Upper Gastrointestinal Endoscopic and Histopathological Findings in Patients with Dyspepsia

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ABSTRACT

Background: *Dyspepsia is a syndrome located in the epigastric area. Upper gastrointestinal (UGI) tract endoscopy and histopathological examination are important diagnostic tools for dyspepsia. This study aimed to evaluate the pattern of dyspepsia in patients who underwent endoscopy examination at Koja Hospital, Jakarta.*

Method*: All patients with dyspepsia who visited Koja Hospital from January until December 2011 were evaluated in this observational study. The data taken were age, sex, clinical symptoms, risk factors, alarm symptoms, body mass index, UGI tract endoscopic and histopathological findings. Data was analyzed using descriptive statistical analysis.*

Results*: Of 1,279 patients with dyspepsia symptoms, 148 patients underwent UGI tract endoscopy. The main symptom was epigastric pain (91.2%). The most common risk factor was female (60.1%). The most common finding of alarm symptoms was history of UGI bleeding (21.6%). The most frequent result of UGI tract endoscopy was gastritis (79.7%). The most widely found of gastritis type was moderate antral gastritis (56%). The most common gastritis histopathological finding was non-active, non-atrophic, non-dysplastic chronic moderate gastritis (56%). All biopsy results included those with gastritis as well as gastric ulcer, which revealed negative results of Helicobacter pylori (H. pylori).*

Conclusion*: The pattern of dyspepsia at Koja Hospital includes female predominant, most patients had alarm symptom history of UGI bleeding, gastritis on endoscopic findings, but H. pylori was not found in histopathological results.*

Keywords*: dyspepsia, symptoms, risk factors, endoscopy, histopathological*

ABSTRAK

Latar belakang: *Dispepsia merupakan sekumpulan gejala yang berlokasi di epigastrium. Pemeriksaan endoskopi saluran cerna bagian atas (SCBA) dan histopatologi merupakan pemeriksaan penunjang yang penting. Penelitian ini bertujuan untuk mengevaluasi profil dispepsia pada pasien yang menjalani prosedur endoskopi di Rumah Sakit (RS) Koja, Jakarta.*

Metode: *Semua pasien dengan keluhan dispepsia yang tercatat di RS Koja pada Januari hingga Desember 2011 dievaluasi dalam penelitian observasional ini. Data yang diambil adalah usia, jenis kelamin, keluhan, faktor risiko, tanda alarm, indeks massa tubuh, hasil endoskopi SCBA, dan hasil histopatologi. Data diolah menggunakan analisis statistik secara deskriptif.*

Hasil*: Dari 1.279 pasien dispepsia, sejumlah 148 pasien menjalani endoskopi SCBA. Keluhan terbanyak adalah nyeri ulu hati (91,2%). Faktor risiko utama yang ditemukan adalah perempuan (60,1%). Tanda alarm dispespia yang tersering ditemukan adalah riwayat hematemesis melena (21,6%). Hasil endoskopi SCBA terbanyak adalah gastritis (79,7%). Jenis gastritis terbanyak adalah gastritis antral sedang (56%). Hasil pemeriksaan histopatologi gastritis yang terbanyak adalah gastritis kronik, sedang, non-aktif, non-atrofik, dan*

non-displastik (56%). Pada semua kasus yang dibiopsi, baik gastritis maupun ulkus tidak ditemukan adanya Helicobacter pylori (H. pylori).

