Evaluation of the effect of a pre-operative anesthesia videotape

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The impact of supplementing the routine preoperative anesthesia visit with an educational videotape presentation on anesthesia procedures was investigated. Patients in Group A (N=20) viewed the videotape prior to the preoperative anesthesia visit. Patients in Group B (N=20) received only the routine preoperative anesthesia visit.

Both groups of patients were evaluated preoperatively for their level of trait-state anxiety, knowledge of anesthesia procedures and physiological signs and symptoms of anxiety. Postoperatively, their comments on the videotape and the total anesthetic experience were obtained.

Although there was no significant difference in trait-state anxiety level between the two groups, the patients in Group A demonstrated a significantly greater knowledge of anesthesia procedures and exhibited fewer signs and symptoms of anxiety in the operating room.

The videotape did not appear to affect the patients' satisfaction with the total anesthetic experience, but 18 (85%) patients in Group A stated that the videotape made them less nervous, and all 20 (100%) patients recommended that it be made available to every patient.

During the preoperative visit the anesthetist is responsible for explaining preoperative and postoperative anesthetic management and its inherent risks in a friendly, informative and reassuring manner, a responsibility that occasionally is difficult even for the most experienced anesthetist.

Long hours in the operating room, the patient's late arrival on the hospital unit and ineffective communications skills may add to the complexity of this problem.

A lack of knowledge or misunderstanding of routine anesthesia procedures may increase the patient's anxiety and heighten his or her expectations of the anesthetist and surgeon. If these expectations are not met, the patient may develop feelings of resentment or hostility and seek retribution for his or her disappointment through the legal system.\(^1\)

This investigation was instituted because of the rapidly expanding utilization of modern technology to provide the consumer with routine information, the escalating cost of health care and medical malpractice and the need to improve patient education.

The purpose of this study was to analyze the impact of a videotaped explanation of anesthesia procedures on the patient's level of preoperative anxiety, cognitive knowledge of anesthesia procedures and satisfaction with the total anesthesia experience. The videotape presentation was designed to supplement, not replace, the anesthetist's routine preoperative visit.
Methodology
Forty ASA physical status I or II English-speaking female patients admitted for elective gynaecological surgery were assigned randomly to two groups. Each patient granted informed consent to participate in the study, which had been approved by the hospital ethics committee. Patients with a history of psychotic reactions, depression or substance abuse were excluded from the study, as were mentally handicapped persons and those requiring emergency operative intervention.

Prior to the anesthesiologist's routine preoperative visit, a 16-minute, 3/4-inch videocassette presentation explaining the procedures for administration of anesthesia was shown individually to the patients in Group A in their hospital rooms. In order to minimize inconvenience to the medical and nursing personnel and to provide an opportunity for patients to become oriented to the surroundings, the videotape was shown between the hours of 2 and 4 p.m.

Before viewing the presentation, patients were informed that the videotape was developed by a CRNA in Colorado Springs, Colorado for use in preoperative preparation of patients.* And, although the video tape states that anesthesia will be provided either by a nurse anesthetist or an anesthesiologist, at the hospital in which this study was undertaken (Western Pennsylvania Hospital in Pittsburgh), both nurse anesthetists and anesthesiologists participate in the administration of anesthesia.

Between 3 and 5 p.m., all patients received a preoperative visit from an anesthesiologist. The preoperative rounds were divided among three residents and one staff anesthesiologist; the physicians were not informed as to which group a patient had been assigned. They conducted the preoperative visit, prescribed preoperative medication and documented the number of questions pertaining to anesthesia asked by each patient.

A preoperative medication order of meperidine (Demerol®) 0.5-1 mg/kg, hydroxyzine (Vistaril®) 0.5-1 mg/kg and atropine 0.4 mg/kg, was written to be administered one hour before surgery.

After the anesthesiologist's visit, the patients were asked to complete the Spielberger Self-Evaluation Inventory and a 15-point written test on cognitive knowledge of anesthesia procedures. The content of the cognitive test was validated by four members of the clinical anesthesia staff.

