DOI: 10.7860/JCDR/2022/53264.15872

Original Article

Anaesthesia Section

Effectiveness of Preoperative Multimedia Video-based Education on Anxiety and Haemodynamic Stability of Oncosurgery Patients Undergoing Spinal Anaesthesia- A Randomised Controlled Trial

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ABSTRACT

Introduction: Most of the patients posted for surgery experience anxiety and this is more pronounced in cancer patients posted for oncological surgery. The majority of it arises from apprehension stemming from a lack of understanding of anaesthetic procedures and surgery.

Aim: To assess the effectiveness of multimedia-based educational video shown preoperatively to cancer patients posted for surgery in alleviating anxiety associated with spinal anaesthesia/ sub arachnoid block.

Materials and Methods: This was a randomised controlled trial conducted on a total of 200 patients posted for oncological procedure in Department of Anaesthesiology and Pain relief, Kidwai Memorial Institute of Oncology, Bengaluru, India. the total subjects included were randomised into two groups: Video group, where a short educational video depicting procedure of spinal anaesthesia was shown preoperatively to the patients and non video group (control group) where no video was shown. Anxiety using Visual Analogue Scale (VAS) and haemodynamic parameters like Heart Rate (HR), Mean Arterial Pressure (MAP), Systolic blood Pressure (SBP), Diastolic blood pressure (DBP) were assessed pre and post intervention in both groups. Categorical data were compared using Chi-square test. Student's unpaired t-test was used for inter-group comparison. The p-value <0.05 was considered statistically significant.

Results: Out of total 200 patients (93 males and 107 females; 18-60 years of age) enrolled in the study, 100 patients were categorised in video group (41.53±11.60 years) and remaining 100 were included in non video group (42.92±11.63 years). There was no statistically significant difference in the mean anxiety score and haemodynamic parameters at the baseline for both the groups. Post intervention, the video group showed a greater reduction in anxiety than the control group (intra-group reduction: 1.84±1.20 vs 1.42±1.18), and the difference was statistically significant (p-value=0.013). Mean HR was significantly higher in the control group (84.66±13.22, 80.46±13.11 and 79.44±14.05 at 5, 10 and 15 min, respectively) when compared with the video group (81.75±11.49, 77.35±12.59 and 74.82±13.05 at 5, 10 and 15 min, respectively). Similarly, SBP, DBP and MAP were noted significantly higher in the control group compared to the video group (p-value <0.001).

Conclusion: Multimedia-based educational video depicting technique of spinal anaesthesia/sub arachnoid block significantly reduces anxiety and associated haemodynamic variations. Showing short video clip about spinal anaesthesia technique is an easy way for transfer of information about anaesthesia for patients and allows time for patients to reflect on this preoperatively and thereby reduces their anxiety.

Keywords: Anaesthesia information, Anxiolysis, Cancer surgery, Sub arachnoid block

INTRODUCTION

The invasive nature of surgery is often a known cause of distress for most surgical patients. As a natural response to stress, this frequently causes anxiety in the preoperative period. Anxiety is a vague, uncomfortable, unhappy feeling of discomfort in which the exact causes are often non specific and unknown to the individual but known to cause the body to react with undesirable haemodynamics (hypertension, arrhythmia, and palpitations) as a result of sympathetic, parasympathetic, and endocrine activation [1-3]. The degree to which each patient experiences anxiety in the preoperative period is determined by a variety of factors related to socio-demographic characteristics and surgery. Socio-demographic factors include age, sex, education, occupation, monthly income, marital status, and religion. Surgery-related factors include fear of surgery, fear of postoperative complications, concerning family issues, fear of medical error, patient's ability to understand what happens during surgical anaesthesia, fear of death and fear of unknown origin [4-8].

Globally, preoperative anxiety affects almost half of all surgery patients [9]. In India, a prevalence of 67% was estimated for preoperative anxiety [9]. Preoperative anxiety can be evaluated indirectly by measuring blood pressure, pulse, HR and directly by measuring the plasma cortisol and urinary level of catecholamine [1]. Currently, several validated questionnaires that can be conveniently administered in a short time and at a low cost are available for evaluation of preoperative anxiety. These include Amsterdam Preoperative Anxiety Information Scale (APAIS), the State Trait Anxiety Inventory (STAI), Hospital Anxiety and Depression Scale (HADS), VAS, and Multiple Affect Adjective Check List (MAACL) [10-12]. Studies using these validated measures have shown that higher and extended levels of preoperative anxiety levels are associated with increased perioperative (increased anaesthetic requirement, delayed recovery, haemodynamic derangements, major cardiac events) and postoperative complications (pain, delaying in wound healing, impair immune system response, higher risk of infection), increased hospitalisation, and lower patient satisfaction [11,12].

