Open Access Gastroscopy in Hospitalized Patients

Eyal Gal MD, Zohar Levi MD, Ilana Shemesh RN MSc, Nechama Chorev RN BSc and Yaron Niv MD FACG AGAF

Department of Gastroenterology, Rabin Medical Center (Beilinson Campus), Petah Tikva, Israel
Affiliated to Sackler Faculty of Medicine, Tel Aviv University, Ramat Aviv, Israel

Key words: open access, endoscopy, gastroscopy, hospitalized patients

Abstract

Background: Open access gastroscopy allows physicians to refer patients for endoscopic procedures without a prior consultation.

Objectives: To compare the safety and efficacy of OAG with gastroscopy performed after a gastroenterological consultation.

Methods: Patients referred for gastroscopy directly (open access) or after consultation with a gastroenterologist, by physicians in the departments of internal medicine and surgery at a major tertiary center, were compared for indications, background disease, outcome and diagnostic yield. The data were collected prospectively over a 5 month period following the introduction of OAG at the center. Physicians in both departments participated in an education program on the indications and procedure of gastroscopy. For each patient referred for OAG the attending physician completed a specially designed questionnaire that had to be signed by a senior physician. Data were managed and analyzed with Excel and SPSS software.

Results: The study sample comprised 494 patients, of whom 236 were referred for OAG and 258 after prior consultation. On multivariate analysis, hospitalization in the department of internal medicine was the only independent factor for OAG. Severe background disease and aspirin treatment had no effect on physician use of OAG, although they served as a "red light" for the gastroenterology consultants. There was no difference in the diagnostic yield of the procedures (26.4% normal findings for OAG and 28.3% for consultations) or in mortality rates. The main indications for referral to gastroscopy in the surgery department were melena, hematemesis and "coffee grounds," and anemia and vomiting in the internal medicine department.

Conclusions: OAG is feasible and beneficial in an academic medical center setting, with no bias in appropriateness of indications or decrease in the diagnostic yield compared to the traditional approach. More attention should be directed to safety issues by the referring physicians.

IMAJ 2007;9:797–799

In our center, endoscopic procedures are performed regularly in hospitalized patients as part of their management. Traditionally, hospitalized patients are referred by their physician for an endoscopic procedure on the basis of clear indications and exclusion of risk factors, after proper consultation with a gastroenterologist. Unlike barium study, for example, the specialist is consulted prior to endoscopy to ensure the medical grounds for the procedure and its safety in the individual patient. However, this system sometimes delays the management of ward patients by 2–3 days. To overcome this problem and to decrease costs, many centers have introduced a policy of open access gastroscopy whereby gastroscopy can be requested by the referring physician without a prior consultation [1,2]. In some cases it includes screening for appropriateness [1,2]. The growing use of this practice has increased the demand for endoscopy and, consequently, the gastroenterology department workload. The number of available endoscopists remains an important factor in the provision of OAG.

The aim of the present study was to investigate the safety and efficacy of OAG compared with gastroscopy after gastroenterology consultation.

Patients and Methods

This prospective study was based on data collected over the 5 month period from January to May 2004. On 1 January 2004 the Rabin Medical Center offered physicians from the departments of internal medicine and surgery two methods of patient referral for gastroscopy: direct (open access) or after gastroenterology consultation. All departmental physicians were informed of the study and attended an educational program on the indications, procedure, outcome and safety of gastroscopy. Physicians referring patients for OAG were asked to complete a specially designed form, approved by the hospital director, covering indications for the procedure according to the 2000 guidelines of the American Society for Gastrointestinal Endoscopy, in addition to background diseases and suspicious signs and symptoms [2,3]. All forms were to be signed by specialists in internal medicine or surgery. The requests for OAG were screened by the physicians in the department of gastroenterology.

Clinical and epidemiological data were collected for all patients referred for gastroscopy by either route, and indications for gastroscopy, background disease and treatments, gastroscopy diagnosis, and outcome were documented. The findings were compared between patients referred for OAG or for pre-gastroscopy gastroenterological consultation; the referral patterns of the internal medicine and surgery departments were compared as well.