Simpulan: *Pola klinis dyspepsia di RS Koja lebih sering terjadi pada perempuan dengan tanda alarm terbanyak adalah riwayat hematemesis melena, temuan hasil endoskopi terbanyak adalah gastritis, dan dari hasil histopatologi tidak ditemukan adanya H. pylori.*

Kata kunci*: dispepsia, keluhan, faktor risiko, endoskopi SCBA, histopatologi*

INTRODUCTION

Dyspepsia is a syndrome which consists of epigastric pain or discomfort sense in the epigastric area, including nausea, vomiting, bloating, early satiation, postprandial fullness, burning, regurgitation and heartburn.[1] Dyspepsia can be caused by either functional disease or organic lesion.[1,2] Functional dyspepsia (FD) regarding to Rome III Criteria is divided into 2 subgroup: (1) postprandial distress syndrome (PDS), characterized by postprandial fullness and early satiation, and (2) epigastric pain syndrome (EPS), characterized by epigastric pain and burning.[3,4]

Wallander et al, found that smoking and obesity increase the risk of dyspepsia; while alcohol consumption as well as stress condition did not increase the likelihood of receiving a dyspepsia diagnosis. Consumption of pain killer drugs was also a risk factor.[5] Marwaha et al, noted that the prevalence of dyspepsia significantly increased in females, patients who were *Helicobacter pylori (H. pylori)*-positive and individuals using non steroid anti-inflammatory drugs (NSAIDs).[6] The influence of diet as the risk factor is not always consistent.[7] Prompt endoscopy is recommended in patients with alarm symptoms or patients over a threshold age. Age specific thresholds to trigger endoscopic evaluation may differ by sex and locality given gender and regional disease specific risks. The American College of Physicians in 1985 agreed that age cut off for referral is at 45 years.[8] Upper gastrointestinal (UGI) bleeding, recurrent vomiting, unexplained weight loss, progressive dysphagia and anemia were called as the alarm symptoms for dyspeptic patients.[1,2] Without alarm symptoms, the patients less than 50 years should receive an empiric trial of PPIs. Once a patient has failed a 4 week trial of PPI therapy, upper endoscopy is indicated.[1,2,9,10] Results of upper endoscopy is not always correspond to the severity of the symptom. Tahara et al, found that the liner redness (friability) in the antrum and duodenal ulcer scarring were independently associated with dyspepsia. However, histological severity of inflammation and glandular atrophy were not associated with dyspeptic symptoms. Also, no correlation was found between endoscopic appearances and any of the different subgroups of dyspeptic symptoms.[11]

At Koja hospital, dyspepsia is a highly prevalent. However, study about clinical profile of dyspepsia and UGI endoscopic results have not yet been explored previously. The aim of this study was to evaluate the pattern of dyspepsia patients who underwent endoscopy examination at Koja Hospital, so that physicians would provide better treatment for dyspeptic patients.

METHOD

This observational cross sectional study was conducted at Koja Hospital between January and December 2011. The diagnosis of dyspepsia was established based on the presence of at least one of the followings, i.e. epigastric pain, early satiation, postprandial fullness and epigastric burn. Inclusion criteria were all patients with dyspepsia who had agreed to undergo UGI tract endoscopy examination. Exclusion criteria were patients with age under 17 years old, who refused the interview or could not speak Indonesian language. The sex, age, symptoms, risk factors, alarm symptoms, body mass index, endoscopic and histological findings were recorded. The risk factors recorded were female, consumption of herbal medicine/NSAID, stress, obesity, smoking, osteoarthritis and the presence of *H. pylori* from histopathological findings. The alarm symptoms were history of UGI bleeding, weight loss > 10 kg, persistent vomiting and anemia. The age > 45 years was noted as the cut-off point of increased cancer risk.[8]

Subjects were considered as to have anemia when their hemoglobin was < 13 g/dL for male and < 12 g/dL for female.[12] The subjects were classified as underweight if they had body mass index (BMI) < 18.5 kg/m^2; normal if BMI was 18.5–24.9 kg/m^2; overweight/obese for BMI ≥ 25 kg/m^2.[13] Prior to the

endoscopy, patients were divided into 2 subgroups based on the following dominant symptoms: (1) meal-induced dyspeptic symptoms or PDS; (2) meal-unrelated FD or EPS to describe the profile of uninvestigated dyspepsia (UD) in this study subject. Data was analyzed using SPSS 15.0 with a descriptive statistical analysis, and was presented as n (%) or mean (SD).

