A Survey of Attitudes and Knowledge of Nigerian Orthopaedic Surgeons and Traumatologists Regarding Regional Anaesthesia

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ABSTRACT

Introduction: Regional anaesthesia (RA) is emerging as a preferred choice of anaesthesia in orthopaedics and trauma surgery because of the perceived cost effectiveness and safety. However the knowledge and attitudes of Orthopaedic Surgeons and Traumatologists regarding RA vary in different parts of the world. In order to determine the level of awareness, we conducted a survey of attitudes to, and knowledge of Nigerian Orthopaedic Surgeons and Traumatologists to regional anesthesia

Material and Methods: We conducted a cross sectional questionnaire based study during the Annual General Meeting of the Nigerian Orthopaedic Association in Yenagoa, Bayelsa State Nigeria in in December 2011. Knowledge and attitude to regional anesthesia were accessed using pretested questionnaire and the data collected were represented in percentages.

Results: Out of the 63 participants studied, 55 (87.3%) were employed in government hospitals, while 8 (12.7%) were in private practice. Knowledge and skills of regional anaesthesia were acquired during residency training and clinical practice by 79%. The preference for regional anesthesia was mainly because it is perceived to be safe (96.8%,) associated with reduced medical complication (90.5%), and is cost effective (88.9%). It was however not favoured because of delays during induction of anaesthesia (60.3%) and assessment of neurological complications (63.5%)

Conclusion: Regional anesthesia remains a preferred method of anesthesia by Orthopaedic Surgeons and Traumatologists on account of safety and cost-effectiveness, however the benefits is attenuated by the perception that complimentary general anaesthesia, is often required and that the complex techniques of RA creates delays in induction.

Keywords: Attitudes, Knowledge, Orthopaedic surgeons, Regional anesthesia, Traumatologists,

INTRODUCTION

RA is anesthesia that affects a large part of the body, such as a limb or the lower half of the body and the techniques can be divided into central and peripheral techniques. The central techniques include neuraxial blocks (epidural anesthesia, spinal anesthesia). The peripheral techniques can be further divided into plexus blocks such as brachial plexus blocks, and single nerve blocks[1] RA has long been known to be of benefit to major orthopaedic surgical patients.[2] Perhaps the greatest benefit of regional anaesthesia and analgesia is its role in providing adequate pain control for rehabilitation.

Pain control remains the key to postoperative recovery of orthopaedic surgical patients and therefore optimizing postoperative analgesia improves the patient's ability to fully participate in rehabilitative sessions.

Evidence exists of reduced postsurgical morbidity (reduced blood loss, decreased thromboembolism) with hip replacement and more rapid recovery and rehabilitation after major knee surgery under regional anaesthesia.[2] The immense benefit of regional anaesthesia in the postoperative period has created greater awareness not only in the surgical community but also in the general public life.[3]

The next wave in regional analgesia for ambulatory orthopaedic patients may be the placement of peripheral nerve catheters. In the US, there are more orthopaedic procedures done as day surgery than in-patients because of peripheral nerve blocks.[4]

A regional technique continued into the post-operative period potentially offers attenuation of surgical stress, superior postoperative analgesia, reduction in postoperative nausea and vomiting, and earlier mobilization in patients undergoing extensive surgeries. Regional analgesia forms an important component of multimodal analgesia in acute pain management. Patient's satisfaction, a growing demand for cost-effective anaesthesia and analgesia, and a favourable post-operative recovery profile has resulted in a growing interest in regional anaesthesia. Orthopaedic surgery particularly lends itself to the use of regional anaesthesia.

There is paucity of work on orthopaedic surgeons' perception of regional anaesthesia in Nigeria we therefore carried out a study to see if the Nigerian Orthopaedic Surgeons understand and appreciate the importance of regional anaesthesia in carrying out surgical and manipulative procedures.

MATERIAL AND METHODS

This was a questionnaire based cross sectional study in which 100 respondents were selected from 350 Orthopaedic Surgeons using systematic sampling technique. The questionnaire (appendix 1) consists of section A which has questions on location, type of practice and subspecialty while sections B and C were on determinants of attitudes and knowledge respectively. One hundred pretested questionnaires were administered to these Orthopaedic Surgeons during the December 2011 Annual General Meeting of the Nigerian Orthopaedic Association that held in Yenagoa, Bayelsa State Nigeria.

