

Effect of Systematic Psychological Preparation Using Visual Illustration Prior to Gastrointestinal Endoscopy on the Anxiety of Both Pediatric Patients and Parents

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Background: Anxiety, a psychological response to stress, can affect a child undergoing medical procedures, and their family members. The purpose of the present study was to evaluate the benefit of detailed systematic information using a set of real photograph-based technical illustrations provided to both parents and patients before performing endoscopy on the level of anxiety.

Material and Method: All children eligible for gastrointestinal endoscopy were consecutively enrolled from December 2003 to May 2004. Before and after providing systematic psychological preparation, the parents and patients older than five years of age were asked to score their anxiety on the procedures using visual analogue scale (VAS).

Results: There were fifty-four patients enrolled during the study period. Of these, twenty-five children were older than five years of age. The most common indication of gastrointestinal endoscopy was lower gastrointestinal bleeding. The esophagogastroduodenoscopy, colonoscopy, and both upper and lower endoscopies were performed in 50%, 37%, and 13% of the cases, respectively. The mean and standard deviation of VAS on anxiety of the parents ($n = 54$) before and after providing systematic information were 3.89 ± 3.45 and 1.90 ± 2.46 , respectively ($p < 0.001$). These values on anxiety of the children older than 5 years of age before and after providing systematic information were 4.38 ± 3.72 and 3.36 ± 3.69 , respectively ($p = 0.143$). There was no statistically significant impact of types of procedure, level of education, family's income, age of children, and birth order on the level of anxiety.

Conclusion: The preparatory intervention using systematic visual illustration of the technical procedures in children undergoing gastrointestinal endoscopy could significantly reduce the parents' anxiety.

Keywords: Psychological preparation, Anxiety, Endoscopy, Child

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Anxiety refers to a complex sequence of cognitive, affective, and behavioral events that are evoked by some certain stresses⁽¹⁾. This psychological impact can affect not only a child undergoing medical procedures, but also the entire family. The intense anxiety and fear may result in poor cooperation, longer duration of the procedures, increased dosage of sedation, and even inadvertent complications. With the advent of new technologies, pediatric gastrointestinal endoscopy

is increasingly involved in both diagnostic and therapeutic options for children with gastrointestinal problems. Apart from the well recognized serious complications of gastrointestinal endoscopy, such as bleeding, perforation, and infection, this procedure also produces discomfort, anxiety, and dissatisfaction⁽²⁾. Therefore, it is of importance for any child undergoing endoscopy to be adequately informed prior to the procedure. The aim of the present study was to evaluate the benefit of detailed systematic information using a set of real photograph-based technical demonstration provided to both parents on the level of anxiety and patients before performing endoscopy.

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Material and Method

All children eligible for esophagogastroduodenoscopy (EGD) and colonoscopy were consecutively enrolled between December 2003 and May 2004. The procedures were performed in a surgical suite under general anesthesia. Any patient who had previously experienced gastrointestinal endoscopy was excluded. A written informed consent was obtained from their parents prior to enrollment. Before and after providing visual-based systematic information by the same nurse practitioner, the parents and children who were older than 5 years old, were asked to score their anxiety on the procedures using visual analogue scale (VAS). A 10-cm graphical rating scale labeled "no anxiety" (0 cm) at the left end and "extremely anxious" (10 cm) at the right end. The systematic information included indications of endoscopy, patients' preparation, a set of real photograph-based technical illustration, complications from the procedures, therapeutic interventions, and anesthesia. General information including types of procedure, underlying diseases, age, gender, birth order, family's income, and level of education were recorded into a standardized form. The mean \pm SD visual analogue scales of anxiety before and after patients and parents education were compared using 95% confidence interval and the pair *t*-test. A *p* value of < 0.05 was considered as statistically

significant. After the procedures, both parents and patients were asked to evaluate their satisfaction with psychological preparation process and outcome of treatments using a questionnaire, rating as very satisfied, satisfied, fairly satisfied, and unsatisfied. The present study protocol was approved by the research ethic committee of Faculty of Medicine, Chiang Mai University.

Results

Fifty-four patients were enrolled during the study period. Of these, twenty-five children were older than 5 years of age. The most common indication of gastrointestinal endoscopy was lower gastrointestinal bleeding, followed by abdominal pain, chronic diarrhea, upper gastrointestinal bleeding, and others. Half of the patients underwent EGD. The colonoscopy and both upper and lower endoscopies were performed in 37% and 13%, respectively (Table 1). The majority, approximately two-thirds, of the parents giving the VAS had completed grade 6 and the average total family's income was less than 5,000 baht a month.