A tryout study was conducted on two patients to determine the readability of the questions and the approximate amount of time needed for testing. The correct answers to the test were provided to the patient upon request.

The Spielberger Self-Evaluation Inventory Part I was used to evaluate the basic personality trait anxiety and to determine the uniformity of each group. Part II assessed the level of state anxiety present at the time the questionnaire was being completed.

This instrument has undergone extensive validation in the United States. The normal index value for the State-Trait Anxiety Inventory (STAI) trait anxiety was 42, and the STAI state anxiety normal index was 43. These values were obtained from the norms which appeared in the STAI manual for general medical surgical patients without psychiatric complications.²

On her admission to the operating room the following day, the patient's level of anxiety was assessed by the investigator utilizing the Clinical Evaluation Tool, a list of 12 items constructed from a synopsis of Graham's and Nemiah's (cited in Phippen) list of Physiological Signs and Symptoms of anxiety. The presence of physiological signs or symptoms of anxiety was indicated by placing a checkmark in the space provided for each of the items.³,4

Within 24 to 72 hours postoperatively and after the routine postoperative anesthesia visit, the patients in both groups were visited and asked to complete Part A of an interactive questionnaire. The questionnaire was based on the Modell-Guerra model.⁵ Only patients in Group A were asked to complete Part B of the questionnaire, which pertained to the videotape presentation.

The Spielberger Self-Evaluation Inventory, Knowledge Assessment Tool and the Clinical Evaluation Tool for all patients were administered by the investigator. To obviate possible bias, a trained interviewer was utilized to conduct the postoperative interactive interview with one-half of the patients in each group. The routine postoperative visit was conducted by an anesthetist or anesthesiologist and not by the investigator.

Results
The mean age of the 40 patients was 33 years, the mean weight was 62 kg and the mean height was 164 cm. There was no significant difference between the groups regarding these parameters. Diagnostic laparoscopy was the surgical procedure

*The videotape, "Insight into Anesthesia," was developed by Robert Rota, CRNA. For information on obtaining the videotape, contact Medical Insight Video, 3660 Truman Dr., Colorado Springs, CO 80904.
performed most frequently on patients in this study (Table I).

The number of questions concerning anesthesia asked by an individual patient during the preoperative visits varied from one to four. The total number of questions asked was 17 by Group A and four by Group B.

Four patients in Group A and two patients in Group B did not exhibit any physiological signs or symptoms of anxiety in the clinical area. The number of symptoms exhibited by patients in Group A totaled 23; the total number of symptoms for patients in Group B was 47 (Table II).

Five (25%) of the patients in Group A answered all of the 15 questions on the cognitive knowledge test correctly. Only one patient in Group B obtained a perfect score. The mean score for both groups was 12.05. A t-test was performed, resulting in a t-value of 2.41 with 38 degrees of freedom, indicating that a statistically significant difference in knowledge of anesthesia procedures existed between the groups at p < 0.05.

Although the results of the STAI showed a higher level of trait anxiety in Group A patients (38.00 ± 9.37) than of Group B patients (34.55 ± 9.63), a t-test (t=1.15, p < .258) failed to show any significant difference in the trait anxiety level of the groups (Table III).

No statistical difference in the level of state anxiety was shown when a t-test was performed to compare the state anxiety level of Group A (42.95 ± 13.01) with that of patients in Group B (42.20 ± 13.12). Neither was there a significant difference between the number of high state anxiety level patients; eight in Group A and 10 in Group B.