Chi-square test or Fisher's exact test was used to analyze statistically significant relationships in the distribution of categorical variables; *t*-test was used for comparison of averages. Proportions were used in univariate and multivariate analyses. A P value < 0.050 was considered statistically significant. The data were managed and analyzed with the Excel program and SSPS

OAG = open access gastroscopy

software. The study protocol was approved by the Institutional Review Board of the Rabin Medical Center (# 4163).

Results

The study sample included 494 patients, 236 referred for OAG and 258 for pre-gastroscopy gastroenterological consultation. The patients' characteristics are summarized in Table 1. The age and gender distribution were similar in the two groups. Patients referred for OAG had more chronic diseases, such as ischemic heart disease, diabetes mellitus, congestive heart failure and chronic renal failure, and more of them were being treated with aspirin. The indications for gastroscopy are presented in Table 2. The only between-group differences were the higher prevalence of hematemesis and dysphagia in the OAG group. The diagnostic yield of gastroscopy is shown in Table 3. No abnormalities were detected in 26.69% of the OAG group and 28.29% of the consultation group. Esophagitis, esophageal tumors and gastric tumors were more prevalent in the OAG group and duodenal ulcers were more prevalent in the consultation group. Mortality rates were similar [Table 1]. On multivariate analysis, hospitalization in the department of internal medicine was the only independent factor for OAG. Severe background disease and aspirin therapy had no effect on the decision of the physicians to use OAG, although they served as a "red light" for the consultant gastroenterologists.

Table 1. Clinical and demographic data of study patients

	OAG	Consultation	*P*
No. of patients	236	258	
Age (yrs), mean ± SD	67.52 ± 15.00	66.90 ± 16.50	NS
Gender: males	136 (57.62)	139 (53.87)	NS
Internal medicine department	199 (84.32)	158 (61.24)	0.0001
Surgery department	37 (15.68)	100 (38.76)	0.0001
Background diseases			
Ischemic heart disease	57 (24.15)	34 (13.17)	0.002
Diabetes mellitus	34 (14.40)	16 (6.20)	0.004
Congestive heart failure	26 (11.01)	9 (3.48)	0.002
Chronic renal failure	19 (8.05)	9 (3.48)	0.045
Chronic lung disease	13 (5.05)	5 (1.90)	0.093
Aspirin therapy	43 (18.22)	21 (8.13)	0.001
Mortality rate	104 (44.06)	114 (44.18)	NS

Values are no. (%) unless otherwise indicated.

Table 2. Indication for gastroscopy

	OAG (n=236)	Consultation (n=358)	*P*
Melena	60 (25.42)	84 (32.55)	NS
Hematemesis	53 (22.45)	29 (11.24)	0.001
Vomiting coffee ground material	25 (10.59)	18 (6.97)	NS
Iron deficiency anemia	99 (41.94)	129 (50.00)	NS
Epigastric pain	70 (29.66)	69 (26.74)	NS
Dysphagia	28 (11.86)	17 (6.58)	0.04

Values are no. (%) unless otherwise indicated.

The department of internal medicine referred a greater proportion of patients for OAG than did the department of surgery [Table 1]. Physicians in the surgery department referred more patients because of melena, hematemesis and "coffee grounds," and physicians in the internal medicine department referred more patients because of anemia and vomiting [Table 4]. This was true for both routes of referral. There was a similar rate of normal findings in OAG patients referred by the internal medicine or surgery department, although in the consultation group there were fewer normal findings among surgery department referrals than internal medicine department referrals.

Discussion

In a survey from the United Kingdom, Silcock and Bramble [1] found that the rate of open access referral for gastroscopy by family physicians increased by 31% from 1990 to 1997. In the setting of open access endoscopy the role of gastroenterologists is analogous to that of radiologists performing a barium meal study. They are expected to conduct the examination, write a report on the findings, and offer recommendations – but not to act as consultants. Like radiologists, they cannot rule on the indication or refuse the examination. This has ethical and legal implications, since in some cases the indication may be false, the condition of the patient unstable, or the issue is not properly explained to obtain informed consent. Indeed, one study found that patients undergoing open access procedures are less likely to be properly informed than patients after expert consultation [4]. To prevent abuse or overuse of the procedure it is important

