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Anesthesiologists' perception of patients' anxiety

Ghanim Khaleel Qasim AL- Allaf
Nineveh Health Directorate, Iraq

Abstract
Provision of preoperative information can alleviate patients' anxiety. However, the ideal method of delivering this information is unknown. Video information has been shown to reduce patients' anxiety, although little is known regarding the effect of preoperative multimedia information on anxiety in patients undergoing regional anaesthesia.
Methods: We randomized 110 patients undergoing upper or lower limb surgery under regional anaesthesia into the study and control groups. The study group watched a short film (created by the authors) depicting the patient's in-hospital journey including either a spinal anaesthetic or a brachial plexus block. Patients' anxiety was assessed before and after the film and 1 h before and within 8 h after their operation, using the Spielberger state trait anxiety inventory and a visual analogue scale.
Results: There was no difference in state and trait anxiety between the two groups at enrolment. Women had higher baseline state and trait anxiety than men (P=0.02). Patients in the control group experienced an increase in state anxiety immediately before surgery (P<0.001), and patients in the film group were less anxious before operation than those in the control group (P=0.04). After operation, there was a decrease in state anxiety from baseline in both groups, but patients in the film group were less anxious than the control group (P=0.005).
Conclusions: Preoperative multimedia information reduces the anxiety of patients undergoing surgery under regional anaesthesia. This type of information is easily delivered and can benefit many patients.

Keywords: patient, information, anxiety

Introduction
Provision of preoperative information can alleviate patients' anxiety. However, the ideal method of delivering this information is unknown. Video information has been shown to reduce patients' anxiety, although little is known regarding the effect of preoperative multimedia information on anxiety in patients undergoing regional anaesthesia

Methods
Approval for the study was provided by the local research ethics committee. One hundred and ten consecutive patients undergoing upper limb (hand) or lower limb (knee and ankle) elective surgery at the Queen's Medical Centre (Nottingham) from November 2007 to July 2008 were invited on the day of their preoperative assessment visit (2 weeks before surgery) to take part in the study. Invitation letters along with the study information sheet had been sent to the patients before this appointment. Inclusion criteria were: adults aged 18–80 yr, ASA I and II, and undergoing elective surgery under regional anaesthesia. Anaesthesia was established under brachial plexus peripheral nerve block (PNB) for hand surgery or spinal anaesthesia (SA) for knee or ankle surgery. Exclusion criteria included the inability to read and understand English, significantly impaired eyesight or hearing, and an existing psychiatric disorder. The primary outcome measure was anxiety assessed immediately before operation by a self-reported psychological instrument, the Spielberger state trait anxiety inventory (STAI). Patients were randomly allocated to a film group (watching the film) or a control group (not watching the film), using computerized randomization. The group allocations were sealed in serially numbered opaque envelopes (according to the generated sequence) prepared by a member of staff not involved in the study. Researchers and patients were blinded to group allocation until after the completion of baseline anxiety scoring. Staff members working in all study settings were unaware of patients' group allocations. The anaesthetists who carried out the blocks were blinded to the patient group allocation.

Results
Of 187 patients approached, 12 returned incomplete questionnaires and 42 patients declined or were not suitable for participation (12 patients because they feared viewing the film would be distressing; 10 patients, who had had the same operation in the past, did not think it would add any information; 20 patients were undergoing general anaesthesia). Twenty-three patients were excluded for other reasons (e.g. converted to general anaesthesia, changes to theatre schedule, cancelled operations). In total, 110 patients completed all questionnaires and were included in our analysis. Random allocation resulted in 55 patients assigned to the film group and 55 to the control group.The two groups did not differ in age, gender, weight, anaesthetic techniques, history and type of previous anaesthesia, and time from enrolment to surgery (Table 1).

Table 1: Baseline characteristics. *Time from baseline measurement to day of surgery. Where appropriate, data are presented as median (IQR)

	Film grou (*n*=55)	**Contro (*n*=55)**
Age (yr)	58 (40, 63)	59 (42, 69)
Gender (F:M)	21:34	27:28
Weight (kg)	78 (67, 90)	77 (70, 88)
Baseline* to surgery (days)	15 (8, 21)	15 (8, 30)
Anaesthetic technique (SA: PNB)	26:29	31:24
History of anaesthesia (Yes:No)	37:18	45:10
Previous anaesthesia (GA:RA)	29:8	32:13
Trait anxiety (STAI-T)	34 (26, 42)	34 (26, 43)

