

Comparison of Effectiveness of Paper Handout vs. Video Media in Reducing Level of Anxiety in Patients Scheduled for Upper GI Endoscopy

Sopa Boonviriyaya, Siriporn Ratanalert, Sulee Saengnil, Sawat Naowarat, Banacha Ovarlarnporn

Sopa Boonviriyaya, Siriporn Ratanalert, Sulee Saengnil, Sawat Naowarat, Banacha Ovarlarnporn, NKC Institute of Gastroenterology and Hepatology, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, 90110, Thailand

Correspondence to: Banacha Ovarlarnporn, NKC Institute of Gastroenterology and Hepatology, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, 90110, Thailand.

Email: mrovar@ji-net.com

Telephone: +6674451965-6

Fax: +6674429436

Received: November 20, 2015

Revised: December 12, 2015

Accepted: December 16, 2015

Published online: January 12, 2016

ABSTRACT

BACKGROUND: Anxiety is common in patients undergoing endoscopy. Pre-endoscopy education may decrease the level of anxiety. Limited data on the use of educational video media in decreasing anxiety among upper gastrointestinal endoscopy (EGD) patients are available.

AIMS: To compare the efficacy of a paper handout with that of video media in reducing patient anxiety in EGD

METHODS: A prospective randomized study from February 2010 to February 2012 was conducted. The patients were randomized into either the paper handout group (Group A) or the paper handout with video media one (Group B), and completed a validated Thai version of the State-Trait Anxiety Inventory (STAI) questionnaire assessing their state anxiety (SA) and trait anxiety at baseline and after education.

RESULTS: Ninety-one patients were recruited – 50 were in group A and 41 in group B. In Group A, SA was high in 3 participants and moderate in the other 47 at baseline, and high among 28 and moderate in the remaining 22 post education ($p=0.00$). In Group B, high-level SA was observed in 4 patients and medium-level in the other 37 at baseline, and high in 13 and medium in 28 post

education ($p=0.012$). The baseline SAs between the two groups were not statistically different ($p=0.69$). The post-education SA was lower in Group B than Group A ($p=0.02$). The mean SA score \pm SD at baseline was 21.04 ± 5.89 in Group A and 20.49 ± 5.31 in Group B ($p=0.64$). The mean SA score \pm SD after education in Group A was 22.38 ± 5.82 and in Group B was 19.71 ± 5.03 ($p=0.021$).

CONCLUSION: Education increased SA, and the video media reduced SA more than the paper handout.

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Key Words: Endoscopy; State Anxiety; Endoscopic Video Media

Boonviriyaya S, Ratanalert S, Sulee Saengnil, Naowarat S, Ovarlarnporn B. Comparison of Effectiveness of Paper Handout vs. Video Media in Reducing Level of Anxiety in Patients Scheduled for Upper GI Endoscopy. *Journal of Gastroenterology and Hepatology Research* 2016; 5(1): 1903-1906 Available from: URL: <http://www.ghrnet.org/index.php/joghr/article/view/1484>

INTRODUCTION

Gastrointestinal endoscopy is a fundamental procedure for the detection of luminal pathologies in the gastrointestinal tract^[1]. Patients scheduled for endoscopy are usually anxious about the technical aspects of the procedure, the pain and discomfort during and after the procedure, the findings of the procedure and the consequence of the diagnosis to their life^[1]. The optimal method for providing information to a patient regarding the procedure before the endoscopy is unclear^[2]. Traditionally, this information has been provided verbally as a component of the informed consent for the procedure. Additional information is often delivered in the form of a handout. Many patients, however, do not read such handouts and many do not fully understand the information provided in them. Electronic media, such as videos, may have a potential in overcoming

the deficiencies of both the verbal and written information. A few studies using video media for pre-procedural education in colonoscopy have reported conflicting results in terms of pre-colonoscopy anxiety^[2,3,4]. Moreover, there are limited data regarding the efficacy of the education process involving a paper handout compared with that of a paper handout combined with video media in patients undergoing upper gastrointestinal endoscopy (EGD).

MATERIALS AND METHODS

This study's protocol was approved by the Ethics Committee of the Faculty of Medicine, Prince of Songkla University.

A prospective randomized study in patients undergoing EGD without sedation from February 2010 to February 2012 was conducted at the NKC Institute of Gastroenterology and Hepatology of Songklanagarind Hospital, Faculty of Medicine, Prince of Songkla University. All outpatients scheduled for EGD without sedation in our endoscopic unit were enrolled if they met the inclusion criteria and provided an informed consent to participate in the study. The patients were eligible for the study if they were undergoing an EGD for the first time and were able to read and understand the Thai language. The patients were randomly assigned to a paper handout group or a paper hand out with video media by using random numbers generated by a computer in sealed envelopes. All of the endoscopists were blinded to the allocation. Upon arrival on the day of appointment for the procedure, all the patients were provided the usual verbal and handout education as routinely done in our institute. On the day of the procedure, the patients in the video group watched a 10-minute video media before the EGD examination. All the EGDs were done by using different models of gastroscope by Olympus® or Pentax®.

