

Effect of Patient Experiences on Anxiety about Upper Gastrointestinal Endoscopy

Yoshiyuki HOYA^{1,2}, Izumi MATSUMURA¹, Tetsuji FUJITA²,
and Katsuhiko YANAGA²

¹*Digestive Endoscopy Service, Kumagaya Geka Hospital*
²*Department of Surgery, The Jikei University School of Medicine*

ABSTRACT

Purpose. Patients feel anxiety about gastroscopy. If such adverse feelings are removed, patients can undergo gastroscopy smoothly. The purpose of this study was to evaluate the causes and severity of patients' anxiety about gastroscopy and to investigate the effects of patient experiences on anxiety.

Methods. Forty-seven outpatients referred for gastroscopy at the Digestive Endoscopy Service, Kumagaya Geka Hospital, during a 12-month period were divided into 2 groups: 24 patients undergoing gastroscopy for the first time and 23 patients who had undergone gastroscopy previously. We investigated the indications for gastroscopy and the causes and severity of the patient's anxiety before gastroscopy. Anxiety before gastroscopy was assessed with the Faces Pain Scale.

Results. First-time patients were younger (47.1 ± 17.6 years) than previously treated patients (62.7 ± 13.9 years; $P=0.0016$). The main cause of anxiety before gastroscopy was more frequently the procedure itself for first-time patients (19 of 24 patients) than for previously treated patients (11 of 23 patients; $P=0.015$). There was no difference between groups in the self-assessed anxiety level before gastroscopy (first-time patients: 3.50 ± 0.83 ; previously treated patients: 3.22 ± 0.95 ; $P=0.33$).

Conclusions. The patient anxiety about gastroscopy increased before gastroscopy regardless of the number of previous treatments. Safer and more effective strategies for minimizing anxiety before gastroscopy are needed. (Jikeikai Med J 2007; 54 : 173-6)

Key words: gastroscopy, patient's anxiety, face scale scores

INTRODUCTION

Gastroscopy has become a popular procedure that can be performed safely. However, it is not necessarily comfortable for patients. If such adverse feelings are removed, patients could undergo gastroscopy smoothly, and the endoscopist can perform gastroscopy without undue stress¹. Moreover, patient anxiety about gastroscopy has not been investigated in

detail.

In this study, we analyzed the causes and severity of patient anxiety about gastroscopy with the Faces Pain Scale and examined the effects on anxiety of patients' experience with gastroscopy.

PATIENTS AND METHODS

After they gave informed consent to participate

Received for publication, September 21, 2007

保谷 芳行, 松村いづみ, 藤田 哲二, 矢永 勝彦

Mailing address: Yoshiyuki HOYA, Department of Surgery, Daisan Hospital, The Jikei University School of Medicine, 4-11-1, Izumihon-cho, Komae-shi, Tokyo 201-8601, Japan.

E-mail: hoyaj@jikei.ac.jp

in the study, 47 outpatients referred to the Digestive Endoscopy Service, Kumagaya Geka Hospital, for gastroscopy each Wednesday during a 12-month period were divided into 2 groups: 24 patients undergoing gastroscopy for the first time and 23 patients who had previously been treated. All procedures in both groups were performed by one experienced staff endoscopist with a standard transoral upper gastrointestinal endoscope (GIF-XQ240; Olympus Medical Systems, Tokyo, Japan).

Before gastroscopy, we interviewed patients to gather patient characteristics and the indications for gastroscopy, and patients were asked to assess their anxiety level using the Faces Pain Scale²⁻⁴ (Fig. 1). Visual analog scales, such as the Faces Pain Scale, are appropriate objective indicators of anxiety⁵.

In our hospital, premedications for gastroscopy are only 5 ml of a solution prepared from Baros effervescent granules (Mallinckrodt, Inc., St. Louis, MO, USA) and throat anesthesia with 3 ml of 2% viscous lidocaine (Anetocaine, Kobayashi Kako Co., Ltd., Fukui), and 0.1 ml of 8% xylocaine. However,

neither a sedative (flunitrazepam or midazolam) nor an antispasmodic (butyl scopolamine bromide or glucagon) to inhibit digestive motility were used as premedications for gastroscopy, because of possible impairment of cardiopulmonary function.

The Mann-Whitney *U*-test was used for statistical analysis. Data are presented as means \pm standard deviations, and differences with a *p* values less than 0.05 were considered significant.