The physiological mechanisms attributed to increased morbidity from preoperative anxiety include direct influence on the myocardial perfusion, autonomic nervous system regulation, platelet activation, increased hypothalamo-pituitary-adrenal axis activity and exaggerated inflammatory process which are exacerbated in the presence of unhealthy behaviours (smoking, poor nutrition, or physical inactivity) [13,14]. Thus, reducing preoperative anxiety becomes an important goal for preoperative counselling and premedication for improved surgical outcomes and quality of care.

Preoperative anxiety in surgical patients has been found to be reduced when proper preoperative information is provided [15]. Many methods such as written information in the form of pamphlets to deliver this information have been tried [16,17]. However, not all patients are literate enough to read nor do they have the necessary knowledge to comprehend and retain the written material. Multimedia methods such as short video have been used in numerous randomised trials to address these limitations of written information [18-22]. It is worth noting that the results of these studies have been mixed due to variations in study populations and methodology.

Further, it has been emphasised that patients undergoing oncological surgeries are at a higher risk of preoperative anxiety when compared to non oncological surgeries because of the life-threatening nature of cancer disorders and the associated fear of recurrence or death in onco-surgery patients [23]. However, no research has been undertaken to evaluate the impact of multi-media based education on preoperative anxiety among onco-surgical patients in India. Also, spinal anaesthesia/subarachnoid Block (SAB) is one of the common regional anaesthesia conducted for many onco-surgical procedures and the factors (back injury, pain, the needle used for anaesthesia, and being awake during the procedure) that contribute to patient's fear with spinal anaesthesia has been well documented [24,25]. Therefore, this study aimed to assess the effectiveness of a preoperative multimedia video-based education on preoperative anxiety and haemodynamic parameters in onco-surgical patients undergoing spinal anaesthesia/SAB using a randomised controlled trial. The primary outcome was decrease in preoperative anxiety and the secondary outcomes were haemodynamic response (Blood Pressure, and HR) to preoperative multimedia video-based education.

MATERIALS AND METHODS

This randomised controlled study was conducted in the Department of Anaesthesiology and Pain relief, Kidwai Memorial Institute of Oncology, Bengaluru, India. Patients were enrolled for the study after approval from the Institutional Ethics Committee, (letter number KCI/MEC/031/10.August.2018 dated 03/09/2018). Clinical trial Registry of India (registration number CTRI/2018/10/016201).

Inclusion criteria: The study comprised 200 patients between 18 and 60 years of age, of either gender, scheduled for normal elective oncological surgery under SAB and met the criteria of American Society of Anaesthesiologists Physical Status (ASA PS) I and II.

Exclusion criteria: Patients with refusal, psychiatric disorder, those taking beta-blockers, antidepressants, cardiac or psychiatric medicines, those with hearing or vision impairments, and those who had previously undergone procedures under SAB were all excluded from the study.

Sample size calculation: The sample size was estimated using OpenEpi (www.OpenEpi. com) for mean difference between the two groups. A sample size of 85 per group was estimated to determine a difference in VAS score of 0.5 units between the video and control group with a pooled standard deviation of 1 unit and a-error of 0.05 to provide 90% power. To account for attrition and multiple outcomes, the sample size was increased to 100 patients/group.

During the Pre-Anaesthetic Check-Up (PAC), written informed consent was obtained. The patients were divided into two groups using a computerised random number table:

- Control group: Who were not shown any video preoperatively.
- Video group: as interventional group, were shown the video preoperatively.

Procedure

Intervention: Multimedia-based video: All patients in the video-group watched the educational video on a dedicated laptop in a private room accompanied by an anaesthesiologist. Patients were given a verbal explanation of the anaesthetic technique in their native language. Following this, the 6-minute video clip on the method of SAB in local language (Kannada) and English was shown to them. Appropriate clarifications were provided after the video and the patients were allowed to watch the video again in case they required.