RESULTS

During January until December 2011, 1,279 dyspeptic patients visited Internal Medicine Clinic in Koja Hospital. There were 148 (11.6%) dyspeptic patients who underwent upper endoscopy and fulfilled the inclusion criteria. Eighty nine patients (60.1%) were female, the mean age of patients were 46.5 ± 13.8 years, with a range between 17-92 years old. The age group of 40-50 year was the highest among the patients (42%), followed by 50-60 years (37%). The age > 45 years was found in 52%. The most frequent symptom found was epigastric pain (91.2%) with 56.3% expressed the pain as "severe" (very disturbing), and BMI ≥ 25 kg/m^2 was found in 18.3% patients (Table 1).

According to dyspepsia subgroup, the study revealed that most patients (63%) were included in the EPS subgroup (Figure 1).

Table 1. Characteristics of dyspeptic patients

Characteristic (n = 148)	n (%)
Sex	
Male	59 (39.9)
Female	89 (60.1)
Age (years)	
< 20	5 (3.4)
20-30	11 (7.4)
30-40	28 (19.0)
40-50	42 (28.4)
50-60	37 (25)
60-70	19 (12.8)
> 70	6 (4.0)
mean ± SD	46.5 ± 13.8
Symptoms	
Epigastric pain	135 (91.2)
Severe	76 (56.3)
Moderate	36 (26.7)
Mild	23 (17.0)
Early satiation	130 (87.8)
Postprandial fullness	75 (50.7)
Epigastric burn	69 (46.6)
Indication of UGI endoscopy	
Alarm symptom	56 (37.8)
NSAID gastropathy	52 (35.1)
Dysphagia	4 (2.7)
GERD	2 (1.4)
Gastric tumor	1 (0.7)

SD: standard deviation; UGI: upper gastrointestinal; NSAID: non-steroidal anti-inflammatory drugs; GERD: gastroesophageal reflux disease

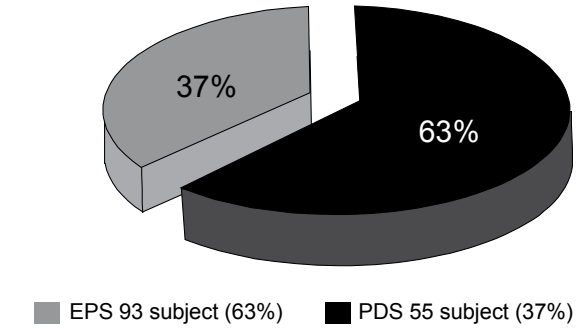

Figure 1. Distribution of dyspeptic patients according to dyspepsia subgroup

Table 2 shows that alarm symptoms were found in dyspeptic patients and 21.6% patients had history of UGI bleeding. Based on the presence of alarm symptoms, there were 62.2% patients had no alarm symptom, 23.65% patients had 1 alarm symptom, 10.8% patients had 2 alarm symptoms, 3.4% had 3 alarm symptoms.

Table 2. Alarm symptoms in dyspeptic patients

Alarm symptom	n (%)
History of upper gastrointestinal bleeding	32 (21.6)
Persistence of vomiting	19 (12.8)
Unexplained weight loss	19 (12.8)
Anemia	10 (6.8)

Table 3 shows the risk factors found in the study subjects and based on the presence of risk factors, there were only 2% patients who had no risk factor, 1.4% had 1 risk factor, 21% had 2 risk factors, 18.1% had 3 risk factors, 41.1% had 4 risk factors, 11% had 5 risk factors and 5.4% had 6 risk factors.

Tabel 3. Risk factors in dyspeptic patients

Risk factor	n (%)
Female	89 (60.1)
Herbal medicine or NSAID	52 (35.1)
Stress	48 (32.4)
Obesity (BMI ≥ 25 kg/m^2)	27 (18.3)
Smoking	19 (12.8)
Osteoarthritis	16 (10.0)
Helicobacter pylori infection	0 (0)

NSAID: non-steroidal anti-inflammatory drug; BMI: body mass index

Table 4 demonstrates the results of UGI endoscopy of 148 patients; while Table 5 displays the results of histopathological findings of 118 gastritis patients. Based on the status of chronic gastritis, 61.9% patients were not active, 36.4% were active, and 1.7% had no data. In all cases, gastritis as well as the ulcer demonstrated 100% negative results for *H. pylori*.