RESULTS

There was no difference between the groups in the indications for gastroscopy (Table 1), the pharyngeal reflex, the gastroscopic diagnosis, or the examination time. In first-time patients the mean age was 47.1 ± 17.6 years, and 12 of the patients were women. In previously treated patients, the mean age was 62.7 ± 13.9 years, 8 patients were women, and the number of previous gastroscopic examinations was 4.39 ± 1.92 . First-time patients were significantly younger than previously treated patients ($P=0.0016$).

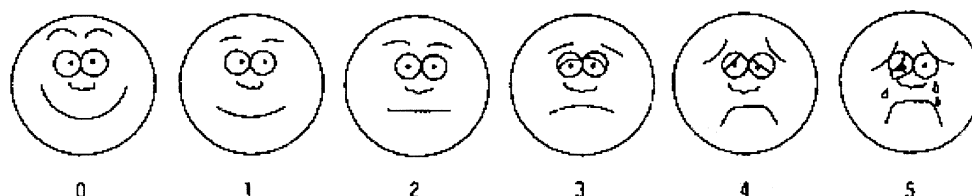


Fig. 1. Pain Face Scale score
0: No anxiety at all, 1: Little anxiety, 2: Slight anxiety, 3: Moderate anxiety, 4: Considerable anxiety, 5: Intolerable anxiety

Table 1. Patients' indications for gastroscopy

Indication	First-time patients (<i>n</i> =24)	Previously treated patients (<i>n</i> =23)
Epigastralgia	9	6
Cancer screening	8	8
Appetite loss	2	3
Heartburn and/or back pain	2	2
Other	3	4

Table 2. Main reasons for anxiety about gastroscopy

Main reason	First-time patients (<i>n</i> =24)	Previously treated patients (<i>n</i> =23)
Procedure itself	19	11
State of disease	3	10
Anxiety free	2	2

The main cause of anxiety before gastroscopy was more often the procedure itself for first-time patients (19 of 24 patients) than for previously treated patients (11 of 23 patients; $P=0.015$; Table 2).

There was no difference between both groups in the self-assessed anxiety level before gastroscopy (first-time patients: 3.50 ± 0.83 , previously treated patients: 3.22 ± 0.95 ; $P=0.33$).

DISCUSSION

Patients scheduled to undergo gastroscopy are often anxious and frightened⁶. High levels of anxiety cause procedures to be more difficult and more painful. If such adverse feelings are removed, patients can undergo gastroscopy smoothly, and the endoscopist can perform gastroscopy without undue tension¹. However, patient anxiety about gastroscopy has not been investigated in detail.

In the present study, patients undergoing gastroscopy for the first time had more anxiety about the procedure itself than about the state of disease. However patients who had undergone gastroscopy previously were more likely to have anxiety about the state of disease. Anxiety might be influenced by such factors as experience with gastroscopy, symptoms of disease, and the patient's personality. One study has emphasized the importance of giving the patient detailed written and videotaped information about the safety of gastroscopy, which reduces anxiety and allows gastroscopy to be performed with fewer problems⁷, especially in patients undergoing endoscopy for the first time. The use of a transnasal endoscope or a small-caliber endoscope should be considered to reduce anxiety about gastroscopy itself.

In the present study, patient anxiety increased before gastroscopy, as judged by the scores of the Faces Pain Scale. Visual analog scales, such as Faces Pain Scale, have been reported to be an objective indicator of the anxiety⁵, a finding that the present study has confirmed. Moreover, the mental reaction to anxiety already increases by the patient's coming to a hospital, but a physical reaction gradually appears as a patient comes to a hospital. We believe that the stimulation of the sympathetic nervous sys-

tem likely decreases more slowly than does mental stress⁷.

In many hospitals, use of an intravenous sedative after pharyngeal anesthesia has improved the tolerance of gastroscopy. Pharmacotherapy can achieve adequate control of patient anxiety during gastroscopy. Nevertheless, most complications during endoscopic examination are related to sedation⁸. Particularly, the risk of cardiopulmonary depression has been reported in elderly patients⁹⁻¹². Therefore, non-pharmacological and noninvasive measures to reduce patient anxiety are desirable.

