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Choice of Age Cut-off for Endoscopy in Dyspepsia in Developing Countries According to Incidence of Gastric Cancer

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A B S T R A C T

Endoscopic examination of all patients with dyspepsia is hard to perform, because of high annual prevalence of dyspepsia and limited resource availability, especially in developing countries. Aim was to establish age cut off for upper endoscopy in dyspeptic patients without alarming features according on incidence of gastric cancer in western Herzegovina in Bosnia and Herzegovina. Group of 2697 (1536 males, 1161 females) patients over 15 with chronic dyspepsia without alarming features and symptoms of gastroesophageal reflux disease, had been referred for a diagnostic upper endoscopy during 4 years. Study was prospective. All 34 gastric cancers were diagnosed in male patients above 55 years, and in female ones above 60. In the same age groups two thirds of gastric ulcers were found out. If the age cut off for dyspeptic patients had been 55 years for male and 60 for female gender, the workload could be decreased by 50%. The choice of alternative approaches is possible, depending on the level of diagnostic uncertainty, the patient and his physician are prepared to accept. Age cut off determines diagnostic approach in chronic dyspepsia, and greatly decreases the endoscopy workload.

Key words: *dyspepsia, endoscopy, gastric cancer*

Introduction

Upper endoscopy is a diagnostic method of choice in uninvestigated dyspepsia because it allows identification of structural causes of dyspepsia (1), but examination of all patients is hard to perform. The reason is high annual prevalence of dyspepsia of about 25%[1].The provision of the open access service results in resource difficulty[2] and long waiting lists[3]. British authors[4] state that only appropriately selected dyspeptic patients, with a reasonably high probability of a clinically relevant diagnosis, should be referred to endoscopy. The issue is even more important in developing countries with limited access to diagnostic devices. For instance, the endoscopy facilities in Bosnia and Herzegovina are distributed only in big regional hospitals and clinics. In Bosnia and Herzegovina the urea breath test for Helicobacter pylori infection is not available to primary care doctors. There is no data about prevalence of Helicobacter pylori infection in Bosnia and Herzegovina, but according to surveys in adjacent countries the prevalence in the region is high. In the central and in the northern counties of Croatia Helicobacter pylori infection prevalence is 59%, and 71.3% in the south part[5], neighbouring to western Herzegovina.

Endoscopy is generally accepted in patients with alarming features, defined as findings in the disease history and examination that suggest serious underlying disease, and in elderly patients as well[1,6]. Increasing age is related to higher frequency of organic disease in dyspeptic patients[7]. There is no generally accepted consensus about the age cut off for upper endoscopy, because it mainly depends on regional age-specific incidence of gastric cancer. The aim of this study was to establish age cut off for upper endoscopy in dyspeptic patients without alarming features in western Herzegovina in Bosnia and Herzegovina. Reason for establishing the age cut off in western Herzegovina are environmental factors, different from developed countries, including low consumption of fruit and vegetables, consumption of salted smoked foods, cigarette smoking and low social and economic status.

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Patients and Method

Group of 2697 (1536 males, 1161 females) patients over 15 with chronic uncomplicated dyspepsia, without alarming features, who had been referred for a diagnostic upper endoscopy at the Endoscopy unit in Mostar Hospital during 4 years (from July 1, 1999 to June 30, 2003) were included in the study. Inclusion criteria were chronic pain and discomfort in the upper abdomen during 12 weeks in the preceding 12 months. All patients were sent to open access Endoscopy Unit directly from general practice. Experienced endoscopists, having more than 500 procedures done, carried out all investigations. The population of the study area was approximately 200,000.

Exclusion criteria included alarming features, when indications for upper endoscopy are obligatory, as well as symptoms of gastro-oesophageal reflux disease. Exclusion criteria were: gastrointestinal haemorrhage, anaemia, weight loss, persistent vomiting, dysphagia, odynophagia, previous gastric surgery, previous peptic ulcer, palpable mass in abdomen, non-steroidal anti-inflammatory drugs use, heartburn and acid regurgitation.

Dyspepsia was defined as a chronic pain or discomfort centred in the upper abdomen[8]. Discomfort was characterised by or associated with upper abdominal fullness, early satiety, bloating or nausea. Patients with predominant heartburn and acid regurgitation were considered as having gastro-oesophageal reflux disease and were excluded from dyspepsia.