STATISTICAL ANALYSIS

The returned questionnaires were then analyzed using Chi-

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	Frequency	Percent
Type of practice		
Government	55	87.3
Private	8	12.7
Total	63	100.0
Orthopaedic sub-specialties		
Arthroplasty	7	11.1
Arthroscopy	1	1.6
General	42	66.7
Limb reconstruction	4	6.3
Oncology	2	3.2
Paediatrics	3	4.8
Spine	3	4.8
Trauma	1	1.6
Total	63	100.0

Table-1: Type of Practice and Specialty distribution of practitioners

square test with the help of Statistical Package for Social Sciences (SPSS) for windows version 20.

RESULTS

Sixty-three (63) of the one hundred participants in the study returned their questionnaires (63% return rate). Eleven of the respondents (17.5%) worked in Abuja the Federal Capital City; six (9.5%) each worked in Enugu and Port Harcourt, while four (6.3%) and three (4.8%) worked in Kano and Lagos respectively. The Government hospitals remain the largest employer of Orthopaedic Surgeons, accounting for 87.3 %. Most practitioners (87.3%) were general orthopaedic practitioners (Table-1), while the sub specialty of Arthroplasty accounted for (7%). Only one practitioner was strictly a trauma specialist.

The predominant reasons for choice of RA were safety (96.8%, Chi-square x^2=110.51), reduced medical complications (90.5%, Chi-square x^2=139.43), cost effectiveness (88.9%, Chi-square x^2=76.22) and decreased post-operative sedation/

Reasons	Attitude	Frequency	Percent	Chi-Square (P-Value)
Decrease Post-operative Pain	Agree	52	82.5	105.86 (0.001)*
	Uncertain	1	1.6	
	Disagree	10	15.9	
	Total	63	100.0	
Safety	Agree	61	96.8	110.51 (0.001)*
	Disagree	2	3.2	
	Total	63	100.0	
Decrease PONV**	Agree	38	60.3	31.29 (0.001)*
	Uncertain	14	22.2	
	Disagree	11	17.5	
	Total	63	100.0	
Decreased sedation/confusion	Agree	54	85.7	117.57 (0.001)*
	Uncertain	7	11.1	
	Disagree	2	3.2	
	Total	63	100	
Decrease nausea/vomiting	Agree	56	88.9	132.14 (0.001)*
	Uncertain	1	1.6	
	Disagree	6	9.5	
	Total	63	100.0	
Decrease thrombosis risk	Agree	36	67.2	52.18 (0.001)*
	Uncertain	3	4.8	
	Disagree	24	38.1	
	Total	63	100.0	
Decrease medical complication	Agree	57	90.5	139.43 (0.001)*
	Uncertain	1	1.6	
	Disagree	5	7.9	
	Total	63	100.0	
Cost effectiveness	Agree	56	88.9	76.22 (0.001)*
	Disagree	7	11.1	
	Total	63	100.0	
Increased patient satisfaction	Agree	49	77.8	86.29 (0.001)*
	Uncertain	3	4.8	
	Disagree	11	17.5	
	Total	63	100.0	
Decreased blood loss	Agree	33	52.4	
	Uncertain	2	3.2	39.57 (0.001)*
	Disagree	28	44.4	
	Total	63	100.0	

*significant ($p<0.05$), **PONV-Post operative nerve block

Table-2: Reasons regional anaesthesia is favoured

Reasons	Attitude	Frequency	Percentage	Chi-Square (P-Value)
Induction delays surgery	Agree	38	60.3	5.37 (0.021)*
	Disagree	25	39.7	
	Total	63	100.0	
Unpredictable success	Agree	39	61.9	52.00 (0.001)*
	Uncertain	1	1.6	
	disagree	23	36.5	
	Total	63	100.0	
Decreased patient anxiety	Agree	19	30.2	29.54 (0.001)*
	Uncertain	5	7.9	
	Disagree	39	51.9	
	Total	63	100.0	
More Side effects/complication	Agree	25	39.7	33.86 (0.001)*
	Uncertain	4	6.3	
	Disagree	34	53.9	
	Total	63	100.0	
Additional General anaesthesia is often needed	Agree	30	47.6	38.71 (0.001)*
	Uncertain	2	3.2	
	Disagree	31	49.2	
	Total	63	100.0	
Delayed assessment of neurological complication	Agree	40	63.5	46.71 (0.001)*
	Uncertain	4	6.3	
	Disagree	19	30.2	
	Total	63	100.0	
Less effective than General anaesthesia	Agree	14	22.2	84.14 (0.001)*
	Uncertain	1	1.6	
	Disagree	48	76.2	
	Total	63	100.0	
*significant ($p<0.05$)				

