ORIGINAL ARTICLE

Knowledge and Information Needs About Anaesthesia Among Surgical Patients in a Nigerian Tertiary Hospital

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ABSTRACT

Background: The practice of anaesthesia has been around for almost as long as the practice of surgery. Despite this, it appears that knowledge about the role of anaesthetists and the scope of anaesthesia practice among patients is very limited. Limited and inaccurate information among patients on anaesthesia may lead to undue anxiety among patients. The aim of this study is to ascertain what information surgical patients have on anaesthesia as well as what information they would be interested in obtaining about anaesthesia.

Methods: This study employed a prospective, descriptive, single-centre, questionnaire-based design. Two hundred consenting adults, with ASA I and II classification, scheduled for elective surgeries were recruited. Participants were interviewed during the routine pre-anaesthesia review a day before their scheduled surgeries using researcher administered questionnaires. The questionnaire assessed what they knew about anaesthesia and what further information they desired.

Results: Ninety-six (48.0%) patients could not identify any of the roles of the anaesthetist. Ninety-eight (49.0%) responded that he puts patients to sleep with less participants aware of pain relief (26%), and even less of vital signs monitoring (16%). General anaesthesia was the most known anaesthetic technique (57%), followed closely by subarachnoid block (46%). Thirty three percent (33%) of participants had no knowledge of any anaesthetic technique. Females knew more anaesthesia roles than males with 40 (37.73%) females knowing two or more roles as compared to 9 (9.57%) males respectively (p=0.00596). Patients who had received a high school education or more had better knowledge of the role of the anaesthetist (p=< 0.00001) and of anaesthesia techniques than those who had only primary or no education (p=0.00672). Majority (96%) of the patients expressed a desire for preoperative anaesthesia consultation. Ninety-eight per cent (98%) of patients desired information about the process of anaesthesia and 89%, on possible complications.

Conclusion: Knowledge on the role of anaesthetists and anaesthesia techniques is low among surgical

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patients. A large percentage of patients desire to know the process of anaesthesia and the possible complications. Public education campaigns are essential to educate the populace and pre-anaesthesia evaluation visit to educate the surgical patient on the roles of the anaesthetist as an essential part of the health management team.

INTRODUCTION

Anaesthesia, as a subspecialty of medicine, has been contributing positively to comprehensive patient care and has made it possible for complicated surgical procedures to be carried out safely. Anaesthetists work in the operating room, intensive care unit, pain management clinic and in the wards especially during preoperative evaluation.

However, during the practice of anaesthesia, relatively little time is spent with the conscious patient with a mean duration of pre-anaesthesia visit of 11.2 minutes.[1] This may be the reason some studies have documented that surgical patients have poor understanding of the roles of the anaesthetist.[2] Patients that understood the role of the anaesthetist in putting people to sleep still demonstrated poor knowledge of the anaesthesiologists' role in treating intraoperative medical problems.[3]

The preoperative evaluation visit presents an opportunity for anaesthetists to interact with patients, educate them about the process and implications of anaesthesia and allay their anxiety and fears. But this visit is often rushed with 50% of surgical patients responding that they were not permitted to ask questions and 41.3% saying, they felt, the time for the visit was insufficient.[4]

The patient should be the central figure in the provision of medical care. Practitioners should tailor healthcare delivery to give the patient, the best possible experience. Patients are becoming increasingly involved in healthcare decision making in anaesthesia as in other medical specialties but this transition to a shared decision-making model has not been seamless.[5] Providing patients with appropriate and sufficient information, is therefore vital, to guide decision making and obtain a legally acceptable consent. A previous study found that anaesthesia information provided before obtaining informed consent did not achieve a significant level of usefulness.[6] Providing appropriate information may be challenging if the anaesthetist is unaware of what the patient knows, how much knowledge is desired by the patient as well as how much is required. The preoperative evaluation is also an opportunity to allay the fears and anxieties of patients. However, this may be difficult when the specific patient concerns are not known. This makes it important to specifically enquire about patients' concerns during preanaesthesia visits, with the goal of addressing them. A study by Jackson *et al*[7] found that the knowledge of the risks of general anaesthesia among parturients was poor and the level of risk at which mothers felt they should be informed was variable. They suggested that anaesthetists should be flexible when providing anaesthesia information. This study aims to ascertain the level of knowledge patients have about anaesthesia, what information they desire on anaesthesia and also identify patient-specific concerns about anaesthesia.