Non video group: The method of SAB was verbally explained to the patients in the control (non video) group without the use of a video clip. Both groups of patients had fasted for eight hours for meals and two hours for clear fluids by mouth. Standard monitoring devices were attached, including a pulse oximeter, a non invasive blood pressure monitor, and a 5-lead Electrocardiogram (ECG). The crystalloid solution was started after intravenous access was gained. SAB was performed by administering 3.0 mL of hyperbaric bupivacaine 0.5% intrathecally using a 25G spinal needle under strict aseptic precautions in a sitting position.

Outcome Assessments

The primary outcome was scores from VAS for anxiety. The secondary outcomes were haemodynamic parameters (HR, SBP, DBP and MAP). All the outcomes were assessed at baseline (A1), post intervention (A2) and immediate preoperative (A3).

Primary outcome: Anxiety score: The anxiety was measured using the VAS. It is a numeric verbal rating system with 11 stick-figures ranging from 0-10, each portraying a different facial expression. The participants must place their finger on the facial expressions that correspond to their current state. Face A0 signifies no anxiety, whereas face A10 denotes extreme anxiety [26].

Secondary outcome: Haemodynamic parameters: Haemodynamic parameters such as HR, SBP, DBP and MAP were recorded using multi-parameter patient monitoring system at baseline (A1), post intervention (A2) and immediate preoperative (A3), and at 5, 10 and 15 minutes after intubation.

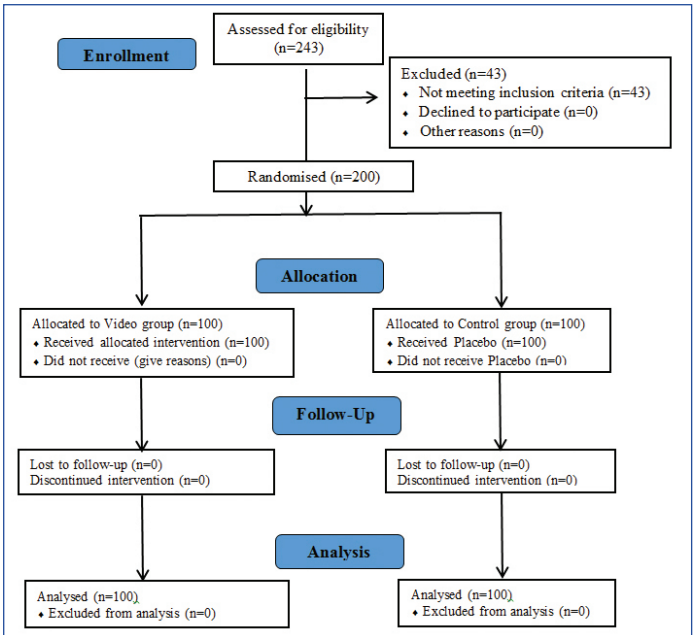
After the surgery, patients were shifted to the recovery room, where they were monitored.

STATISTICAL ANALYSIS

The sample size was estimated using OpenEpi (www.OpenEpi.com). Statistical Package for Social Sciences (SPSS) version 22.0. (IBM SPSS Statistics Inc., Chicago, Illinois, United States of America) was used to analyse the data, which was entered into Microsoft Excel. For categorical data, descriptive statistics comprised frequency and percentages; for continuous variables, means and standard deviations were used. The Chi-square test was used to compare categorical data. Paired t-test was used for intra-group comparison. The inter-group comparison for continuous variables was made using a student's unpaired t-test. Statistical significance was defined as a p-value of less than 0.05.

RESULTS

Among the 243 patients eligible for the study, 200 patients were enrolled after excluding 43 patients whose surgery were either postponed or converted to general anaesthesia [Table/Fig-1]. The randomisation resulted in 100 patients assigned to the video group and 100 patients assigned to the control group. Patient parameters such as age, sex, height, weight, ASA grade, previous surgery, and HR variability did not differ significantly between the two groups [Table/Fig-2]. There were no dropouts in any of the groups.



[Table/Fig-1]: CONSORT flow diagram.