Table 4. Results of upper gastrointestinal endoscopic findings

Result	n (%)
Gastritis	118 (79.7)
Moderate antral gastritis	66 (56.0)
Erosive gastritis	23 (20.0)
Pangastritis	13 (11.0)
Bile reflux gastritis	12 (10.0)
Severe antral gastritis	4 (3.0)
Gastric ulcer	21 (14)
Esophagitis	17 (11.5)
Duodenitis	16 (10.8)
Duodenal ulcer	1 (0.7)
Gastric cancer	1 (0.7)

Table 5. Result of histopathological findings in gastritis patients

Result	n (%)
Non-active, non-atrophy, non-dysplastic chronic moderate gastritis	66 (56.0)
Mild activity, non-atrophy, non-dysplastic chronic moderate gastritis	34 (28.8)
Non-active, non-atrophy, non-dysplastic chronic mild gastritis	7 (5.9)
Mild activity, non-atrophy, non-dysplastic chronic severe gastritis	7 (5.9)
Severe activity, non-atrophy, non-dysplastic chronic moderate gastritis	2 (1.7)
No data (did not return)	2 (1.7)

DISCUSSION

This study has included 148 dyspeptic patients, of which 59 (39.9%) were male and 89 (60.1) were female. Mahadeva et al, who had conducted a population based study to evaluate the uninvestigated dyspepsia showed that the male : female ratio was generally comparable.[7] Wallander et al, wrote that the incidence was greater in female (16.0/1,000 person-years) than male (14.5/1,000 person-years).[5] Such difference is possibly due to the different ethnicity and a different sample size.

A survey conducted in Canada found that peak prevalence of UD occurred between 45-54 years of age; while FD appeared to have peak in Chinese subjects at 41-50 years. In this study the peak was obtained at the age of 40-50 years (42 patients, 28.4%), which is in accordance with the Canadian and Chinese study.[4]

Based on the pattern of symptoms, 93 patients (63%) were classified as EPS and the remaining 55 (37%) patients were in PDS subgroup (Figure 2). A study in Italy that examined 156 patients with dyspepsia showed contrary results, i.e. 77 (67.5%) patients were fit into PDS and 55 (48.2%) patients were in EPS subgroups. On the other hand, a study in Canada also demonstrated dominant findings in PDS subgroup (70.1%) and compared to the EPS subgroup, which was only 29.9%. These different results could be due to the ethnic factor, or different method of data retrieval.[14-16]

In this study, the biggest risk factor for dyspepsia occurrence was female (60.1%). This result was in accordance with the findings by Marwaha.[6] The role of NSAID, which was the second highest risk factor in this study (35.1%), is also expressed by many investigators.[1,5,6,17] The third risk factor in the present study was stress (32.4%). Some studies also discussed about the role of stress or anxiety, but others studies found no relationship between stress and the increased risk of functional dyspepsia.[5,7,16] The fourth risk factors was obesity (18.3%), and this result was in accordance with the findings by Wallander et al.[5] In this study, smoking was only found in 12.8%, and was placed as the fifth risk factors. The role of cigarette in developing dyspepsia is not always consistent. Some studies showed a relationship, some did not.[7] Osteoarthritis has become one of the risk factors because of the use of pain killer medicine.[5] In this study, osteoarthritis was found only in 10% of subjects. It is possibly because not all NSAID users underwent the radiologic examination for the diagnosis.

