ORIGINAL ARTICLE

Common Anxieties of Patients Undergoing Oesophago-Gastro-Duodenoscopy, Colonoscopy and Endoscopic Retrograde Cholangio-Pancreatography

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Summary

Aims & Methods: To investigate the anxieties of patients undergoing oesophago-gastro-duodenoscopy (OGD), colonoscopy and endoscopic retrograde cholangio-pancreatography (ERCP) in relation to their demographic features, their knowledge and understanding of the procedure, its indication, and their doctors' explanation. A standard questionnaire was filled in consecutively for 280 OGD patients, 64 colonoscopy patients and 50 ERCP patients.

Results & Conclusions: Majority of the anxious patients were afraid of pain. There was no difference between the "fearless" and "fearful" groups in terms of source of referral and inpatient/outpatient status. However for all 3 procedures, anxious patients were significantly younger by a mean of 10 years. Females, better educated and OGD patients undergoing the procedure for the first time were more anxious but this difference was not seen with the more complex colonoscopy and ERCP. The more sophisticated ERCP seemed to instil greater anxiety amongst Malay patients. Doctors were significantly more likely to explain the indication for OGD and colonoscopy than how it would be done. This discrepancy was not seen with ERCP where the endoscopists tend to adopt a more personal approach. Most patients prefer to be sedated.

Key Words: Anxiety, Patients, Endoscopy, Colonoscopy, Endoscopic retrograde cholangio - pancreatography (ERCP)

Introduction

Most patients undergoing gastrointestinal endoscopy are anxious. Various methods for reducing anxiety, including patient education and information leaflets, have been used[1-3]. It has been shown that less sedation is required for the first timers if their anxieties are allayed by careful explanation of the impending procedure[4,5]. In order to give a detailed account of the aim and nature of the procedure, it will be helpful to know which aspect of endoscopy patients tend to be afraid of. Furthermore, Asian and Oriental patients may have different fears and expectations and may respond differently to anxiety-allaying manoeuvres found to be helpful in the literature. The aim of this study is to investigate the anxieties of Malaysian patients undergoing oesophago-gastro-duodenoscopy (OGD), colonoscopy and endoscopic retrograde cholangio-pancreatography (ERCP) in relation to patients' demographic features, their knowledge and understanding of the procedure and its indication, and their doctors' explanation.

Patients and Methods

Two hundred and eighty consecutive patients undergoing OGD, 64 undergoing colonoscopy and 50 ERCP were subjected to a standard questionnaire (Appendix). The first author personally filled out the questionnaire with each patient in the waiting area of the endoscopy unit just before the patient had his or her endoscopy. Their age, sex, race, source of referral, inpatient/outpatient status, level of education, number of previous endoscopies, and their preference for sedation were recorded. They were asked to state their greatest fear about the procedure and were deemed to be "fearless" if they were not anxious about anything. The doctors' explanation and the patients' knowledge and understanding of the procedure and its indication were also noted. Endoscopy was performed by any of the 3 authors. All OGD and ERCP patients received topical pharyngeal anaesthesia with a 10% lignocaine spray.

Appendix
ANXIETIES OF PATIENTS UNDERGOING ENDOSCOPY

Name: _____ **Age:** _____ **Case No.** _____

RN: _____ **Sex:** _____ **Occupation:** _____

Race:
1 = Malay 2 = Chinese 3 = Indian 4 = Others _____
1 = Inpatient 2 = Outpatient

Source of Referral:
1 = Medical 2 = Surgical 3 = RUKA 4 = Others _____

Procedure:
1 = OGDS 2 = Colonoscopy 3 = ERCP 4 = Bronchoscopy

Level of Education:
1 = Illiterate 2 = Primary 3 = Lower Secondary
4 = Upper Secondary 5 = Tertiary

How many times have you had an endoscopy? _____

Did someone explain how the procedure is done? 1 = Yes 2 = No
Do you understand how the procedure is to be done? 1 = Yes 2 = No
Did someone explain why you needed this investigation? 1 = Yes 2 = No
Do you understand why you needed this investigation? 1 = Yes 2 = No

What do you fear most about having this procedure?
1 = Can I swallow? 2 = Can I breathe?
3 = What if I gag? 4 = What if I cough?
5 = Will there be throat discomfort? 6 = Will it be painful?
7 = Will I bleed? 8 = Will I wake up?
9 = Others _____

Would you prefer to be sedated? 1 = Yes 2 = No

Majority of the patients received a standard intravenous sedation of 2.5 to 5mg of midazolam unless they opted for no sedation. In addition, most colonoscopy and ERCP patients also received 25 to 50mg of intravenous pethidine just prior to the examination. Student's t test was used to compare the difference in age between the "fearless" and "fearful" groups. χ^2 test was used to compare their sex, race, source of referral, inpatient/ outpatient status, level of education and number of previous endoscopies.