The mean and standard deviation of visual analogue scale on anxiety of the parents ($n = 54$) before and after providing systematic information were 3.89 ± 3.45 and 1.90 ± 2.46 , respectively ($p < 0.001$). However, these values on anxiety of the children older than

Table 1. Demographic data of the patients enrolled for gastrointestinal endoscopy

Patient's characteristics	Number (n = 54)	Percent
Gender	29	53.7
Male		
Age		
< 5 years	29	53.7
> 5 years	25	46.3
Indication		
Lower GI bleeding	17	31.5
Abdominal pain	14	25.9
Chronic diarrhea	9	16.6
Upper GI bleeding	7	13.0
Others	7	13.0
Procedure		
EGD*	27	50.0
Colonoscopy	20	37.0
EGD and colonoscopy	7	13.0

* EGD: Esophagogastroduodenoscopy

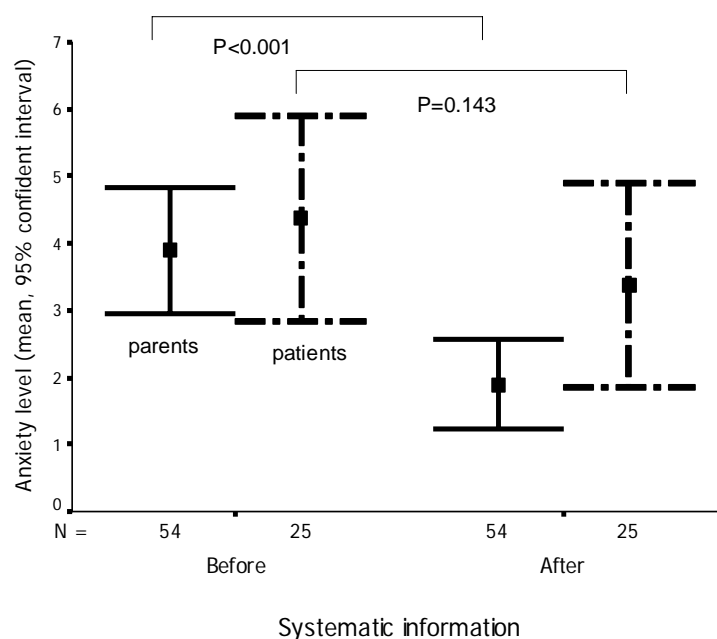


Fig 1. The visual analogue scales of anxiety in both parents (n = 54) and patients (n = 25) before and after systematic psychological preparation was shown

5 years of age before and after providing systematic information were 4.38 ± 3.72 and 3.36 ± 3.69 , respectively ($p = 0.143$) (Fig. 1) There was no statistically significant impact of types of procedure, level of education, family's income, age of the children, and birth order on the level of anxiety. Most of the parents and patients (> 80%) were very satisfied with the psychological preparation process as well as treatment after the procedures.

Discussion

When an invasive procedure, such as an operation, bone marrow aspiration, lumbar puncture, pleural tapping, endoscopy, etc., are necessarily indicated on a child, the entire family possibly encounters the feelings of anxiety, fear, and distress. Stier et al reported that the most prominent expressions of anxiety in conjunction with endoscopy were fear of suffocation, fear of damage to internal organs, and fear of lesions to a "baby inside" in girls⁽³⁾; whereas a study of Chuah et al showed that the majority of the anxious patients were afraid of pain⁽⁴⁾. They also demonstrated that most physicians were significantly more likely to explain the indication of endoscopy than how it would be done. Thus, a systematic psychological preparation provided to both parents and patients prior to endoscopy should logically reduce the level of anxiety

on the procedures. Claar *et al* found that children with a greater knowledge of upper endoscopy exhibited less distress and reported less anxiety toward future procedures⁽⁵⁾. Shipley et al used a videotape to inform and explain the endoscopic procedures to adult patients. They found that anxiety was reduced, particularly when the stimulus was repeated⁽⁶⁾. Similarly to the study of Visintainer and Wolfer, the investigators concluded that systematic psychosocial preparation and support before tonsillectomy were associated with less distress and more cooperation⁽⁷⁾. This result was further confirmed by Edwinston et al who demonstrated the benefit of a psychological preparation program on the level of anxiety in children undergoing appendectomy⁽⁸⁾.