The information in the paper handout consisted of preparation instructions before the procedure, a short description of the endoscopic procedure, the post-procedure local-anesthesia effects, details regarding the expense-claiming process for each payer, and the extra costs that may be incurred from the procedure. The consent form comprised information on the risk of the procedure as well. The content of the video involved instructions regarding preparation before the procedure, the process of registration for endoscopy as well as information related to the expense-claiming process, the actual process of endoscopy from start to finish, and post-procedure instructions regarding side effects and potential complications.

All of the patients answered a validated Thai STAI questionnaire^[5,6], which assessed the situational anxiety level at the baseline on the first visit before receiving the paper handout. On the second visit on the day of the procedure, patients in the paper handout group answered the Thai STAI questionnaire before the procedure and patients in the paper handout with video media group watched a video media then answered the Thai STAI questionnaire. This short form of the STAI (State-Trait Anxiety Inventory) questionnaire consisted of 20 statements (each of which had four answers to choose from) that reflected the individual's general disposition to anxiety^[6]. The STAI-State questionnaire is designed to assess an individual's anxiety relating to the current situation, and is associated with two scoring types, namely the state anxiety score and the trait anxiety score. The STAI scores range from 20 to 80, with the higher scores indicating a greater anxiety level. The state anxiety scores and trait anxiety scores of each individual were recorded before and after instruction. The patients were categorized by education level (college or high school) and socioeconomic status (middle class and low income; monthly income of more than 1,5000 baht = middle class). The patients were also grouped by age and gender, and, according to

the table of the normal values for state and trait anxiety for working adults^[6], they were allocated a high-level anxiety compared to normal if the score was in the 75th percentile or above, and medium-level anxiety if the score was lower than the 75th percentile.

Statistical analysis

The demographic data were analyzed using descriptive statistics. The levels of state and trait anxiety before and after the education were analyzed both within the same group and between groups. The difference in anxiety levels of the group and between groups were compared by using the Chi's square test. The differences in anxiety scores before and after the educational process within the group and between groups were analyzed by means of Student's *t* test. All of the statistic analysis was carried out using the Minitab® 1.5 software.

RESULTS

There were 91 patients recruited and all completed the study. There were 26 male and 65 female patients and the mean age \pm SD was 48.187 ± 9.048 years with a range of 20-67 years.

Fifty of them were randomized to receive education via only a paper handout (Group A), and forty-one were randomized to undergo EGD education by means of a paper handout and a video (Group B). The demographic data of the two groups were not different, except for education level; Group B contained significantly more college graduates than Group A (Table 1).

State anxiety score

In group A, the state anxiety scores at baseline were of a high level in three and of a medium level in forty-seven. In group B, the state anxiety scores at baseline were of a high level in 4 and of a medium level in thirty-seven participants. The distribution of the level of anxiety by state anxiety score was not different between the two groups (Fisher's exact test, $p=0.69$). After education, twenty-eight patients reported high-level and twenty-two medium-level anxiety in Group A. Concerning Group B, thirteen patients experienced high-level anxiety and twenty-eight a medium-level one after the education process. This difference between the two groups was statistically significant (Chi square, $p=0.02$). In both group A and B, the number of high level state anxiety were significantly higher after the educational process than at baseline (Group A, Chi square $p=0.000$; Group B, Chi square $p=0.012$). The mean state anxiety score \pm SD at baseline of Group A was 21.04 ± 5.89 , and that of Group B was 20.49 ± 5.31 ; this difference was not significant ($p=0.64$). The mean state anxiety score \pm SD after education in Group A was 22.38 ± 5.82 , and that of Group B was 19.71 ± 5.03 . This time, the difference was statistically significant (Student's *t* test $p=0.021$). The post education mean state anxiety score was higher than the baseline mean state anxiety score in group A but they were not significantly different (Student's *t* test $p=0.49$). The post education mean anxiety score was lower than the baseline mean state anxiety score in group B but they were not significantly different either (Student's *t* test $p=0.34$). The paper handout with video media showed significant superiority to paper handout alone in terms of reducing the state anxiety score.

Trait anxiety score

Concerning the trait anxiety score, in Group A, forty-six participants showed a high-level anxiety and 4 a medium-level one at baseline. All 41 subjects in Group B reported high-level anxiety at baseline, and the proportion of such patients was significantly higher in Group B

than in Group A (Chi square $p=0.026$). After education, in Group A, 48 had high-level anxiety and the other 2 a medium-level one. On the other hand high-level anxiety persisted among all of the 41 patients in Group B; however, this difference between the two groups was not statistically significant (Chi square $p=0.49$). In Group A, the level of trait anxiety did not change significantly after education (Chi square $p=0.395$), whereas, in Group B, they were high in all of the subjects both before and after education. The trait anxiety scores of groups A and B are shown in table 2. There was no statistically significant difference in the mean trait anxiety score between the two groups both at baseline and after education and between pre- and post-education within the same group.