Table-3: Reasons regional anaesthesia is not favoured

S no	How skill was acquired	Frequency	Percentage
1	Postgraduate training	29	46.0
2	Clinical work	21	33.3
3	Anaesthetic colleague	5	7.9
4	Undergraduate	4	6.3
5	Journals	2	3.2
6	Seminars	1	1.6
7	Others	1	1.6
	Total	63	100.0

Table-4: Knowledge of regional anaestyhesia

confusion (85.7% %, Chi-square x^2=117.57). Other reasons for preference of RA by respondents include increased patient satisfaction (77.8% %, Chi-square x^2= 86.29), reduced risk of thromboembolism (67.2%, Chi-square x^2=52.18) and post-operative nausea and vomiting (60.3% Chi-square x^2=31.29). These observed differences in attitudes when statistically tested were significant at p-value 0.001 (Table-2). The reason for none preference were delayed assessment of neurological complications post operatively (63.5% Chi-square x^2=46.71), unpredictable success, (61.9% Chi-square x^2=52.00), and late commencement of surgery due to delays in induction of regional anaesthesia (60.3% Chi-square x^2=5.37). At Chi-square x^2=84.14 (p=0.001), 76.2% of respondents disagreed that regional anaesthesia was less effective than general anaesthesia, while 53.9 % (Chi-square x^2=33.86, p- value= 0.001) disagreed that RA had more side effects. (Table-3). Table 4 shows the source of acquisition of knowledge. Seventy nine (79%) of respondents acquired knowledge and skills of regional anaesthesia during their residency fellowships and clinical training.

DISCUSSION

Abuja, the Nigerian federal capital had the largest population of respondents 11 (17.5%) when compared to other cities. This is similar to observations made by Adebayo and Oladeji, that professional and medical personnel are disproportionately distributed to teaching hospitals in Nigeria.[5] The idea of subspecialization in orthopaedics and traumatology is evolving, though slowly. As seen on table (Table-1), 42 (66.7%) are general Orthopaedics and Traumatology practitioners. This is in agreement with Wahab Yunusa's observation in 2008 that the country was yet to begin a meaningful subspecialty programme[6], and it appears that young consultants have taken heed to the call to get into short fellowship programmes in Arthroplasty, Spine, Oncology and Deformity Correction. Of all the subspecialties, arthroplasty has made significant progress with seven (11.1%) of the respondents being specialists in the field[6]

A large proportion of Nigerian Orthopaedic Surgeons 29 (46%) became aware of and acquired skills in regional anaesthesia during their postgraduate training because the Post Graduate colleges requirement for eligibility for the Part One Fellowship examination include a three-month elective training in anaesthesia,[7] though Orthopaedic residents in both Postgraduate training colleges rate their practical exposure in anaesthesia as inadequate.[8-11] Twenty-one (33.3%) respondents acquired proficiency through the course of their clinical practice. The observation that only five respondents (7.9%) acquired

skills from their anaesthetic colleagues is in keeping with the finding that formalization and standardization are not common in operating room teamwork due to medicine's strongly held value of professional autonomy and craftsman mindset. These factors promote individualism as opposed to cooperation and can act as barrier to interpersonal communication and skills acquisition.[12] Pain relief after surgery continues to be a major medical challenge and 82% of respondents agree that RA provide reduction in pain post-operatively. This is in agreement with findings of Yunus et al[13] who stated that residual effects of regional anaesthetic agents overlap long into the postoperative period of the patient, and therefore the need for postoperative analgesia will no longer be necessary. More over unrelieved postoperative pain may delay discharge and recovery resulting in inability of the patient to participate in rehabilitation programmes leading to poor outcomes.[14]