Parameters	Video group (n=100)	Control group (n=100)	p-value
Age (years), Mean±SD	41.53±11.60	42.92±11.63	0.199*
Sex, Male:Female	47:53	46:54	0.887†
Height, Mean±SD (cm)	156.27±7.49	156.78±7.76	0.318*
Weight, Mean±SD (kg)	54.69±8.73	56.05±10.09	0.155*
ASA grade (I:II)	49:51	48:52	0.887†
Previous surgery (No:Yes)	38:62	32:68	0.374†
Heart rate, Mean±SD (beats/minute)	84.61±11.12	85.18±11.08	0.358*

[Table/Fig-2]: Baseline characteristics of study participants in two groups
SD: Standard deviation; ASA: American society of anaesthesiologists. *Student unpaired t-test p-value; †Chi-square test p-value

Patients in both groups had high anxiety levels at the baseline [Table/Fig-3]. The mean anxiety score was comparable in between the groups, and there was no statistically significant difference in the mean anxiety score at the baseline for both the groups (p=0.451). Post intervention, anxiety levels in both groups declined gradually from A2-A3 [Table/Fig-2]. However, the video group showed a greater reduction in anxiety than the control group, and the difference was statistically significant at both time periods A2 (p-value=0.014) and A3 (p-value <0.001).

Mean HR was comparable between both the groups at the baseline, post intervention (A2) and immediate preoperative (A3) [Table/Fig-4]. There was a significant increase in HR in both the groups following intervention. However, this increase was less pronounced in the video group. Immediate preoperative, HR in the video group was closer to the baseline level than the non video group. Similarly, mean SBP, DBP and MAP were comparable between both the groups at

Measured anxiety level	Video group (n=100) (Mean±SD)	Control group (n=100) (Mean±SD)	p-value†
A1 (baseline)	4.98±1.69	5.01±1.76	0.451
A2 (post intervention)	2.98±1.69	3.51±1.70	**0.014***
A3 (immediate preoperative)	1.14±1.06	2.09±1.64	**<0.001***
Intra-group difference‡ (A1-A2)	2.00±0.01	1.50±0.52	**<0.001***
Intra-group difference‡ (A1-A3)	3.84±1.20	2.92±1.07	**<0.001***
Intra-group difference‡ (A2-A3)	1.84±1.20	1.42±1.18	**0.013***

[Table/Fig-3]: Intra and Inter-group comparison of anxiety level (VAS) at various timepoints
*Statistically significant. VAS: Visual analogue scale; SD: Standard deviation; †Student unpaired t-test p-value; ‡paired-t test for Intra-group Difference; p-value for all the Intra-group Difference is <0.001

Heart rate	Video group (n=100) (Mean±SD) (beats/minute)	Control group (n=100) (Mean±SD) (beats/minute)	p-value†
A1 (baseline)	84.61±11.12	85.18±11.08	0.358
A2 (post intervention)	90.45±14.52	92.15±15.12	0.209
A3 (immediate preoperative)	85.28±12.70	86.39±16.12	0.295
Intra-group difference‡ (A1-A2)	-5.84±16.43	-6.97±13.96	0.601
Intra-group difference‡ (A1-A3)	-0.93±16.19	-1.35±14.90	0.849
Intra-group difference‡ (A2-A3)	4.91±9.05	5.62±8.66	0.572

[Table/Fig-4]: Intra and Inter-group comparison of Heart Rate (HR) at various timepoints.
*Statistically significant; VAS: Visual analogue scale; SD: Standard deviation; †Student unpaired t-test p-value; ‡paired t-test for Intra-group Difference; p-value for all the Intra-group difference is <0.001 except for A1-A3 in both the groups

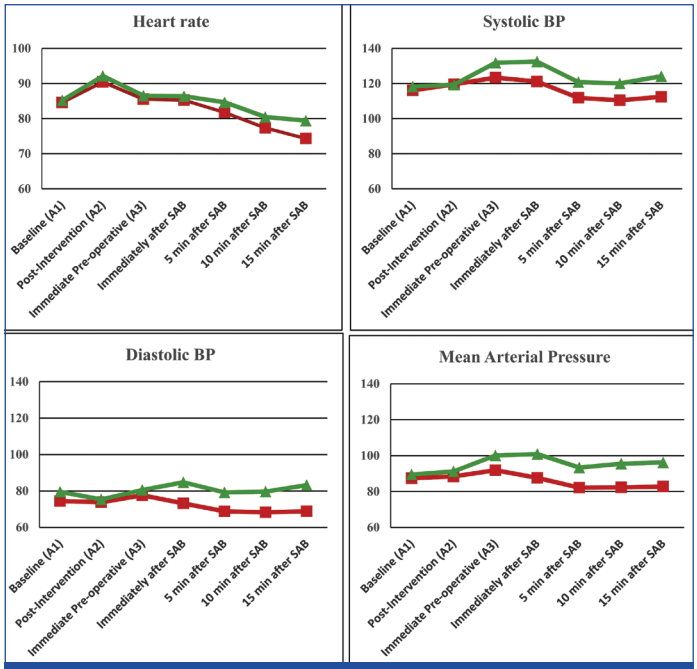
the baseline (A1), post intervention (A2) and immediate preoperative (A3). Intragroup comparison showed that blood pressure parameters have increased significantly at immediate preoperative from the baseline and this increase was observed more in the non video group [Table/Fig-5].