Table 3. Diagnostic yield of gastroscopy

	OAG (n=236)	Consultation (n=258)	*P*
Normal	63 (26.69)	73 (28.29)	NS
Esophagitis	48 (20.33)	34 (13.17)	0.030
Gastroduodenitis	81 (34.32)	97 (37.59)	NS
Gastric ulcer	20 (8.47)	17 (6.58)	NS
Duodenal ulcer	15 (6.35)	40 (15.50)	0.001
Gastric tumor	18 (7.62)	8 (3.10)	0.020
Esophageal tumor	6 (2.54)	0	0.010
Esophageal varices	8 (3.38)	9 (3.48)	NS

Values are no. (%) unless otherwise indicated.

Table 4. Comparison between internal medicine and surgery departments

	OAG (n=236)			Consultation (n=258)		
	Int. Med. N=199	Surgery N=37	*P*	Int. Med. N=158	Surgery N=100	*P*
Indication						
Melena	37 (18.59)	23 (62.16)	0.0001	36 (22.78)	48 (48.00)	0.0001
Hematemesis	35 (17.58)	18 (48.64)	0.0001	5 (3.16)	24 (24.00)	0.0001
Coffee grounds	12 (6.03)	13 (35.13)	0.0001	6 (3.79)	12 (12.00)	0.0230
Anemia	92 (46.23)	7 (18.91)	0.0200	83 (52.53)	46 (46.00)	NS
Vomiting	41 (20.60)	1 (2.70)	0.0090	21 (13.29)	16 (16.00)	NS
Normal findings	53 (26.63)	10 (27.02)	NS	54 (34.17)	19 (19.00)	0.0130

Values are no. (%) unless otherwise indicated.

that the form be properly completed, with reportage of all indications, background diseases, and medical conditions and use of medications. In addition, the endoscopist should interview the patient immediately before the procedure. This does not reduce the workload or the rate of normal examinations [5].

Our study is unique because it compares OAG with traditional post-consultation gastroscopy in the setting of an academic hospital, where the referring physicians are surgeons and internists, not family physicians. This may explain the similarity of the indications and their adherence with the ASGE criteria, as well as the similarity of the diagnostic yield of the procedures. The main difference between the groups was in safety. Patients who underwent OAG were characterized by more chronic diseases and a higher rate of aspirin treatment. Since the responsibility for patient safety lies in the hands of the endoscopist, he or she is naturally more cautious when performing gastroscopy in frail patients. The internists used the open access route more than the surgeons, and they used it more for indications of iron deficiency anemia and vomiting than for overt upper gastrointestinal bleeding.

Charles et al. [6] found that patients initially seen by a gastroenterologist were 21% more likely to undergo endoscopy for accepted indications than patients referred through an open access system, and in contrast to our study their yield of endoscopy was 12% higher. Boulton-Jones and colleagues [7] reported that 30% of their 1000 patients who underwent OAG after referral by a community doctor did not meet the accepted guidelines for endoscopy, but no cases of malignancy would have been missed had the guidelines been implemented. In a 10 year study, Paterson et al. [8] demonstrated that despite a 32% increase in the endoscopy workload since the institution of an open access endoscopy service at their center, esophageal and gastric cancers were not being detected earlier. However, these results were not confirmed in a study of open-access endoscopy in rural western Australia [9]. Furthermore, Blackshaw et al. [10] found that potentially curative resection of gastric cancer was significantly more likely following OAG than after conventional referral. The cumulative 5 year survival rate for patients referred for OAG was 30% compared with 12% for conventional outpatient referral. On multivariate analysis, two factors were associated with survival: stage of disease and referral for the open access route.

In conclusion, in an academic medical center setting, OAG is feasible and beneficial, with no bias in the appropriateness of indications or decrease in the diagnostic yield compared to the traditional approach. More attention to safety issues should be paid by the referring physicians.

ASGE = American Society for Gastrointestinal Endoscopy

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Correspondence: Dr. Y. Niv, Dept. of Gastroenterology, Rabin Medical Center (Beilinson Campus), Petah Tikva 49100, Israel.
Phone: (972-3) 937-7237
Fax: (972-3) 921-0313
email: yniv@clalit.org.il