Many studies have demonstrated about the role of *H. pylori* as the cause of dyspepsia, especially organic dyspepsia such as peptic ulcer and gastritis.[1,2,6,7] In this study, the result of the *H. pylori* examination was 100% negative. This is likely due to the eradication of *H. pylori* that has been performed extensively, which results in no more positive results. However, this study only got the biopsy from antrum area; whereas *H. pylori* could be found in other parts of gastric mucosa.

An upper endoscopy is recommended in patients with alarm symptoms or patients over a threshold age. The cut-off point of age for immediate endoscopy is different in many centers. The American College of Physicians in 1985 agreed that the age cut off for referral is 45 years.[8] Talley suggested the cut off at 45 years for the Asia-Pacific region and at 50 years for Western countries. This is because in Western countries the incidence of gastric cancer is very rare below this age but rises rapidly in older patients.[18] Furthermore, Talley suggested an age cut off of 55 years for Western countries, and a lower threshold in some countries in the Asia-Pacific region.[10] In the present study, we used the age cut-off at 45 years at Koja Hospital since Indonesia is a part of the Asian-Pacific region. However, in this study, alarm symptoms were present only in 37.8% patients and the most common alarm symptom found was the history of UGI bleeding (21.6%). The patients exceeding the threshold age

(45 years) were 52%, which means that the majority of patients underwent upper endoscopy based on indication of threshold age.

The results of endoscopic examination demonstrated that gastritis was the most common finding (79.7%). Study conducted at the Cipto Mangunkusumo Hospital by Anam et al, found that the most common findings were gastritis (44.5%) and erosive gastritis (40%), followed by esophagitis (31.4%) and peptic ulcer (17.3%).[19] The result obtained from the study at Cipto Mangunkusumo Hospital seems in accordance with Koja Hospital study, that the most common finding was gastritis (Cipto Mangunkusumo Hospital 84.5% vs. Koja Hospital 79.7%). Out of 118 gastritis findings, erosive gastritis was found in as many as 23 (20%) patients, which was lower than the findings at Cipto Mangunkusumo Hospital (40%).

The findings of esophagitis was found more common at Cipto Mangunkusumo Hospital (31.4%); while this study only found 7.4%. However, the gastric ulcer findings was almost similar between Cipto Mangunkusumo Hospital (17.3%) and Koja Hospital (14%). In general, the results of this study were not much different with the study conducted at Cipto Mangunkusumo Hospital. However, there was a little bit difference in the findings of esophagitis and erosive gastritis. It may occur due to the small sample size in this study.

Based on histopathological examination of all gastritis patients, we found that all patients had non-atrophy chronic gastritis. Most of them (56%) were non-active, non-atrophy, non-dysplastic, moderate-chronic gastritis. According to Tahara et al, the histological severity of inflammation and glandular atrophy were not associated with dyspeptic symptoms.[11] However, in this study, 56.3% of patients with epigastric pain had expressed the pain as "severe". The endoscopic findings revealed that 56% patients had moderate antral gastritis; while the histopathological findings demonstrated that 56% patients had non-active, non-atrophy, non-dysplastic moderate chronic gastritis. It seems that in this study, the severity of dyspeptic symptoms was appropriate with endoscopic and histopathological findings.

Shafii et al, investigated 136 biopsy samples of chronic gastritis in order to determine the differences between *H. pylori*-positive and *H. pylori*-negative patients. They reported that the presence of activity of chronic gastritis was significantly higher in the *H. pylori* infected patients (56%) comparing to non-*H. pylori* infected ones (30.6%).[20] In this study, we found 100% patients with *H. pylori*-negative results. Most of those subjects had the non-active chronic gastritis. Only 36.4% showed the presence activity, which was in accordance with the findings in the study conducted by Shafii et al.[20]

CONCLUSION

In this study, we found the dyspepsia patterns at Koja Hospital, i.e. there are more female than male patients; the peak age is at 40-50 years old; female gender is the most common risk factor. The most common alarm symptom is the history of UGI bleeding; most patients have gastritis on endoscopic findings; and most patients have non-active, non-atrophy, non-dysplastic, moderate chronic gastritis on the biopsy result.

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