Post induction, the mean HR was significantly higher in the control group when compared with the video group. The p-values (unpaired student t-test) for HR comparison between the two groups at 0, 5, 10 and 15 minutes were 0.589, 0.098, 0.088 and 0.016, respectively. Similarly, after intubation, the control group's mean SBP, DBP, and MAP were considerably higher than the video group's [Table/Fig-6]. The non video group had significantly higher mean SBP (132.53±25.57 mm of Hg, 120.83±18.39 mm of Hg, 120.07±14.42 mm of Hg and 124.16±17.27 mm of Hg at 0, 5, 10 and 15 min, respectively) than the video group (121.14±24.42 mm of Hg, 111.84±15.38 mm of Hg, 110.45±15.63 mm of Hg and 112.41±22.46 mm of Hg at 0, 5, 10 and 15 min respectively) after intubation. The p-values (unpaired student t-test) for SBP comparison between the two groups at 0, 5, 10 and 15 minutes were <0.001.

Similarly, mean DBP were significantly higher in the non video group (84.78±15.51 mm of Hg, 79.24±12.53 mm of Hg, 79.67±13.28 mm of Hg and 83.24±15.87 mm of Hg at 0, 5, 10 and 15 min, respectively)

Time points	Systolic Blood Pressure (SBP) (Mean±SD) (mm of Hg)			Diastolic Blood Pressure (DBP) (Mean±SD) (mm of Hg)			Mean Arterial Pressure (MAP) (Mean±SD) (mm of Hg)		
	Video group (n=100)	Control group (n=100)	p-value†	Video group (n=100)	Control group (n=100)	p-value†	Video group (n=100)	Control group (n=100)	p-value†
A1	116.1±12.16	118.32±13.46	0.223	76.20±8.84	78.38±10.84	0.121	87.40±9.40	89.47±12.04	0.177
A2	119.62±14.57	119.34±15.35	0.895	74.40±10.08	77.34±11.99	0.062	88.4±10.69	91.23±12.04	0.085
A3	123.38±13.56	131.84±15.19	**<0.001***	78.28±14.37	80.37±15.51	0.968	91.87±11.75	95.38±15.22	0.069
A1-A2‡	-3.52±13.60	-1.02±14.91	0.217	1.80±10.61	1.04±9.94	0.602	-1.00±11.03	-1.76±10.82	0.623
A1-A3‡	-3.76±13.95	-12.5±14.41	**<0.001***	-3.88±10.73	-3.03±10.11	0.565	-3.47±12.39	-4.15±12.69	0.702
A2-A3‡	-7.28±16.50	-13.52±15.23	**0.006***	-2.08±9.68	-1.99±11.14	0.951	-4.49±11.00	-5.91±12.65	0.391

[Table/Fig-5]: Intra and Inter-group comparison of Blood Pressure parameters at various timepoints.
*Statistically significant. A1: Baseline; A2: Post intervention; A3: Immediate preoperative; VAS: Visual analogue scale; SD: Standard deviation; †: Student unpaired t-test p-value; ‡: paired t-test for Intra-group Difference. p-value for the all Intra-group Difference is <0.001 except for A1-A2 in both the groups