DISCUSSION

The state anxiety scale has been found to be a sensitive indicator of changes in transitory anxiety experienced by patients^[6]. In our study, the effect of education on the state anxiety score was that it significantly increased the number of patients with high-level anxiety compared to baseline in both Group A and B. This may be due to the failure of both the paper handout and video media to convey the information clearly enough to the patients, leading to more anxiety than at baseline. Along the same lines, in another study, 12% of patients were more anxious after education using video media^[7]. However, the information provided in the educational material before the procedure may influence the outcome of the pre-procedural education in reducing anxiety^[11]. A reduction in anxiety level when patients received information about the sensation they were likely to experience during endoscopy in contrast to the information about the technical details of the procedure alone has been reported^[8,9]. Patients may have different needs in how they might process pre-procedural information according to their coping styles as information seekers or information avoiders; hence, by providing information congruent with one's coping style may reduce anxiety and improve the outcome of the procedure^[10].

In our study, the paper handout plus the video media was significantly better than the paper handout alone in decreasing the number of patients with high anxiety level, and the mean state anxiety score in Group B was significantly lower than in Group A. Other studies among patients undergoing colonoscopy have shown conflicting results on pre-procedure education using video media^[2,3,4]. Our data seem to support the view that the video media in addition to paper hand out is more beneficial than a paper handout alone in reducing state anxiety in upper endoscopy patients.

However, the trait anxiety level in our investigation did not change significantly after the educational process. Trait anxiety refers to relatively stable individual differences in anxiety proneness^[6]. The majority of patients in this study had a high level of trait anxiety at baseline and this may have played a role in increasing their state anxiety level after the education process.

Most of the endoscopic procedures in many centers are nowadays performed with sedation^[11,12,13]. Sedation can ensure more patient cooperation and satisfaction, particularly in complex or painful procedures such as ERCP or colonoscopy. The disadvantage of sedation consists in the adverse effects associated with it and the loss of the patient's ability to drive or operate machinery. Pre-procedure education in patients undergoing upper gastrointestinal endoscopy without sedation may be a potential option. Regardless, anxiety was identified as a predicting factor for upper endoscopy tolerance in one study^[14], and the reduction of anxiety may be crucial to improving the patient tolerance to endoscopy, particularly when performed

Table 1 Demographic data of groups A and B.

	Group A	Group B
Number of cases	50	41
Mean age \pm SD (years)	48.42 \pm 8.38	47.90 \pm 9.90+
Male : Female	13 : 37	13 : 28+
Socioeconomic status (middle/ low)	17/33	13/28+
Education level (university/ high)	8/42	15/26**

** $p=0.024$, + Not significantly different

Table 1 Demographic data of groups A and B.

	Group A	Group B
State anxiety score level		
Baseline		
High	3	4
Medium	47	37
Post-education		
High	28	13
Medium	22	28
Trait anxiety score level		
Baseline		
High	46	41
Medium	4	0
Post-education		
High	48	41
Medium	2	0
State anxiety score		
Baseline	21.04 \pm 5.89	20.49 \pm 5.31+
Post-education	22.38 \pm 5.82	19.71 \pm 5.03*
Trait anxiety score		
Baseline	27.44 \pm 4.51	27.80 \pm 4.07+
Post-education	27.00 \pm 3.93	28.66 \pm 3.98+

+ Not significantly different, * $p=0.021$.

without sedation. Additionally, it may also reduce the cost^[1,15] and adverse events associated with sedation^[1]. There are a variety of choices to reduce pre-procedural anxiety, namely psychological intervention^[16,17,18,19], educational materials including video media^[1,2,3,4], hypnosis, acupuncture and nitrous oxide analgesia^[1]. The video media and paper handouts as educational tools are simple and easy ways to achieve this. Proper evaluation of the contents in these materials is needed before using them as a tool for reducing anxiety related to endoscopic procedures.

ACKNOWLEDGMENTS

This study was supported by a grant from the Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkla, Thailand 90110. Part of this study was presented as a poster in 15th ESGENA Conference 2011 in Stockholm Sweden.

Author contribution: Sopa Boonviriyi was involved in the study design, patient recruitment, data collection and manuscript preparation. Siriporn Rattanaalert, Sulee Saengnil and Sawat Naowarat were involved in patient recruitment and data collection and Bancha Ovarthlamporn was involved in advice for study design, data analysis and manuscript preparation. All of the authors have no conflicts of interest to declare.

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Peer reviewers: Kazuki Sumiyama, Department of Endoscopy, The Jikei University School of Medicine, 3-25-8 Nishishibashi, Minato-ku, Tokyo, Japan; Ajay H Bhandarwar, Professor, Department of Surgery, Division of GI,HPB, & MAS (Minimal Access Surgery), Grant Medical College & Sir JJ Group of Hospitals, Mumbai, India.