The Pearson correlation method was used to investigate the relationship among the trait anxiety levels, state anxiety levels and the number of symptoms exhibited. The mean trait anxiety level was

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<tr>
<th>Table II</th>
<th>Number of patients exhibiting clinical signs and symptoms of anxiety</th>
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<tr>
<td></td>
<td>Group A (N=20)</td>
</tr>
<tr>
<td>Verbal expression of fears/ nervousness</td>
<td>4</td>
</tr>
<tr>
<td>Taut or strained facial expression</td>
<td>4</td>
</tr>
<tr>
<td>Tachycardia</td>
<td>11</td>
</tr>
<tr>
<td>Irritability</td>
<td>2</td>
</tr>
<tr>
<td>Trembling or shivering</td>
<td>0</td>
</tr>
<tr>
<td>Hyperventilation</td>
<td>0</td>
</tr>
<tr>
<td>Very rapid speech</td>
<td>2</td>
</tr>
<tr>
<td>Self-sufficiency</td>
<td>0</td>
</tr>
<tr>
<td>Tension</td>
<td>0</td>
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<td>Diaphoresis</td>
<td>0</td>
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No attempt to seek information from nurse when opportunity is present

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<th>Table III</th>
<th>Spielberger anxiety ratings ± standard deviation of Groups A and B</th>
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<tr>
<td>Group</td>
<td>Mean state anxiety levels</td>
</tr>
<tr>
<td>A (N=20)</td>
<td>42.95 ± 13.01</td>
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<tr>
<td>B (N=20)</td>
<td>42.40 ± 13.12</td>
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The mean number of symptoms exhibited by the total sample was 1.75 (±1.25). The Pearson correlation coefficient value (.407) indicated that the only significant relationship was between the trait and state anxiety level of the total sample at p < 0.01.

In responding to Part A of the interactive questionnaire, 29 (73%) of the patients considered the preoperative visit with the anesthesiologist to be very informative. Twenty (50%) patients, nine from Group A and 11 from Group B, reported that all the information presented by the anesthesiologist was interesting. Thirty-six (90%) patients believed that everything relating to their anesthetic had been discussed during the anesthesiologist's visit.

However, three areas in which patients would like to have had more information were: (a) the educational background of the anesthesiologist; (b) what would happen to them in the operating room, and (c) the anesthesia billing process.

One patient in Group B stated that she considered the anesthesiologist's presentation too mechanical, and that although there was dialogue between the anesthesiologist and herself, no actual communication occurred.

Thirty-two (80%) patients in both groups said that the anesthesiologist had provided a clear explanation of what would happen in the operating room. In comparing the patients' expectations with their actual experiences in the operating room, 16 (80%) patients in Group A and 15 (75%) patients in Group B stated that the care they received was what they had expected.

Ways in which the experiences differed were being awake so long, the low temperature in the operating room, the sound of radio music in the operating room and being awake when the oxygen mask was applied. Twelve (30%) patients stated that they had postoperative problems related to anesthesia.

Problems identified by the patients were nausea and vomiting, sore throat, prolonged sedation and an EKG electrode left in place. Thirty-nine (97%) patients stated that the anesthesia care provided was satisfactory enough for them to return to the hospital.

During Part B of the interactive interview, 18 (90%) of the patients indicated that they thought everything in the videotape presentation was interesting. Seventeen (85%) of the patients stated that they were less nervous after viewing the videotape presentation. Only one patient stated she was more nervous because she did not like to discuss the anesthetic, she just wanted to have it done. All 20 (100%) of the patients stated that a videotape presentation on anesthesia should be shown to patients as part of preoperative preparation for surgery.

Discussion

The lower number of physiological signs and symptoms of anxiety observed in patients in Group A clearly suggests that the patients who had seen the videotape presentation were less nervous than those who had not. This result coincides with data obtained during the postoperative interactive interviews in which 18 (85%) of the patients stated they were less nervous after viewing the videotape. The factor cited most frequently as the cause was that the videotape presentation offered a full explanation of what was going to happen in the operating room in a step-by-step manner.

No statistically significant difference existed in the trait and state anxiety levels between the two groups, as measured by the STAI. This suggests that anxiety was related to variables other than anesthesia and surgery. This finding is supported by a study by Johnston, who examined anxiety in surgical patients and reported that the level of anxiety begins prior to admission to the hospital and continues for several days postoperatively.6

The author considered whether prior knowledge of anesthesia procedures may have produced the statistically significant difference between the number of patients in groups A and B who obtained a perfect score on the cognitive knowledge test. The fact that the patient in Group B who scored 100% was currently employed as an operating room surgical technician in a nearby hospital and no patients in Group A were employed in an anesthetizing area refutes this suggestion.