Results

Majority of the anxious patients were afraid of pain (Table I): 65 out of 151(43.0%) in the OGD group, 29 out of 40(72.5%) in the colonoscopy group and 13 out of 24(54.2%) in the ERCP group. In the OGD group, 25 were afraid of gagging or vomiting, 20 afraid of throat discomfort, 11 of inability to swallow and 5 dyspnoea. These are predictable symptoms resulting from the insertion of a foreign object into the oropharynx and contributed another 40% of the anxious patients in the OGD group. Six ERCP patients (25 %) were also afraid of such symptoms. Only 2 colonoscopy patients were afraid of the bowel preparation.

The mean ages (SD) in years of "fearless" and "fearful" OGD, colonoscopy and ERCP patients were 53.8(16.0) and 45.7(16.2), 63.1(11.2) and 54.3(14.0), 61.0(11.1) and 49.1(12.5) respectively (Table II). For all 3 procedures, anxious patients were significantly younger by a mean age of about 10 years (OGD: $p<0.0001$, colonoscopy: $p=0.011$, ERCP: $p=0.001$). The mean age of the OGD group was also noted to be lower than the colonoscopy and ERCP groups.

Female (Table III), better educated (Table IV) and OGD patients undergoing the procedure for the first time (Table V) were more anxious but this difference was not seen with the more complex endoscopic procedures, i.e. colonoscopy and ERCP. Even OGD patients who had only 1 endoscopy in the past were less anxious than

Table I
What are gastro-intestinal endoscopy patients afraid of?

		OGD	Colonoscopy	ERCP
Not afraid	(%)	129 (46.1)	24 (37.5)	26 (52.0)
Pain	(%)	65 (23.2)	29 (45.3)	13 (26.0)
Gagging / Vomiting	(%)	25 (8.9)		3 (6.0)
Throat discomfort	(%)	20 (7.1)		
Inability to swallow	(%)	11 (3.9)		1 (2.0)
Dyspnoea	(%)	5 (1.8)		2 (4.0)
Outcome / Diagnosis	(%)	5 (1.8)	4 (6.25)	
Will I wake up?	(%)	5 (1.8)		1 (2.0)
Injection	(%)	4 (1.4)		
Bowel preparation	(%)		2 (3.1)	
Bleeding / complications / Damage caused	(%)	2 (0.7)	1 (1.6)	2 (4.0)
Effect on other diseases	(%)	2 (0.7)	1 (1.6)	
Lignocaine spray	(%)	1		
Intubation	(%)	1		
Unable to specify	(%)	5 (1.8)	3 (4.7)	2 (4.0)

Table II

Age Groups (years)	OGD Fearless	OGD Fearful	Colonoscopy Fearless	Colonoscopy Fearful	ERCP Fearless	ERCP Fearful
1-10	1	0				
11-20	3	10	**(Colonoscopy and ERCP Patients**			
21-30	8	16	**≤ 40 were analysed as a group).**			
31-40	12	33		7	1	6
41-50	29	34	3	10	4	6
51-60	29	30	5	9	4	7
61-70	25	16	10	10	15	4
71-80	20	9	4	2	2	1
81-90	2	3	2	2		
Mean Age	53.8	45.7	63.1	54.3	61.0	49.1
(SD) (Yrs)	(16.0)	(16.2)	(11.2)	(14.0)	(11.1)	(12.5)
Significance	t = 4.180		t = 2.609		t = 3.578	
	p = <0.0001		**p = 0.011**		**p = 0.001**	

** Significant difference in age between "fearless" and "fearful" patients*

Table III

Procedure	Sex	(Total)	Fearless	Fearful	Significance
OGD	**Male**	(165)	93	72	χ^2 = 17.128
	Female	(115)	36	79	**p < 0.001**
Colonoscopy	**Male**	(38)	17	21	χ^2 = 1.399
	Female	(26)	7	19	p = 0.235
ERCP	**Male**	(21)	12	9	χ^2 = 0.111
	Female	(29)	14	15	p = 0.739