Endoscopic findings were reported as non-organic dyspepsia, oesophagitis, gastric ulcer, duodenal ulcer and gastric cancer. Patients with normal endoscopic findings and endoscopic findings of uncertain clinical relevance such as gastric and duodenal erosions constituted the non-organic dyspepsia group.

Oesophagitis was diagnosed in the presence of mucosal breaks as oesophageal erosions and ulcers.

Peptic ulcer was diagnosed as an at least 5 mm ulcer with depth. Routine biopsies were performed, but gastric ulcers were only diagnosed if cancer was excluded.

Gastric cancer was confirmed by pathohystological examinations of gastric biopsy specimens.

Statistics

Intergroup differences were evaluated using the χ^2 test. A p value of <0.05 was considered statistically significant. Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) software for Windows.

Results

In all 1536 male patients who underwent endoscopy non-organic dyspepsia was found in 64.4%, gastric ulcer in 7.2%, duodenal ulcer in 18.1%, gastric cancer in 1.8%, and oesophagitis in 8.5% of patients (Table 1). In all 1161 female patients non-organic dyspepsia was found in 78.4%, gastric ulcer in 6.1%, duodenal ulcer in 9.4%, gastric cancer in 0.5%, and oesophagitis in 5.6% of patients (Table 2).

Out of 2697 analyzed patients 34 gastric cancers were diagnosed. In male gender all twenty-eight gastric cancers were diagnosed in patients above 55 years, and in female gender all six gastric cancers were diagnosed in patients above 60 years.

The frequency of non-organic dyspepsia findings was significantly higher in female than in male patients (χ^2=32.94, df=11, $p<0.05$). The frequency of oesophagitis (χ^2=30.14, df=11, $p<0.05$), gastric ulcer (χ^2=23.42, df=11, $p<0.05$), duodenal ulcer (χ^2=106.52, df=11, $p<0.05$), and

TABLE 1
AGE STRATIFICATION OF ENDOSCOPIC FINDINGS IN DYSPEPTIC MALE PATIENTS*

Age (years)	Non-organic dyspepsia	Gastric ulcer	Duodenal ulcer	Gastric cancer	Oesophagitis	Total
>70	159 (16.1)	22 (19.8)	33 (11.9)	10 (35.7)	12 (9.2)	236 (15.4)
66–70	145 (14.7)	18 (16.2)	35 (12.6)	7 (25.0)	8 (6.2)	213 (13.9)
61–65	126 (12.7)	18 (16.2)	31 (11.2)	7 (25.0)	17 (13.1)	199 (13.0)
56–60	73 (7.4)	14 (12.6)	16 (5.6)	4 (14.3)	6 (4.6)	113 (7.4)
51–55	73 (7.4)	5 (4.5)	17 (6.1)	0 (0)	13 (10.0)	108 (7.0)
46–50	78 (7.9)	13 (11.7)	39 (14.0)	0 (0)	16 (12.3)	146 (9.5)
41–45	96 (9.7)	11 (9.9)	17 (6.1)	0 (0)	19 (14.6)	143 (9.3)
36–40	57 (5.8)	4 (3.6)	28 (10.1)	0 (0)	9 (6.9)	98 (6.4)
31–35	69 (7.0)	1 (0.9)	22 (7.9)	0 (0)	19 (14.6)	111 (7.2)
26–30	39 (3.9)	2 (1.8)	22 (7.9)	0 (0)	5 (3.8)	68 (4.4)
21–25	33 (3.3)	2 (1.8)	17 (6.1)	0 (0)	3 (2.3)	55 (3.6)
16–20	41 (4.1)	1 (0.9)	1 (0.4)	0 (0)	3 (2.3)	46 (3.0)
Total	989 (100)	111 (100)	278 (100)	28 (100)	130 (100)	1536 (100)

*number of patients and annual percentage of total cases diagnosed in all age groups (in brackets)