[Table/Fig-6]: Comparison of haemodynamic parameters between two groups at different periods of follow-up.
SAB: Sub arachnoid block

than the video group (73.17±16.37 mm of Hg, 68.83±11.16 mm of Hg, 68.27±12.26 mm of Hg and 68.87±12.98 mm of Hg at 5, 10 and 15 min respectively) after intubation. The p-values (unpaired student t-test) for SBP comparison between the two groups at 5, 10 and 15 minutes were <0.001. The MAP was also observed significantly higher in the non video group (100.87±18.89 mm of Hg, 93.37±14.01 mm of Hg, 95.47±11.33 mm of Hg and 96.23±13.18 mm of Hg at 0, 5, 10 and 15 min, respectively) than the video group (87.60±19.06 mm of Hg, 82.13±11.88 mm of Hg, 82.33±12.31 mm of Hg and 82.77±15.65 mm of Hg at 0, 5, 10 and 15 min, respectively) after intubation. The p-values (unpaired student t-test) for MAP comparison between the two groups at 5, 10 and 15 minutes were <0.001. Overall, the haemodynamic parameters were more controlled and stable in the video group than the control group. Thus, multimedia video education intervention helps in the attenuation of haemodynamic response to SBA.

DISCUSSION

When compared to non oncological surgeries, patients undergoing oncological surgeries have a higher rate of anxiety [23]. This study demonstrated high levels of preoperative anxiety among the onco-surgery patients. In addition, this randomised controlled research found that watching multimedia-based video education before surgery reduced anxiety and improved haemodynamic stability in oncology patients undergoing elective surgery under SAB.

The impact of video-based anaesthesia information on preoperative anxiety has been a focus of interest in previous studies [18-22,27-30]. In this study preoperative anxiety level in the video group was significantly lower than the control group without video intervention, thus clearly demonstrating the efficacy of multimedia-based video teaching in lowering anxiety levels. Though this was consistent with the findings of other studies that showed the effectiveness of multimedia-based video education in reducing anxiety, several limitations and variations across these studies must be considered [18,22,27-30]. In the trial by Jlala HA et al., different types of regional anaesthesia such as peripheral nerve block and spinal anaesthesia were evaluated together [29]. Lin SY et al., conducted study on patients undergoing different types of surgery and anaesthesia [30]. Among the studies that evaluated the impact of video information on spinal anaesthesia alone, Cakmak M et al., excluded patients undergoing oncological surgery due to presumed higher preoperative anxiety while Dias R et al., and Rajput SK et al., did not provide any information on the inclusion or exclusion of onco-surgery patients [18,27,28]. Further, all these studies were not conducted exclusively on onco-surgery patients. Though cancer patients similar to the current study were used by Kim MJ et al., no control group was used for arriving at valid conclusion [22]. In contrast, this study focused on the impact of video information on spinal anaesthesia alone among onco-surgical patients using randomised trial.

Additionally, the current study findings contrasted with studies by Metterlein T et al., Kakinuma A et al., and Salzwedel C et al., which did not demonstrate any effectiveness of video information on preoperative anxiety [19-21]. Notably, the study by Metterlein T et al., and Salzwedel C et al., included patients scheduled for elective surgery under different types of anaesthesia (spinal or general) [19,21]. It is worth noting that both of these investigations used the same VAS (anxiety) as the current study. In the study by Kakinuma A et al., patients scheduled for cancer surgery under general anaesthesia or combined general and epidural anaesthesia were included and the intervention was provided before the preanaesthetic assessment [20]. Cultural differences in fear perception and comprehension of information across the countries and setting could be the other possible reasons for such inconsistent results.

Interestingly, scales that were used to assess the anxiety varied across the studies. Most of the studies done have used STAI for assessment of anxiety [20,27,30]. It is a self-reporting scales which measure two distinct anxiety concepts state anxiety and trait anxiety, the validity of both rests on the assumption that the patient knows the difference between state and trait. Some studies have grouped STAI scores into mild, moderate, or severe anxiety or low/high anxiety [29]. STAI can be used in literates only. Likewise, some studies have used Amsterdam Preoperative Anxiety and Information Scale (APAIS) which is a self-reporting questionnaire that assesses the anxiety about anaesthesia, anxiety about surgery, and the desire for information [22,28]. APAIS was preferred when the focus included desire for information. Some studies have used VAS [19,21] while some have used both VAS and STAI [18,29]. Though STAI and VAS were positively correlated, STAI has superiority in detecting more subtle changes in anxiety due to central tendency bias associated with VAS [29]. However, VAS retained usefulness in assessing patients with reading or comprehension difficulties or in situations of extreme anxiety. As the current study involved patient from a lower socio-economic status who have largely not received formal education, VAS was, therefore, the most appropriate to use. It is important to note that despite the limitations of scoring with VAS, the study has demonstrated the effectiveness video-based anaesthesia information on preoperative anxiety in onco-surgical patients undergoing SAB.