** Female OGD patients are more anxious than male patients but this difference is not seen with the more complex endoscopic procedures, i.e. colonoscopy and ERCP*

Table IV

Procedure	Level of Education	(Total)	Fearless	Fearful	Significance
OGD	**Illiterate**	(30)	16	14	
	Primary	(96)	53	43	
	Lower 2°	(50)	24	26	$\chi^2 = 11.443$
	Upper 2°	(62)	25	37	**p = 0.022**
	Tertiary	(42)	11	31	
Colonoscopy	**Illiterate/1°**	(27)	11	16	
	Lower 2°	(9)	5	4	$\chi^2 = 4.529$
	Upper 2°	(17)	3	14	p = 0.208
	Tertiary	(11)	5	6	
ERCP	**Illiterate**	(18)	10	8	$\chi^2 = 2.177$
	Primary	(18)	11	7	p = 0.337
	2°/Tertiary	(14)	5	9	

** The more educated OGD patients are more anxious than the less educated ones but this difference is not seen with the more complex endoscopic procedures, i.e. colonoscopy and ERCP*

novices (χ^2=5.076, p=0.023). On the other hand, having had more than 1 colonoscopy still did not mean that the subsequent colonoscopy was any easier for the patient.

The more sophisticated and technically intricate ERCP seemed to instil greater anxiety amongst Malay patients (p=0.008) with 80 % of them expressing anxiety as compared to about a third of the non-Malays (Table VI). Racial differences in anxiety were not seen in patients undergoing OGD (p=0.272) and colonoscopy (p=0.239). There was no difference between the "fearless" and "fearful" groups in terms of source of referral and inpatient/outpatient status for all 3 procedures.

Doctors were significantly more likely to explain the indication for OGD (χ^2=54.181, p<0.001) and colonoscopy (χ^2=6.199, p=0.012) than how it would be done. Consequently patients were significantly more likely to understand the indication for OGD (χ^2=12.227, p=0.001) and colonoscopy (χ^2=4.033, p=0.042) than how it would be done. This tendency to explain "why" without explaining "how" was not seen with ERCP where the endoscopists tend to adopt a more personal approach instead of leaving it to medical officers and house officers to counsel the patients. The correlation coefficients (r) were calculated for colonoscopy and ERCP patients only. There was a positive correlation between the doctors' explanation and the patients' understanding of both the "why" and "how" of colonoscopy (r=0.821, p<0.001; r=0.387, p=0.002 respectively) and ERCP (r=0.485, p=0.001; r=0.345, p=0.014 respectively). Knowing how the procedure is done and understanding its indication after doctors' explanation did not alter the anxiety of colonoscopy and ERCP patients. However OGD patients who had been explained the indication and understood it were significantly more anxious (Table VII).

More than 80 % of OGD patients preferred to be sedated. Whereas only 13 % chose not to be sedated. The rest left the decision to the endoscopists. Sedation preference did not differ significantly between the "fearless" and the "fearful" groups (χ^2=0.658, p=0.423). None of the colonoscopy and ERCP patients chose not to be sedated, even though 2 and 3 respectively expressed no preference.

Table V

Procedure		Previous Experience	Fearless (Total)		Fearful	Significance
OGD		**0**	(130)	42	88	
	No. of	**1**	(66)	33	33	
	previous	**2**	(35)	25	10	$\chi^2 = 23.412$
	endoscopy	**3**	(18)	12	6	$p < 0.001$
	(all types)	≥ **4**	(31)	17	14	
Colonoscopy	**Novices**		(31)	11	20	
	OGD but not colonoscopy		(10)	3	7	$\chi^2 = 0.644$
	Had colonoscopy		(23)	10	13	$p = 0.729$
	No. of	**0**	(41)	14	27	$\chi^2 = 0.583$
	previous	**1**	(12)	5	7	$p = 0.752$
	colonoscopy	≥ **2**	(11)	5	6	
ERCP	**Novices**		(27)	13	14	$\chi^2 = 0.094$
	Had endoscopy		(23)	13	10	$p = 0.757$

**Patients who have undergone endoscopy in the past are less anxious than novices but this difference is not seen with the more complex endoscopic procedures, i.e. colonoscopy and ERCP*