METHODS

The study was a prospective, descriptive, questionnaire-based study carried out at the University of Ilorin Teaching Hospital from April to December 2023 after Institutional Review Board approval. Our hospital is a tertiary health institution located in the north central region of Nigeria. A variety of surgical patients from subspecialties like orthopaedics, urology, paediatric surgery, cardiothoracic surgery, neurosurgery, plastic surgery, general surgery, obstetrics and gynaecology are usually attended to. On average, one thousand elective surgical procedures are carried out annually. Consecutive consenting patients scheduled for elective surgical procedures who satisfied the specified criteria were recruited into the study. Exclusion criteria were patients' refusal to participate in the study, age under 18 years and inability to understand due to a language barrier or psychiatric illness.

Sample size determination

The sample size was calculated with Fisher's formula[8] while considering the estimate from a previous study to be 18%.[9] The total number of participants required for the study was 200.

Participants

Study participants included all consenting adult patients scheduled for elective surgery. Exclusion criteria were patients' refusal to participate in the study, age below 18years, an American Society of Anaesthesiologist's (ASA) classification greater than II, and language barrier. ASA III and IV patients who represent a high-risk population were excluded because of safety considerations.

Ethical Considerations

Before the commencement of the study, approval was obtained from the University of Ilorin Teaching Hospital Ethical Review Board. Also, in accordance with the Declaration of Helsinki, written informed consent, signed and dated, were obtained from all patients following an explanation on the research by the investigator. All information obtained from the patients was treated with strict confidentiality and the data obtained was used strictly, for research purposes.

Questionnaire

Details of demographic information were obtained from the patients. The questionnaire also included information on the patients' knowledge about anaesthesia, their fears and anxiety and the information they wish to be provided with, by their anaesthetist.

To ensure reliability and validity, a pilot test involving twenty respondents was carried out to identify potential challenges with the use of the questionnaire and necessary adjustments were made before commencement of the study.

Data collection

The questionnaires were administered by two resident doctors in the department of anaesthesia who had been trained on the use of the questionnaire. They obtained the data by verbally interviewing the patients and retrieving information from patients' files. The interview took place before routine pre-anaesthesia assessment one day before the scheduled surgical procedures. The patients were told they had the right to withdraw from the interview whenever they desired to, and they were given the option of leaving questions they were uncomfortable with, unanswered. To reduce social desirability bias, the residents were instructed to adopt a non-judgmental approach and to assure the respondents of the confidentiality of their responses.

Data Analysis

All data were analysed using SPSS version 20 (SPSS Inc, Chicago, Illinois, 2011). Results generated from this study were expressed as frequencies or proportions of total, means and standard deviations. Tests of significance were analysed with Student's t-test and ANOVA for means while Chi square test and Mann Whitney U were used for categorical variables. A p-value of less than 0.05 was considered statistically significant.

RESULTS

Demographic data

A total of two hundred patients were enrolled into the study. There were 106 (53%) females and 94 (47%) males. The mean age for the females was 42.43 years with a range 18 -78 while the males had a mean age of 43.14 years, range 18-70. Thirty-eight patients were educated to primary school level, 54 to high school level, 82 to tertiary level while 26 patients had no education at all (fig 1).

Patients' knowledge

Knowledge of the role of the anaesthetist

Ninety-six (48.0%, 95% CI 0.4108 to 0.5492) patients could not identify any of the roles of the anaesthetist. Ninety-eight (49.0%) responded that he puts patients to sleep, 52 (26%) responded that he provides pain relief while 32 (16%) were aware that the anaesthetist monitors vital signs. Females knew

more anaesthesia roles than males with 24 (22.64%) and 16 (15.09%) knowing two and three roles as compared to 3 (3.19%) and 6 (6.38%) males respectively (p=0.00596) (table 2). Patients who had received a high school education or more had better knowledge of the role of the anaesthetist (p=< 0.00001) (table 3).

Knowledge of anaesthesia techniques

Sixty-six (33%, 95% CI 0.2648 to 0.3952) patients did not know any technique of anaesthesia. One hundred and fourteen (57%) patients were aware of general anaesthesia, 92 (46%) of spinal anaesthesia and four (2%) patients each were aware of epidural and local anaesthesia. Twenty patients were aware of all forms of anaesthesia presented. All the patients who had knowledge of spinal, epidural and local anaesthesia also had knowledge of general anaesthesia. Males and females did not have a statistically significant difference in knowledge of anaesthesia techniques (p=0.86502) (table 2). Patients who had received a high school education or more had better knowledge of anaesthesia techniques as they knew more techniques than those who had only primary or no education (p=0.00672) (table 3).