In the present study, the level of anxiety decreased significantly in parents receiving systematic psychological preparation using a set of photograph-based technical demonstration. Although the same statistically significant result could not be demonstrated in children older than 5 years of age, a reduction of anxiety level was also observed. This might result from inability to fully understand what was being explained, particularly in small children. Rasnake and Linscheid suggested that information should be designed to match the age-related conceptual abilities of the recipient, in which it could lead to more effectively reducing anxiety and increasing cooperation on the procedures⁽⁹⁾.

Although level of education seemed to affect the outcome of psychological preparation, the present study did not demonstrate any significant effect on anxiety level in the parents. There was also no significant association between level of anxiety and types of procedure, family's income, age of children, and birth order.

The present results were similar to Mahajan's study which demonstrated a positive effect of psychological preparation in pediatric patients undergoing gastrointestinal endoscopy. It decreased self-reported anxiety and the autonomic nervous system compared to the control group in their study. They also documented significant reduction in the milligrams per kilogram of meperidine required by those who had undergone psychological preparation⁽¹⁰⁾.

In summary, preparatory intervention using systematic visual illustration of the technical procedures in children undergoing gastrointestinal endoscopy could significantly reduce the parents' anxiety. Although it did not reach statistical significance, this effect was also noted in children. This can eventually improve patients' comfort and cooperation; thereby promoting procedural safety.

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ผลของการให้ความรู้และคำแนะนำโดยการใช้ภาพประกอบต่อความวิตกกังวลของผู้ป่วยเด็กและผู้ปกครองก่อนการส่งกล่องทางเดินอาหาร

พรทวี ฤทธิบุตร, ณัฐพงษ์ อัครผล

ที่มา: ความวิตกกังวลเป็นการตอบสนองทางจิตใจต่อภาวะ stress ต่าง ๆ ซึ่งจะมีผลต่อผู้ป่วยเด็กและผู้ปกครอง การศึกษานี้จัดทำขึ้นเพื่อประเมินผลการให้ความรู้และคำแนะนำโดยการใช้ภาพประกอบต่อระดับความวิตกกังวลของผู้ป่วยเด็กและผู้ปกครองก่อนการส่งกล่องทางเดินอาหาร

วัตถุประสงค์และวิธีการ: ผู้ป่วยเด็กที่อายุมากกว่า 5 ปี และผู้ปกครองของเด็กทุกรายที่จะได้รับการส่งกล่องทางเดินอาหาร ระหว่างเดือนธันวาคม พ.ศ. 2546 ถึงเดือนพฤษภาคม พ.ศ. 2547 จะได้รับการประเมินระดับความวิตกกังวลโดยใช้ visual analogue scale (VAS) ก่อนและหลังการให้ความรู้และคำแนะนำรวมถึงภาวะแทรกซ้อนต่าง ๆ โดยการใช้ภาพประกอบคำอธิบาย

ผลการศึกษา: ผู้ป่วยที่ได้รับการศึกษามีทั้งหมด 54 ราย โดย 25 รายเป็นเด็กที่มีอายุมากกว่า 5 ปี ข้อบ่งชี้ที่พบบ่อยคือภาวะเลือดออกในทางเดินอาหาร การศึกษานี้มีการทำการส่งกล่องกระเพาะอาหาร การส่งกล่องลำไส้ใหญ่ และการทำการส่งกล่องทั้งสองอย่างร้อยละ 50, 37 และ 13 ตามลำดับ ค่าเฉลี่ยของ VAS ต่อระดับความวิตกกังวลของผู้ปกครอง (จำนวน 54 คน) ก่อนและหลังการให้ความรู้เป็น 3.89 +/- 3.45 และ 1.90 +/- 2.46 ตามลำดับ ($p < 0.001$) สำหรับค่าเฉลี่ยของ VAS ต่อระดับความวิตกกังวลของผู้ป่วยเด็กที่อายุมากกว่า 5 ปี ก่อนและหลังการให้ความรู้เป็น 4.38 +/- 3.72 และ 3.36 +/- 3.69 ตามลำดับ ($p = 0.143$) จากการศึกษาไม่พบความสัมพันธ์ระหว่างระดับความวิตกกังวลกับชนิดของหัตถการที่ทำ ระดับการศึกษาของครอบครัว รายได้ อายุของผู้ป่วย และลำดับการเกิด

สรุป: การเตรียมผู้ป่วยโดยการใช้ภาพประกอบที่แสดงรายละเอียดของการทำหัตถการสามารถลดระดับความวิตกกังวลของผู้ปกครองต่อการทำการส่งกล่องทางเดินอาหารในผู้ป่วยเด็กได้