Table VI

Procedure	Race (Total)		Fearless	Fearful	Significance
OGD	**Malay**	(45)	16	29	$\chi^2 = 2.594$
	Chinese	(147)	69	78	$p = 0.272$
	Indian	(88)	44	44	
Colonoscopy	**Malay**	(8)	1	7	$\chi^2 = 2.852$
	Chinese	(46)	18	28	$p = 0.239$
	Indian	(10)	5	5	
ERCP	**Malay**	(15)	3	12	$\chi^2 = 7.055$
	Chinese/Indian	(35)	23	12	$p = 0.008$

**There are no racial differences between 'fearless' and 'fearful' OGD and colonoscopy patients but for the more complex ERCP, Malay patients are more anxious*

Table VII

Explanation & Understanding (Total)		Fearless		Fearful	Significance
Explained how :	**Yes**	(103)	43	60	$\chi^2 = 1.226$
	No	(177)	86	91	$p = 0.267$
Understood how :	**Yes**	(191)	89	102	$\chi^2 = 0.067$
	No	(89)	40	49	$p = 0.792$
Explained why :	**Yes**	(190)	74	116	$\chi^2 = 12.075$
	No	(90)	55	35	$p = 0.001$
Understood why :	**Yes**	(227)	98	129	$\chi^2 = 4.058$
	No	(53)	31	22	$p = 0.041$

**The effect of explanation and patients' understanding of the procedure on their anxiety when undergoing OGD*

Discussion

It would be easy for a doctor, based on oropharyngeal anatomy, to assume that the greatest fears facing OGD or ERCP patients would be those pertaining to gagging, vomiting, swallowing, throat discomfort and dyspnoea[6]. However we have shown that endoscopy patients are actually more concerned about the most basic of noxious stimuli, pain; and, perhaps, the reason why doctors' explanation fail to reassure is because we are not addressing this.

Tan and Freeman[7] have shown that OGD patients over 50 years old are less anxious. In our study, for all 3 procedures, the mean ages of anxious patients were lower by about 10 years. Older patients are less anxious and this is in keeping with our notion that one becomes more stoical with age. Furthermore older patients may have had more contact with medical personnel. They are more likely to have had operations or other medical procedures. On the other hand, younger patients may be able to articulate their fears better.

Female patients have been consistently shown to be more anxious when facing OGD[7,8]. What we have shown, in addition, is that with the more complex endoscopic procedures, i.e. colonoscopy and ERCP, even male patients become anxious.

Although it has been shown that anxieties of patients undergoing endoscopy are allayed by familiarising them with the procedure[4,5], a later study suggested that increased knowledge through explanation, information leaflets and/or viewing a videotape of the procedure is not reflected by a reduction in anxiety level[9]. On the contrary, a few patients in another study[10] even had heightened anxiety after viewing a videotape of colonoscopy prior to giving their consent. This occurred in the presence of demonstrable increase in the knowledge of the indications, benefits, risks and alternatives of colonoscopy. We have shown in our study that there is a tendency for doctors to explain the indication for OGD and colonoscopy without explaining how it would be done; and that OGD patients who have been explained the indication and understood it were significantly more anxious. Therefore explaining "why" without explaining "how" may actually heighten the anxiety of OGD patients.

The tendency to explain "why" without explaining "how" was not seen with ERCP where the endoscopists tend to adopt a more personal approach instead of leaving it to medical officers and house officers to counsel the patients. We believe that increased knowledge of the procedure and its indication actually heightened the anxiety of Malay ERCP patients. Of the 3 non-anxious Malay ERCP patients, 2 were not given

any explanation at all and the remainder did not understand both aspects of the explanation given to her.

Increased knowledge may also be the reason why the better-educated OGD patients are more anxious. Furthermore better-educated patients are more articulate and may express their fears better. But with the more complex endoscopic procedures, i.e. colonoscopy and ERCP, anxiety becomes more apparent regardless of level of education.

Theoretical knowledge following doctors' explanation fail to reassure, but patients who have had personal experience of OGD are less likely to be anxious. On the other hand, an unpleasant procedure like colonoscopy and ERCP remains unpleasant no matter how many times one has been through it and personal experience in these 2 procedures does not seem to allay anxiety towards repeat instrumentation.

Jankowski et al[11] suggested that by observing the patients' self-esteem level and measuring their psychoneurosis index prior to endoscopy, one could predict which patients are likely to be extra anxious. In other words, fear is inherent and varies from individual to individual. Fear of endoscopy, particularly the fear of pain, is inherent in our culture regardless of patient explanation. Further methods of reducing anxiety, apart from those aiming to increase patient knowledge, ought to be explored. One such method is to have an escort present throughout endoscopy, which has been found to allay the anxiety of OGD patients[12].