Knowledge of complications

Eighty-eight (44%, 95% CI 0.3516 to 0.4884) patients had no knowledge of the complications of anaesthesia. Fifty-eight (29%) patients were aware that anaesthesia could result in death, 54 (27%) in delayed recovery, 20 (10%) in paralysis, 2 (1%) in headache and one (0.5%) each in vomiting and sore throat. Males and females did not have a statistically significant difference in knowledge of complications (p=0.65994) (table 2). Patients who had received a high school education or more had better knowledge of the complications of anaesthesia (p=0.0477) (table 3).

Fears and anxiety

When patients were asked about the complication that was their greatest source of worry 136 (68%, 95% CI 0.6153 to 0.7447) responded that it was complication of surgery, 62 (31%, 95% CI 0.2459 to 0.3741) complication of anaesthesia while 2 (1%, 95% CI 0.0000 to 0.0238) were mostly worried about the complication of blood transfusion. Gender had no significant impact on the complication that caused the greatest worry (p=0.964841). Level of education did not demonstrate a statistical difference in the source of worry concerning complications of anaesthesia (p=0.452262 (table 4).

Desires

One hundred and ninety-two (96%, 95% CI 0.9328 to 0.9872) patients expressed a desire to meet the anaesthetist before the surgical procedure while eight (4%) patients had no desire to meet the anaesthetist. One hundred and ninety-six (98%, 95% CI 0.9606 to 0.9994) patients desired information about the process of anaesthesia while four (2%) patients did not. One hundred and seventy-eight (89%, 95% CI 0.8466 to 0.9334) patients desired information on possible complications of anaesthesia while 22 (11%) patients did not.

Males had a statistically higher desire to meet the anaesthetist before anaesthesia (p=0.027282) but gender had no significant impact on the desire for information on the process of anaesthesia (p=0.77501) and desire for information on possible complications (p=0.289348). Patients with a minimum of high school education had a statistically higher desire for information on the process of anaesthesia (p=0.064559) and possible complications of anaesthesia (p=0.068909) but not for desire to meet the anaesthetist (p=0.265315) (table 4).

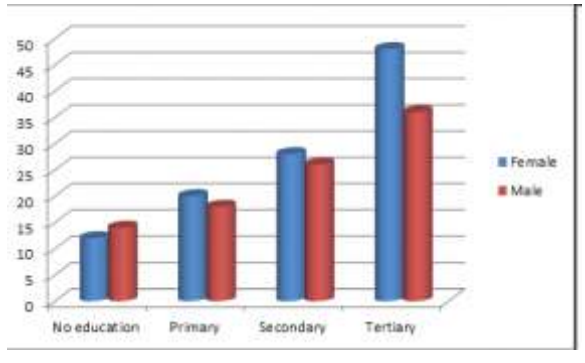

Fig 1: Demographic data

Table 2: Gender and Knowledge of anaesthesia roles, techniques and complications

		Female	Male	Mann Whitney U z-score	p-value
Number of roles known	None	45 (42.45%)	51 (54.26%)	2.75377	0.00596
	1	21 (19.81%)	34 (36.17%)		
	2	24 (22.64%)	3 (3.19%)		
	3	16 (15.09%)	6 (6.38%)		
	Total	106 (100%)	94 (100%)		
Number of anaesthesia techniques known	None	35 (33.02%)	31 (32.98%)	0.17379	0.86502
	1	26 (24.53%)	25 (26.60%)		
	2	36 (33.96%)	30 (31.91%)		
	3	1 (0.94%)	4 (4.26%)		
	4	8 (7.55%)	4 (4.26%)		
	Total	106 (100%)	94 (100%)		
Number of complications of anaesthesia known	None	44 (41.51%)	44 (46.81%)	0.43867	0.65994
	1	48 (45.28%)	36 (38.30%)		
	2	12 (11.32%)	10 (10.64%)		
	3	2 (1.89%)	4 (4.26%)		
	Total	106 (100%)	94 (100%)		