The number of correct responses on the knowledge test by patients in Group A suggests that a high percentage of the patients were visual learners and retained more information after a visual/verbal presentation than after a verbal presentation.

The group of patients who saw the videotape presentation not only had fewer signs and symptoms of anxiety in the operating room and a higher score on the knowledge test, but also appeared to have increased self-esteem. This was demonstrated by several patients who commented that, to them, the videotape presentation was an indication that the hospital really cared about them as human beings. Furthermore, the number of questions asked by patients in Group A during the preoperative
visit was three times greater than the number asked by patients in Group B, suggesting that those who had seen the videotape presentation were more capable of identifying and expressing their concerns about anesthesia.

The recommendation that a videotaped presentation on anesthesia procedures should be available to all surgical patients suggests that patients consider the availability of educational programs an important aspect of health care. These findings may be of particular interest to health care administrators in institutions with a decreasing number of hospital admissions.

Eleven patients (28%) who had been visited postoperatively by a representative of the anesthesia department and on whom a postoperative anesthesia note had been entered on the hospital chart did not recall the visit. Possible explanations for this finding are: (1) several of the notes had been entered on the hospital charts after 9 p.m. on the day of surgery—perhaps the patients were asleep at the time the visit was made; (2) the patients may not have been fully recovered from the sedative effect of their anesthesia or may have recently received an analgesic for postoperative pain, or (3) the representatives from the anesthesia department may not have identified themselves to the patient, and the patient may not have attached any significance to their visit.

Delimitations. No attempt was made to generalize these findings to any other group of surgical patients, and the individual personality profile was limited to that which was obtained by utilizing the STAI. The causes of anxiety and the patients' perceptions or interactions with other health care providers were not explored.

Recommendations for further study

Before instituting a videotaped presentation on anesthesia to supplement the anesthetist's visit, it is recommended that an institutional feasibility study be conducted to examine specific questions pertaining to its implementation, such as, availability of continuing financial support, qualifications of personnel, patient selection, mechanism for implementation and using an in-house production versus purchasing commercially available materials.

Additional information also is needed to determine the value of showing the videotape presentations on anesthesia procedures to surgical patients in the rapidly expanding, free-standing, surgical care units.

Conclusions

The patients' overwhelming acceptance and positive response to the videotaped educational presentation on anesthesia procedures was extremely gratifying. This medium appears to offer a clear, reproducible, visual explanation of a complex specialty and helps combat the television and film industries' often inaccurate portrayal of anesthesia.

From the analysis of the data, the following conclusions have been reached:

1. There was no significant difference in the preoperative level of state anxiety or trait anxiety of patients in groups A and B.

2. The group of patients that had seen the videotape presentation had a significantly higher level of knowledge of anesthesia procedures.

3. Patients who had not seen the videotape presentation exhibited more observable physiological symptoms of anxiety in the operating room.

4. The number of questions on anesthesia asked by the patients during the anesthesiologist's visit was higher in the group of patients that had seen the videotape presentation.

5. Twenty-eight (70%) patients considered the preoperative visit with the anesthesiologist very informative.

6. Ninety percent of all patients rated the anesthesia care satisfactory enough for them to return to the same hospital for their next anesthetic.

7. Seventeen (85%) patients stated that they were less nervous after viewing the videotape presentation.

8. All patients recommended that the videotape be available to every patient as part of preoperative preparation for surgery.

REFERENCES

(1) Simms GR, Long DM. 1979. The whole is more than the sum of the parts. Current Surgery. 36:300-304.


AUTHOR

Nancy J. Gaskey, CRNA, PhD is a graduate of the Mercy Hospital School of Anesthesia, Pittsburgh, Pennsylvania. She has a Master's degree in curricular development and a doctorate in educational communications and technology from the University of Pittsburgh. She was previously the director of the Western Pennsylvania Hospital School of Nurse Anesthesia. Dr. Gaskey is the 1985 recipient of the 2nd Annual AANA Research in Action Award sponsored by Critikon.