Despite the fact that several national and international research have examined the effect of video instruction on perioperative anxiety [18-22,27-30], no studies involving oncological patients from India have been conducted. As a result, the findings of this research have significant consequences for oncology patients, who are likely to experience higher levels of pathological anxiety than the general population or those with chronic medical problems. This is because cancer treatment involves a combination of good and negative experiences, with the unpleasantness and threat of the process working against the expectation of alleviation from the illness/symptoms [23].

In contrast to Jlala HA et al., work, when anxiety levels spiked right before surgery, we found no such tendency in the present study study [29]. Anxiety levels in both the groups decreased gradually from A2-A3 (immediate preoperative time), with the video group having lower anxiety levels than the control group (p-value <0.001). It's worth noting that, similar to Rajput SK et al., study, a lowering trend in anxiety levels was observed in the control group without any video intervention [28]. Though this could be due to prior counselling, the fact that the video group had a considerably higher

reduction in anxiety highlights the augmenting/cumulative effect of multimedia-based video instruction in lowering anxiety. For more significant reduction in anxiety and faster recovery among surgical patients, multimedia-based video education should be introduced into standard practice of preoperative counselling.

In this study, we found that in the video group, haemodynamic parameters were more stable and better controlled, with less fluctuation from baseline, than in the control group. This finding is comparable to those of Dias R et al. and Rajput SK et al., which highlighted the effect of the multimedia-based video education approach in stabilising haemodynamic parameters [27,28]. These study findings could be validated by the effective attenuation of anxiety that leads to decreased sympathetic activity through inhibition of the hypothalamic pituitary adrenal axis, thereby reducing adrenocorticotrophic hormone and cortisol release into the blood stream [31]. Noticeably, the HR in both the groups had increased post intervention. It is possible that the sudden delivery of new and more information could have made the patients anxious. The findings that HR in both the groups approached baseline in the immediate preoperative period clearly highlights that time was required for the patient to understand and assimilate the information. The HR in the video group approaching closer to the baseline than the non video group further demonstrates the augmenting effect of multimedia-based video instruction in lowering anxiety along with pre-anaesthesia counselling. However, similar trend was not observed for blood pressure parameters. This merits further study to evaluate the timing and sequencing of intervention.

To the best of our knowledge, this is the first study to document the impact of a multimedia-based video education approach on preoperative anxiety in cancer patients undergoing spinal anaesthesia. The study included only those cancer patients undergoing spinal anaesthesia. Future studies should examine the effectiveness of the multimedia-based video education approach in allaying anxiety among cancer patients undergoing general anaesthesia. Similar studies should also be undertaken to compare the multimedia-based video education approach with pharmacological drugs in allaying anxiety among preoperative patients.

Limitation(s)

Other causes of anxiety, such as surgical procedures, predicted consequences, and the information supplied, were not particularly investigated in the study. The study did not assess anxiety after surgery, which could have shed insight into using a multimedia-based video education strategy in postoperative care for ambulatory or day-care procedures. The study did not include a questionnaire to assess how much knowledge was transferred and retained due to our multimedia-based video education strategy. Furthermore, the study was not designed for cost analysis and was not double-blinded.

CONCLUSION(S)

Multimedia education in the form of short videos during preoperative counselling was effective in reducing anxiety and providing better haemodynamic stability in cancer patients undergoing spinal anaesthesia. Proper dissemination of anaesthesia information using short video in the preoperative assessment clinic is an efficient and convenient way to inform patients, allow adequate time for reflection before surgery and reduce their anxiety. Anaesthesiology practice should augment preoperative counselling with this mode of patient education about the anaesthesia experience for improved perioperative outcomes and patient satisfaction.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Nov 13, 2021
- Manual Googling: Nov 30, 2021
- iThenticate Software: Dec 17, 2021 (18%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: **Nov 11, 2021**
Date of Peer Review: **Nov 25, 2021**
Date of Acceptance: **Dec 01, 2021**
Date of Publishing: **Jan 01, 2022**