Table 3: Education on Knowledge of anaesthesia roles, techniques and complications

		< High school	> High school education	z-score	p-value
Number of roles known	None	48 (75.0%)	52 (38.24%)	4.45097	< 0.00001
	1	11 (17.19%)	44 (32.35%)		
	2	1 (1.56%)	12 (8.82%)		
	3	4 (6.25%)	28 (20.59%)		
	Total	64 (100%)	136 (100%)		
Number of anaesthesia techniques known	None	18 (28.13%)	26 (19.13%)	2.71458	0.00672
	1	30 (46.88%)	46 (33.82%)		
	2	14 (21.88%)	50 (36.76%)		
	3	1 (1.56%)	2 (1.47%)		
	4	1 (1.56%)	12 (8.82%)		
	Total	64 (100%)	136 (100%)		
Number of complications of anaesthesia known	None	36 (56.25%)	52 (38.24%)	1.98388	0.0477
	1	20 (31.25%)	62 (45.59%)		
	2	6 (9.38%)	16 (11.76%)		
	3	2 (3.13%)	6 (4.41%)		
	Total	64 (100%)	136 (100%)		

Table 4: Impact of gender and level of education on patients desires and worry

	Female	Male	Total	X2	p value	< High Sch	> High Sch	X2	p value
Greatest worry									
Complication of anaesthesia	34 (32.08%)	28 (29.79%)	62			16 (25.0%)	46 (33.82%)		
Complication of surgery	71 (66.98%)	65 (69.15%)	136	0.0716	0.964841	47 (73.44%)	88 (64.71%)	1.587	0.452262
Complication of blood transfusion	1 (0.94%)	1 (1.06%)	2			1 (1.56%)	2 (1.47%)		
Desire to meet anaesthetist								1.2408	0.265315
Yes	98 (92.45%)	93 (98.94%)		4.8729	0.027282	60 (93.75%)	132 (97.06%)		
No	8 (7.55%)	1 (1.06%)				4 (6.25%)	4 (2.94%)		
Desire for information on the process of anaesthesia									
Yes	100 (94.34%)	93 (87.74%)	193	3.1165	0.77501	60 (93.75%)	134 (98.53%)	3.4162	0.064559
No	6 (5.66%)	1 (1.06%)	7			4 (6.25%)	2 (1.47%)		
Desire for information on possible complications									
Yes	92 (86.79%)	86 (91.49%)	178	1.1227	0.289348	54 (84.38%)	126 (92.65%)	3.3088	0.068909
No	14 (13.21%)	8 (8.51%)	22			10 (15.63%)	10 (7.35%)		

DISCUSSION

The main findings of this study were that surgical patients had insufficient knowledge of the roles of the anaesthetist, types of anaesthesia techniques and complications of anaesthesia. They were more worried about complications of surgery than those of anaesthesia. Despite this, the desire to meet the anaesthetist before surgery (192, 96%), receive information about the process of anaesthesia (196, 98%) and the possible complications (178, 89%) was prevalent among them.

The practice of anaesthesia began in Nigeria with the establishment of the first two teaching hospitals, the University College Hospital Ibadan and the Lagos University Teaching Hospital over 60 years ago.[10] In spite of this, knowledge of the roles of anaesthetists is still limited. A study from Southwest Nigeria found that 63% of patients had no idea about the role of the anaesthetist.[11] The situation is not peculiar to Nigeria as a survey across the United States, Australia and Germany found that the roles of the anaesthetist were poorly understood and patients underestimated the training anaesthetists receive.[3] A study attributed this limited knowledge to probably be because anaesthetists spend a relatively less time interacting with the conscious patient.[1] More public advocacy efforts are needed to create better awareness of the importance of the roles anaesthetists play, in the management of patients. A lack of knowledge of this can lead to increased anxiety and reluctance to provide consent for anaesthesia procedures and a greater likelihood of litigation in the event of a mishap.

General anaesthesia was the best know anaesthesia technique with 114 (57%) of patients being aware of

it. This finding highlights the need for the anaesthetist in the West African sub-region to break away from the tag of the one who puts patients to sleep as anaesthesia involves a lot more. In a study in the West African sub-region, Djagbletey *et al* found that nearly half the patients thought anaesthesia was all about 'putting people to sleep and waking them up' while less than 15% of patients had knowledge of the role of anaesthetists outside the operating theatre suites.[12] Subarachnoid block was the next best known anaesthesia technique. The knowledge of this technique is probably because of its frequent use during caesarean sections in Nigeria.[13] This was further buttressed in the index study, in which females had better knowledge of the role of anaesthetists than males. Though the use of epidural anaesthesia is increasing, it is still not widely practiced in Nigeria.[14] This is probably why the knowledge of this technique is quite poor. It is important that patients are educated on the wide range of anaesthesia services available to patients.