To reduce patient anxiety in the waiting room and during gastroscopy, an optimally soothing environment must be provided. Moreover, holistic, alternative, and complementary approaches, lavender odorants¹⁴, music, such as that by Mozart^{13,14}, and optimally soothing environment are associated with reduced mental stress and are effective for improving the hospital environment^{15,16}.

In conclusion, we found that patient experience with gastroscopy is not the main determinant of gastroscopy-associated anxiety. Because the main reason for anxiety differs with the patient's experience with gastroscopy and because anxiety about gastroscopy increases before gastroscopy regardless of the number of previous procedures in the past, safer and more effective strategies for minimizing anxiety before gastroscopy are needed.

REFERENCES

1. Abuksis G, Mor M, Segal N, Shemesh I, Morad I, Plaut S, et al. A patient education program is cost-effective for preventing failure of endoscopic procedures in a gastroenterology department. *Am J Gastroenterol* 2001; 96: 1786-90.
2. Herr KA, Mobily PR, Kohout FJ, Wagenaar D. Evaluation of the faces pain scale for use with the elderly. *Clin J Pain* 1998; 14: 29-38.
3. Whaley L, Wong D. Effective communication strategies for pediatric practice. *Pediatr Nurs* 1985; 11: 429-32.
4. Miro J, Huguet A. Evaluation of reliability, validity, and preference for a pediatric pain intensity scale: the Catalan version of the faces pain scale-revised. *Pain* 2004; 111: 59-64.
5. Cain AJ, Murray DP, McClymont LG. The use of topical nasal anaesthesia before flexible nasoendoscopy: a

- double-blind, randomized controlled trial comparing cophenylcaine with placebo. *Clin Otolaryngol Allied Sci* 2002; 27: 485-8.
6. Levy N, Landmann L, Stermer E, Erdreich M, Beny A, Meisels R. Does a detailed explanation prior to gastroscopy reduce the patient's anxiety? *Endoscopy* 1989; 21: 263-5.
 7. Falaschi P, Proietti A, De Angelis C, Martocchia A, Giarrizzo C, Biselli R, et al. Effects of mental stress on cardiovascular and endocrine response in Air Force Academy cadets. *Neuro Endocrinol Lett* 2003; 24: 197-202.
 8. Scheffer GJ. Conscious sedation for endoscopic procedures. *Neth J Med* 2004; 62: 1-3.
 9. Abraham NS, Fallone CA, Mayrand S, Huang J, Wiczorek P, Barkun AN. Sedation versus no sedation in the performance of diagnostic upper gastrointestinal endoscopy: a Canadian randomized controlled cost-outcome study. *Am J Gastroenterol* 2004; 99: 1692-9.
 10. Hashimoto T, Adachi K, Ishimura N, Hirakawa K, Katsube T, Kurotani A, Hattori S, Kinoshita Y. Safety and efficacy of glucagons as a premedication for upper gastrointestinal endoscopy: a comparative study with butyl scopolamine bromide. *Aliment Pharmacol Ther* 2002; 16: 111-8.
 11. Trevisani L, Sartori S, Gaudenzi P, Gilli G, Matarese G, Gullini S, et al. Upper gastrointestinal endoscopy: are preparatory intervention or conscious sedation effective? A randomized trial. *World J Gastroenterol* 2004; 10: 3313-7.
 12. Christie C, Janssens JP, Armenian B, Herrmann F, Vogt N. Midazolam sedation for upper gastrointestinal endoscopy in older persons: a randomized, double-blind, placebo-controlled study. *J Am Geriatr Soc* 2000; 48: 1398-403.
 13. Hayes A, Buffum M, Lanier E, Radahl E, Sasso C. A music intervention to reduce anxiety prior to gastrointestinal procedures. *Gastroenterol Nurs* 2003; 26: 145-9.
 14. Chan YM, Lee PW, Ng TY, Ngan HY, Wong LC. The use of music to reduce anxiety for patients undergoing colposcopy: a randomized trial. *Gynecol Oncol* 2003; 91: 213-7.
 15. Wesa KM, Grimm RH Jr. Recommendation and guidelines regarding the preferred research protocol for investigating the impact of an optimal healing environment on patients with hypertension. *J Altern Complement Med* 2004; 10: 245-50.
 16. Osuch E, Engel CC Jr. Research on the treatment of trauma spectrum responses: the role of the optimal healing environment and neurobiology. *J Altern Complement Med* 2004; 10: 211-21.