Discussion

In this prospective, randomized, controlled study, we have demonstrated that viewing a short information film before operation reduced the anxiety of patients undergoing elective surgery under regional anaesthesia. This effect was sustained into the postoperative period. The prevalence of 'high' anxiety among patients having surgery under regional anaesthesia was 17% in the assessment clinic 2 weeks before surgery. Immediately before surgery, this increased to 27% among those who watched the film and 36% among those who did not. After operation, only 2% reported high anxiety in the film group compared with 5% among controls. These differences demonstrate the effectiveness of our intervention. Anxiety scores were generally higher in female patients awaiting surgery. In agreement with previous studies,[2,3,23,27,28] this may suggest that more attention needs to be directed towards women to alleviate anxiety. In this study, we found a significant, positive correlation between the two anxiety-measuring instruments (STAI and VAS), consistent with previous reports.[26,29,30] Although VAS did not show a difference in anxiety between the groups in the preoperative period, it was sensitive enough to detect a significant change after operation, and showed a consistent pattern throughout the course of the study. This might be attributed to the 'central tendency bias', in which patients may avoid using extreme scores (due to unfamiliarity of this method) when they are not sure of how to respond.[31] This may show the superiority of the Spielberger STAI in detecting more subtle changes in anxiety; VAS may retain some usefulness in assessing patients with reading or comprehension difficulties or in situations of extreme anxiety.Previous studies have shown that patients' anxiety the day before surgery correlates with that immediately before operation.[3,32] We found that anxiety 2 weeks before surgery was also correlated with that occurring immediately before surgery, indicating that high anxiety levels immediately before operation may be predicted at early preoperative assessment.There is no consensus on what constitutes a clinically significant change in the anxiety scoring system; however, previous studies using the Spielberger STAI have quoted significant changes between 3 and 5 points,[7,15,33] one study pointed out that an important clinical change in state anxiety levels is 10 points.[14] We have shown a positive effect of our intervention. We think that our intervention (audio+visual) is a supplementary tool and not a substitute to other methods of providing anaesthetic information, for example, written information (leaflet), or verbal/spoken information (physician).We agree that the reduction in anxiety could have been either due to a specific effect of the film or due to the larger amount of information received; in either case, our intention was to compare this process (of showing patients a video) with our current standard of care, which is a preoperative assessment visit during which the patient is assessed by a nurse and seen by the surgeon, but not by an anaesthetist. Therefore, the potential benefit of this type of intervention is a very efficient method of conferring information to patients, in addition to any visits made by an anaesthetist. There were limitations to our study. Approximately one-third of patients having surgery under regional anaesthesia are highly anxious before surgery, with a higher incidence in women. This anxiety can affect patients' understanding and recall of information, and their ability to give informed consent.[36–38] Audiovisual information reduces pre- and postoperative anxiety and can be particularly useful to those with reading, comprehension difficulties, or both.[39,40] Economic issues are a continual pressure on healthcare. An information film is an efficient and convenient way to inform patients and reduce their anxiety. This can easily be carried out in the preoperative assessment clinic, allowing adequate time for reflection before surgery, which might make the information received more effective.The pre-anaesthetic film was shown to participants in the preoperative assessment clinic 2 weeks before the day of surgery; we could not control information received by the patients in the interval leading up to surgery, which could have affected the results.

1. Patients undergoing upper and lower limb surgery could differ in their anxiety responses and we chose to merge these two groups in order to provide a cross-section of patients undergoing regional anaesthesia, rather than one specific type. Despite these possible differences between the groups, we feel that this makes the study results more applicable to a general population of patients undergoing procedures under regional anaesthesia. We did not find a significant effect on patients' anxiety after splitting patients into the SA and PNB groups; however, as we had not powered the study to look for this difference, the negative finding is likely to reflect the small size of these subgroups. Further studies would be required to demonstrate any of these effects on anxiety.
2. We wished to include all patients attending for surgery and thus we did not power the study to show the effect of previous surgical experience on anxiety; analysis of these sub-groups did not show a significant difference. Although previous studies have demonstrated variable effects of previous surgery on perioperative anxiety,[3,23,26] we feel that these patients tend to be less anxious, which would tend to produce a larger difference in the groups.
3. Viewing an educational video about anaesthesia can improve patients' knowledge and understanding;[23,33–35] however, we did not examine how much information our study group retained. Such knowledge acquisition may have been a mechanism in reducing anxiety in our study group. This needs to be explored further in patients

undergoing surgery under regional anaesthesia.
4. Anaesthesia is just one cause of anxiety; we did not explore the effect of other potential sources of anxiety such as surgical techniques, success of the operation, fear of any anticipated complications, or amount of information provided to patients.
5. Twenty-two patients who were eligible for our study declined to participate; these patients may have been the most anxious and so our population may have been skewed during recruitment.

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