Modern anaesthesia is generally considered safe however complications occasionally occur and could be life threatening. It is important that patients are aware of the risks associated with anaesthesia. This is necessary to satisfy the demands of informed consent. Many patients (88, 44%) had no knowledge of anaesthesia complications that could occur. Jackson *et al* also found that the knowledge of anaesthesia risks among parturients was poor.[7] Death and delayed recovery were the top two complications the patients were aware of. The patients were more aware of complications of general anaesthesia reinforcing the fact that the anaesthetist is considered primarily as the one who puts surgical patients to sleep.

Previous studies demonstrated geographical differences in patient concerns. A study in Nigeria found that the fear of death was prevalent (82%).[15] In Saudi Arabia, the most common concern expressed by the patients was whether anaesthetists had sufficient experience and qualifications.[16] While in Canada, brain damage, waking up intraoperatively and memory loss were the main concerns, with only 12% of patients concerned about death.[17] Jackson found that the level of risk at which mothers felt they should be informed of possible complications of anaesthesia varied from as high as 1:1000 to a low risk of 1:1,000,000.[7] This limited knowledge of the complications of anaesthesia may have also influenced the finding that patients were a lot more concerned about the complications of surgery than the complications of anaesthesia and blood transfusion.

The desire to meet the anaesthetist before surgery (192, 96%), receive information about the process of anaesthesia (196, 98%) and the possible complications (178, 89%) was prevalent in this study. Females had a greater desire to meet the anaesthetist than males.

Patients possessing a secondary school level of education or higher had a better knowledge of the roles of the anaesthetist, types of anaesthesia techniques and knowledge of complications than those with a lower level of education. Other studies also found that patients with increased literacy levels had better knowledge of the roles of the anaesthetist.[2,18] This is probably due to the fact that literate individuals have a greater access to information and are likely more able to understand information acquired from diverse sources. Specific interventions such as the use of visual aids may be employed in the preoperative period to help low-literacy patients understand anaesthesia information. Structured preoperative education modules may also be beneficial in educating patients in the preoperative period.

Limitations

The study did not explore the knowledge of the patients on the roles of the anaesthetist outside of the operating theatre in locations such as the pain management clinic and the intensive care unit. The findings of this study may therefore not be applicable to these areas. Further research on patients' knowledge of the roles of the anaesthetist in

these locations is desired. Also, subsequent research can be extended beyond the hospital environment to explore the knowledge of the general public on anaesthesia.

CONCLUSION

Our study found that the knowledge of surgical patients about anaesthesia roles, types and complications is deficient. More patients were concerned about the complications of surgery than those of anaesthesia. However, patients desired more information on the process of anaesthesia and the possible complications.

RECOMMENDATIONS

Public education campaigns are essential to educate the populace on the roles of the anaesthetist as an essential part of the health management team. This will help to address the challenges of limited knowledge highlighted in this study. Targeted patient education, especially for less educated and male patients, is needed to address knowledge gaps and align with high information desires. We also recommend that the pre-anaesthesia evaluation visit be maximally utilized as an avenue to provide information to patients about the process of anaesthesia, options available and possible complications that could arise. This period should also be used to address patient specific concerns, associated with anaesthesia.

What is already known on this topic:

- Surgical patients have a poor knowledge of who an anaesthetist
- Surgical patients prefer to share decision making with their clinical team

What this study adds:

- Other than putting patients to sleep, other intraoperative roles of the anaesthetist are poorly known
- Epidural and local anaesthesia techniques are poorly known
- Anaesthesia complications are poorly known
- Surgical patients were more worried about the complications of surgery than those of anaesthesia
- Almost all patients desired preoperative information on the identity of their anaesthetist, the process of anaesthesia and its complication.

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Competing interest

The authors declare that they have no competing interests.

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Author's contributions

All authors contributed to the conception and design; acquisition, analysis and interpretation of data; drafting and revising the article and final approval of the version to be published.

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