003.01722.x.

31. Xie SH, Lagergren J. Time trends in the incidence of oesophageal cancer in Asia: variations across populations and histological types // *Cancer Epidemiol.* 2016 Oct;44:71–6. doi:10.1016/j.canep.2016.08.002.

32. Lagergren J, Bergström R, Lindgren A, Nyrén O. Symptomatic gastroesophageal reflux as a risk factor for esophageal adenocarcinoma // *N Engl J Med.* 1999 Mar 18;340 (11):825–31. doi:10.1056/NEJM199903183401101.

33. Chen YH, Yu HC, Lin KH, Lin HS, Hsu PI. Prevalence and risk factors for Barrett's esophagus in Taiwan // *World J Gastroenterol.* 2019 Jul 7;25(25):3231–41. doi:10.3748/wjg.v25.i25.3231.

34. Kato M, Asaka M, Shimizu Y, Nobuta A, Takeda H, Sugiyama T. Relationship between Helicobacter pylori infection and the prevalence, site and histological type of gastric cancer // *Aliment Pharmacol Ther.* 2004 Jul;20 (Suppl 1):85–9. doi:10.1111/j.1365-2036.2004.01987.x.

35. McColl KE. Cancer of the gastric cardia // *Best Pract Res Clin Gastroenterol.* 2006;20(4):687–96. doi:10.1016/j.bpg.2006.03.005.

36. Kamada T, Kurose H, Yamanaka Y, Manabe N, Kusunoki H, Shiotani A. Relationship between gastroesophageal junction adenocarcinoma and Helicobacter pylori infection in Japan // *Digestion.* 2012;85(4):256–60. doi:10.1159/000336352.

37. Take S, Mizuno M, Ishiki K, Hamada F, Yoshida T, Yokota K. Low incidence of esophageal adenocarcinoma after eradication of Helicobacter pylori in Japan // *Clin Gastroenterol Hepatol.* 2018 Dec;16(12):1995–6. doi:10.1016/j.cgh.2018.03.030.

38. Azərbaycan Respublikasının Dövlət Statistika Komitəsi. www.azstat.org

39. International Agency for Research on Cancer. <https://gco.iarc.fr/today/data/factsheets/populations/31-azerbaijan-fact-sheets.pdf>

40. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, Bray F. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries // *CA Cancer J Clin.* 2021 May;71(3):209-249. doi: 10.3322/caac.21660.

XÜLASƏ

AZƏRBAYCANDA H.PYLORI İLƏ ƏLAQƏ OLUNAN MƏDƏ-BAĞIRSAQ XƏSTƏLİKLƏRİNİN PROSPEKTİV TƏHLİLİNİN İLKİN NƏTİCƏLƏRİ

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Helicobacter pylori infeksiyası və onunla əlaqəli mədə-bağırsaq traktının xəstəlikləri problemi gastroenterologiya sahəsində aktual problem olaraq qalmaqda davam edir. Ölkəmizdə mədə-bağırsaq traktının proksimal xərçənginin (xüsusən də mədə xərçəngi) yüksək rast gəlindiyini nəzərə alaraq, Helicobacter pylori ilə əlaqəli xəstəliklərin tədqiqi real maraq kəsb etməli, dünya qastroenterologiyası və onkologiyasının tədqiqat sahəsidir. Beləliklə, ilkin təhlil nəticəsində müəlliflərin müəyyən etdiyi kimi, gənc və orta yaşlı xəstələr arasında tibbi yardıma müraciyyətin əsas səbəblərindən biri dispepsiyanın təzahürləri olmuşdur. Əldə edilən nəticələr bədxassəli yenitörəmələrin inkişaf

riski yüksək olan şəxslər üçün ezofaqogastroduodenoskopiyanı dispepsiya diaqnostikasının əsas prinsipləri kimi qeyri-invaziv metodların seçilməsini təsdiq edir. Nəticələr milli skrining strategiyalarının hazırlanması və onların təkmilləşdirilməsi, müalicə məsələləri və yerli əhali arasında profilaktikası üçün dəyərli məlumat əldə edilmişdir.

Açar sözlər: *Helicobacter pylori*, endoskopik qastroduodenoskopiya, mədə xərçəngi.

РЕЗЮМЕ

ПЕРВИЧНЫЕ РЕЗУЛЬТАТЫ ПРОСПЕКТИВНОГО АНАЛИЗА ЗАБОЛЕВАНИЙ ЖЕЛУДОЧНО-КИШЕЧНОГО ТРАКТА, АССОЦИИРОВАННЫХ С *H. PYLORI* В АЗЕРБАЙДЖАНЕ

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Проблема инфекции *Helicobacter pylori* и ассоциированных поражений желудочно-кишечного тракта продолжает оставаться актуальной проблемой в области гастроэнтерологии. Учитывая высокие показатели заболеваемости раком проксимального отдела желудочно-кишечного тракта в нашей стране (в частности, раком желудка), изучение заболеваний, ассоциированных с *Helicobacter pylori*, должно представлять реальный интерес и является востребованным направлением отечественной гастроэнтерологии и онкологии. В результате первичного анализа авторы выявили, что одной из ключевых проблем обращения за медицинской помощью среди пациентов молодого и среднего возраста стали проявления диспепсии. Полученные результаты подтверждают выбор неинвазивных методов в качестве основных принципов диагностики диспепсии. Результаты дают ценную информацию для создания национальных стратегий скрининга и возможностей его совершенствования, вопросов лечения, а также профилактики среди местного населения.

Ключевые слова: *Helicobacter pylori*, эндоскопическая гастродуоденоскопия, рак желудка.

Redaksiyaya daxil olub: 12.07.2024

Çapa tövsiyə olunub: 10.08.2024

Rəyçi: Prof. N.A.Fərəcova