Sixty-one respondents (96.8%) agreed that the techniques of regional anaesthesia provided them with a safe form of anaesthesia for performing surgery, even though ultrasound guided regional anaesthesia has been found to be safer[15] than peripheral nerve stimulation (PNS) that is currently used by most Nigerian anaesthetesiologists for nerve localization.[16] Medical complications of regional anaesthesia are rare,[17] and similarly in our survey 57 (90.5%) respondents agreed that there was reduction of medical complications with RA and this translates to a positive outcome in overall mortality, thromboembolic events, blood loss and transfusion requirements when comparing regional to general anesthesia.[18] In our study, majority of the respondents agreed that RA is cost effective in line with earlier works.[19,20]

Although several review articles in anesthesia journals have outlined the shortcomings of the methodology used to develop and validate patient satisfaction surveys for anesthesia services,[21-25] our respondents affirm that their patients were satisfied with, and willing to accept their choice of a regional anaesthesia procedure if and when a need for a second surgery arises.[26]

Delays in induction, assessment of postoperative neurological complication and need for additional general anaesthesia were reasons for Orthopaedic surgeons not favouring regional anaesthesia**.** Oldman et al opined that perceived operating room delays and lack of reliability is a barrier to the popularity of regional anaesthesia.[27] Induction delay is only one of several factors that cause operative delays, others include lack of proper planning, failure to prepare instruments and materials, deficiencies in team work, communication gap and limited availability of trained supporting staff and time spent to teach post graduate residents.[28,29]

In a study by George Stavrou et al, complex techniques involving nerve blocks or the placement of a central venous or an epidural catheter were excluded because they were more time consuming when compared to general anaesthesia[29] Therefore this delay in induction has implications not only for the surgeons but also on patients as it prolongs operating room stay of patient with economic implications especially where costs are not covered by a third party like insurance companies or national health schemes. This issue becomes more important in hospitals where no separate induction room is available.[30]

Babita Gupta et al suggests that utilization of newer technology that will enable timely booking, scheduling of cases, improved inter-departmental coordination, compliance with pre-anaesthetic instructions, prompt and well timed supervision of theatre proceedings will help reduce operative delays.[28,31]

CONCLUSION

Nigerian Orthopaedic surgeons and Traumatologist are aware and knowledgeable concerning regional anaesthesia, and their attitudes favourably disposed to the practice. Most acquired their knowledge during post graduate residency, however without much practical exposure, but enough to convince their patients to accept regional anaesthesia for their surgeries. Though there is common agreement on the benefits of regional anaesthesia, but delays in induction and post-operative assessment of neurologic complications appear to attenuate the acceptance. Inspite of these limitations, in a resource challenged community the cost effectiveness cannot be overlooked.

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Appendix-1: A survey of orthopaedic surgeon's attitudes and knowledge regarding regional anesthesia. Please kindly fill this form.

A. Location of practice (city):

B. Type of practice
I. Private
II. Institutional

C. Orthopaedics Subspecialty:

Reasons Regional Anaesthesia Favoured

S/N	Reasons	Strongly Agree	Agree	Don't Agree
1	Decreases post-operative pain			
2	Safety			
3	Increased PONV**			
4	Decreased sedation/confusion			
5	Decreased medical complication			
6	Increased patients satisfaction			
7	Decreased thrombosis risk			
8	Decreased blood loss			
9	Decreased Nausea and vomiting			
10	Cost effective			
	Reasons Regional Anaesthesia Not Favoured			
S/N	**Reasons**	**Stronglyagree**	**Agree**	**Don'tagree**
1	Induction delays Surgery			
2	Unpredictable success			
3	Decreased assessment of neurological complication			
4	Side effect/ complication			
5	Additional GA is often needed			
6	Less effective than GA			

GA – General anaesthesia, **PONV-Post operative nerve block

D. How did you acquire knowledge/ skills in Regional Anaesthesia?

1. During residency/fellowship ☐
2. During clinical work ☐
3. I was thought by my anaesthetic Colleague ☐
4. I learnt during my undergraduate medical school ☐
5. Knowledge was through journal ☐
6. Seminar ☐