TABLE 2
AGE STRATIFICATION OF ENDOSCOPIC FINDINGS IN DYSPEPTIC FEMALE PATIENTS*

Age (years)	Non-organic dyspepsia	Gastric ulcer	Duodenal ulcer	Gastric cancer	Oesophagitis	Total
> 70	190 (20.9)	23 (32.4)	29 (26.6)	3 (50.0)	9 (13.8)	254 (21.9)
66–70	119 (13.1)	11 (15.5)	6 (5.5)	1 (16.7)	7 (10.8)	144 (12.4)
61–65	132 (14.5)	15 (21.1)	6 (5.5)	2 (33.3)	12 (18.5)	167 (14.4)
56–60	84 (9.2)	6 (8.5)	11 (10.1)	0 (0)	3 (4.6)	104 (9.0)
51–55	70 (7.7)	6 (8.5)	9 (8.3)	0 (0)	6 (9.2)	91 (7.8)
46–50	57 (6.3)	6 (8.5)	11 (10.1)	0 (0)	6 (9.2)	80 (6.9)
41–45	51 (5.6)	2 (2.8)	7 (6.4)	0 (0)	9 (13.8)	69 (5.9)
36–40	67 (7.4)	0 (0)	16 (14.7)	0 (0)	7 (10.8)	90 (7.8)
31–35	40 (4.4)	0 (0)	4 (3.7)	0 (0)	5 (7.7)	49 (4.2)
26–30	37 (4.1)	0 (0)	1 (0.9)	0 (0)	1 (1.5)	39 (3.4)
21–25	26 (2.9)	0 (0)	4 (3.7)	0 (0)	0 (0)	30 (2.6)
16–20	37 (4.1)	2 (2.8)	5 (4.7)	0 (0)	0 (0)	44 (3.8)
Total	910 (100)	71 (100)	109 (100)	6 (100)	65 (100)	1161 (100)

*number of patients and annual percentage of total cases diagnosed in all age groups (in brackets)

gastric cancer (χ^2=15.04, df=3, p<0.05) were significantly higher in male patients than female ones.

Discussion

Absolute diagnostic certainty in dyspeptic patients is possible only if all patients would be endoscoped, without selection. In region with greatly reduced endoscopic facilities, selection of patients for endoscopy is necessary. According to the results of this study the incidence of endoscopic findings in western Herzegovina is depend not only on patients' age, but also on gender. If the lower age limit for upper endoscopy in dyspeptic patients had been 55 in male and 60 in female population, all gastric cancers and majority of ventricular ulcers (64.8% in male and 69% in female patients) could have been diagnosed in these patients (761 male and 565 female patients). So, an endoscopy workload could be decreased for about 50% for both genders. The physician should decide if the separation of only one pathologic group (all gastric cancer diagnosed) in dyspeptic patients without alarming features and greatly reduced endoscopy workload compensate the diagnostic uncertainty of selective endoscopic access. The choice of alternative approaches is possible, depending on the level of uncertainty the patient and his physician are prepared to accept. The decrease in the age limit for open endoscopy access minimises the probability of neglecting serious gastro-duodenal diseases – like gastric and duodenal ulcer.

For instance, if the age cut off for upper endoscopy had been 45 years for male and 50 for female patients, 81% gastric ulcers and 61.5% duodenal ulcers in male, and 86% and 56% respectively in female patients would have been diagnosed, beside all cancers, and workload would have been reduced by about 35% for both genders.

European panel on appropriateness of gastrointestinal endoscopy concluded that an early endoscopy should be used in patients with high probability of clinically relevant diseases, such as peptic ulcer or gastric cancer[9], and recommended endoscopy in patients older than 45 years. The age cut off in Europe is standardised on 45 years, as the incidence of gastric cancer in Europe is very rare below 45[10]. Other authors reported different results. Stanghellini et al.[11] stated that the age over 40 is a risk indicator. Talley[1] suggested that in Western countries the age cut off of 50 might be appropriate. Christie et al.[12] found that gastric cancer is rare below 55 years, and presents with alarming features in 96% of cases. These authors stated that the age limit could be safely raised to 55 years. In all quoted studies the age cut off was the same for both genders. According to the results of this study the age cut off in western Herzegovina is not the same for male and female gender, and could be raised to 55 years for male dyspeptic patients. Age of 60 could be appropriate for female patients, as, beside the later occurrence of gastric cancer, non-organic dyspepsia is more frequent in female gender. By this approach the substantial reduction of workload might be realised in region of western Herzegovina in which the health and financial resources are limited. The cut off might be lower for ulcer disease, still with substantial reduction of inappropriate investigations.