The fact that OGD[13] and colonoscopy can be done without sedation does not mean that this is preferred by patients, bearing in mind that endoscopists and patients differ in their assessment of discomfort[14-16]. Majority (>80%) of our endoscopy patients prefer sedation. Excellent confirmation of the influence of intravenous sedation on the tolerance of OGD was recently published[8]. Therefore we should listen to our patients preference, especially if they are from demographic groups known to be anxious. This then should be balanced against the risk of possible adverse events resulting from sedation, particularly in high-risk patients[6]. The ultimate decision is, of course, a clinical one.

Even though thorough information given to prospective endoscopy patients makes no difference to their anxiety level, patient explanation remains essential in achieving informed consent. In a recent study of 85 malpractice claims against gastroenterologists[17], 9 of 13 claimants against ERCP'ist stated that they would not have brought a case had they received adequate explanation of the risks of ERCP. Three of these patients were accepted for ERCP at the request of other clinical teams and were not seen by the operator nor a member of his team prior to the procedure. As for all 6 cases for complications associated with oesophageal dilatation, the patients claimed that the risks had not been explained adequately. There is a tendency for doctors to explain "why" but not to explain "how". Both aspects are important in order to ensure true informed consent. If endoscopy can be taken as typically representative of all invasive procedures, these results may have a much more general implication.

References

1. Shipley RH, Butt JH, Farbry JE, Horwitz B. Psychological preparation for endoscopy. Physiological and behavioural changes in patients with different coping styles for stress. Gastrointest Endosc 1977; 24: 9-13.
2. Wilson JF, Moore RW, Randolph S, Hanson BJ. Behavioural preparation of patients for gastrointestinal endoscopy: information, relaxation and coping style. J Hum Stress 1982; 8: 13-23.
3. Lanius M, Zimmermann P, Heegevaldt H, et al. Does an information booklet on gastrointestinal endoscopy reduce anxiety for these examinations? Results of a randomized study with 379 patients. Z Gastroenterol 1990; 28: 651-55.
4. Johnson JE, Morrissey JF, Leventhal H. Psychological preparation for an endoscopic examination. Gastrointest Endosc 1973; 19: 180-82.
5. Nelis GF. Preparation for upper gastrointestinal endoscopy; controlled comparison of three regimens. Neth J Med 1980; 23: 191-92.
6. Chuah SY. Management of patients before, during and after upper gastrointestinal endoscopy. Med J Malaysia 1995; 50:162-65.
7. Tan CC, Freeman JG. Throat spray for upper gastrointestinal endoscopy is quite acceptable to patients. Endoscopy 1996; 28: 277-82.
8. Froehlich F, Schwizer W, Thorens J, Kohler M, Gonvers JJ, Fried M. Conscious sedation for gastroscopy: patient tolerance and cardiorespiratory parameters. Gastroenterology 1995; 108: 697-704.
9. 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: 263-65.
10. Agre P, Kurtz RC, Krauss BJ. A randomized trial using videotape to present consent information for colonoscopy. Gastrointest Endosc 1994; 40: 271-76.
11. Jankowski J, Tregaskis B, Jankowski R, et al. Anxiety levels before, during and after endoscopy. Gut 1990; 31: A613.
12. Shapira M, Tamir A. Presence of family member during upper endoscopy. What do patients and escorts think? J Clin Gastroenterol 1996; 22: 272-74.
13. Al-Atrakchi HA. Upper gastrointestinal endoscopy without sedation: a prospective study of 2000 examination. Gastrointest Endosc 1989; 35: 79-81.
14. Thompson DG, Evans SJ, Murray RS, Lennard-Jones JE, Cowan RE, Wright JT. Patients appreciate premedication for endoscopy. Lancet 1980; ii: 469-70.
15. Beavis AK, LaBrooy S, Misiewicz JJ. Evaluation of one-visit endoscopic clinic for patients with dyspepsia. Br Med J 1979; 1: 1387-389.
16. Walmsley RS, Montgomery SM. Factors affecting patient tolerance of upper gastrointestinal endoscopy. Endoscopy 1997 (suppl); 29: E42, P577.
17. Neale G. Reducing risks in gastroenterological practice. Gut 1998; 42: 139-142.