However, it should be emphasized that it is not easy to transfer the results of our study to other populations, since the prevalence of gastric cancer and gastric ulcer usually varies from region to region.

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REFERENCES

1. TALLEY, N. J., Gut, 50 Suppl. 4 (2002) 72. — 2. O'NEILL, L., M. QUIRKE, S. HOGAN, A. M. EUSTACE-RYAN, P. O'REGAN, Ir. J. Med. Sci., 167 (1998) 89. — 3. BRAMBLE, M. G., Gut, 33 (1992) 282. — 4. AXON, A. T. R., G. D. BELL, R. H. JONES, M. A. QUINE, R. F. MC CLOY, Br. Med. J., 310 (1995) 853. — 5. BABUŠ, V., V. PRESEČKI, M. KATIČIĆ, M. BALIJA, I. ZORIĆ, L. KRONJA, A. SABO, J. VRLIČAK, S. ČUKOVIĆ-ČAVKA, Liječnički Vjesnik, 119 (1997) 139. — 6. AGREUS, L., N. Talley, Br. Med. J., 315 (1997) 1284. — 7. RICHTER J. E., Scand. J. Gastroenterol., 182 Suppl. 11 (1991). — 8. TALLEY, N. J., V. STANGHELLINI, R. C. HEADING, K. L. KOCH, J. R. MALAGELADA, G. N. J. TYTGAT, Gut, 45 Suppl. 2 (1999) 37. — 9. FROEHLICH, F., M. BOCHUD, J. J. GONVERS, R. W. DUBOIS, J. P. VADER, V. WIETLISBACH, B. BURNAND, Endoscopy, 31 (1999) 579. — 10. ESTEVE, J., A. KRICKER, J. FERLAY, D. M. PARKIN: In collaboration with the Steering Committee of the European Network of Cancer Registries. Facts and figures of cancer in the European Community 1993. (International Agency for Research on Cancer, Lyon, 1993). — 11. STANGHELLINI, V., M. ANTI, G. B. PORRO, R. CORINALDESI, G. GASBARRINI, G. GIACOSA, R. FIOCCA, C. LA VECCHIA, G. MACONI, E. NEGRI, Eur. J. Gastroenterol. Hepatol., 11 (1999) 1129. — 12. CHRISTIE, J., N.A. SHEPHERD, B. W. CODLING, R. M. VALORI. Gut, 41 (1997) 513.

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IZBOR DOBNE GRANICE ZA ENDOSKOPSKU PRETRAGU U DISPEPSIJI U ZEMLJAMA U RAZVOJU PREMA INCIDENCIJI KARCINOMA ŽELUDCA

SAŽETAK

Zbog visoke prevalencije dispepsije i ograničenih resursa, endoskopiranje svih bolesnika s kroničnom dispepsijom je teško izvodljivo, pogotovo u zemljama u razvoju. Cilj studije je bio odrediti dobnu granicu u bolesnika s dispepsijom, bez alarmantnih simptoma prema incidenciji karcinoma želudca u zapadnoj Hercegovini. Skupina od 2697 bolesnika (1536 muškaraca, 1161 žena) starijih od 15 godina s kroničnom dispepsijom bez alarmantnih simptoma i simptoma gastroezofagealne refluksne bolesti je bila endoskopirana tijekom četiri godine. Studija je bila prospektivna. Sva 34 slučaja karcinoma želuca su bila dijagnosticirana u osoba muškog spola starijih od 55 godina i u ženskih osoba starijih od 60 godina. U istim dobnim skupinama dijagnosticirano je dvije trećine želudčanih ulkusa. Ukoliko je dobna granica 55 godina za muški i 60 godina za ženski spol, opterećenje endoskopske jedinice bi se smanjilo za 50%. Moguć je izbor alternativnih pristupa, ovisno o razini dijagnostičke nesigurnosti, koju su bolesnik i liječnik spremni prihvatiti. Dobna granica određuje dijagnostički pristup u kroničnoj dispepsiji i može znatno smanjiti opterećenje endoskopske jedinice.