

Atitudes de Anestesiologistas e Médicos em Especialização em Anestesiologia dos CET/SBA em Relação aos Bloqueios Nervosos dos Membros Superior e Inferior*

The Attitude of Anesthesiologists and Anesthesiology Residents of the CET/SBA Regarding Upper and Lower Limb Nerve Blocks

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RESUMO

Helayel PE, Conceição DB, Conceição MJ, Boos GL, Toledo GB, Oliveira Filho GR - Atitudes de Anestesiologistas e Médicos em Especialização em Anestesiologia dos CET/SBA em Relação aos Bloqueios Nervosos dos Membros Superior e Inferior.

JUSTIFICATIVA E OBJETIVOS: O emprego da anestesia regional, em especial dos bloqueios nervosos periféricos (BNP) tem aumentado na prática anestesiológica devido à menor necessidade de instrumentação de vias aéreas, menor custo e excelente analgesia pós-operatória. Entretanto, sua utilização sofre restrições causadas pela falta de treinamento, maior tempo de realização, temor de complicações neurológicas e toxicidade sistêmica. O objetivo desse estudo foi medir as atitudes de anestesiologistas e médicos em especialização nos Centros de Ensino e Treinamento (CET/SBA) em relação aos BNP.

MÉTODO: Foi construído um questionário com 25 itens sendo disponibilizado eletronicamente e por correio aos responsáveis de 80 CET, seus instrutores e médicos em especialização.

RESULTADOS: Quarenta e dois CET (52,5%) devolveram 188 questionários, sendo 62 (32%) médicos em especialização (ME) e 126 (68%) anestesiologistas. O coeficiente de confiabilidade de Cronbach do questionário foi 0,79. A análise fatorial revelou seis fatores, que explicaram 53% da variância dos escores: fator 1 - atitudes positivas, responsável por 18,34 % da variância; fator 2 - treinamento/aplicação, responsável por 11,73 % da variância; fator 3 - aspectos

negativos, responsável por 7,11 % da variância; fator 4 - fatores limitantes, responsável por 6,39 % da variância; fator 5 - anestesia regional como diferencial de competência, responsável por 5,79% da variância; e fator 6 - respeito pelo paciente, responsável por 5,4 % da variância.

CONCLUSÕES: O questionário mostrou-se uma ferramenta fidedigna para medida de atitudes com relação à anestesia regional. Os anestesiologistas demonstraram maior interesse nos aspectos relacionados aos pacientes enquanto os ME tiveram como foco principal a aquisição de habilidades técnicas.

Unitermos: ANESTESIOLOGIA, Ensino: bloqueios periféricos; METODOLOGIA: pesquisa de opinião; TÉCNICAS ANESTÉSICAS, Regional: bloqueio de nervo periférico.

SUMMARY

Helayel PE, Conceição DB, Conceição MJ, Boos GL, Toledo GB, Oliveira Filho GR - The Attitude of Anesthesiologists and Anesthesiology Residents of the CET/SBA Regarding Upper and Lower Limb Nerve Blocks.

BACKGROUND AND OBJECTIVES: The use of regional blocks especially peripheral nerve blocks (PNB) has been increasing in anesthesiology due to the reduced need to manage the airways, lower cost, and excellent postoperative analgesia. However, its use has restrictions due to the lack of training, that it takes longer to be done, fear of neurological complications, and systemic toxicity. The objective of this study was to measure the attitude of anesthesiologists and anesthesiology residents at Teaching and Training Centers (CET/SBA) regarding PNBs.

METHODS: A 25-item questionnaire was developed and it was available, via the Internet and by mail, to those responsible for the 80 CETs, their instructors and residents.

RESULTS: Forty-two CETs (52.5%) returned 188 questionnaires, 62 (32%) from anesthesiology residents and 126 (68%) from anesthesiologists. The Cronbach's alpha coefficient of the questionnaire was 0.79. Factor analysis revealed six factors that explain 53% of scores variance: factor 1 - positive attitude, responsible for 18.34% of the variance; factor 2 - training/use, responsible for 11.73% of the variance; factor 3 - negative aspects, responsible for 7.11% of the variance; factor 4 - limiting factors, responsible for 6.39% of the variance; and factor 5 - regional block as a competence differential, responsible for 5.79% of the variance; and factor 6 - respect for the patient, responsible for 5.4% of the variance.

CONCLUSIONS: The questionnaire proved to be a reliable tool to measure the attitude regarding regional blocks. Anesthesiologists demonstrated greater interest for patient-related aspects, while the main focus of residents was the acquisition of technical abilities.

Keywords: ANESTHESIOLOGY, Teaching: peripheral blocks; ANESTHETIC TECHNIQUES, Regional: peripheral nerve block; METHODOLOGY: opinion investigation.

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INTRODUCTION

The use of regional blocks in modern anesthesiology has increased in the last two decades, especially due to the diffusion of plexus and peripheral nerve blocks ¹. It has been demonstrated that those anesthetic techniques promote excellent postoperative analgesia, reduce the need to manage the airways, have a better cost-benefit profile, and greater patient satisfaction and quality of recovery ². However, the use of plexus and peripheral nerve blocks is restricted by the lack of training, greater length of time to perform them, and fear of neurologic complications and systemic toxicity of local anesthetics ³⁻⁶.

The use of regional anesthetic techniques depends on three fundamental factors: training, availability of material, and individual predisposition of anesthesiologists. Modern medical practice suffers direct influence of attitudes. They are related with personal behavior, which influences the choices of trainees. Data on predispositions regarding the use of regional blocks of Brazilian anesthesiology residents and anesthesiologists are lacking. Knowledge of those attitudes can be useful to orient teaching and training of regional blocks. The objective of this study was to measure the attitudes (predispositions) of anesthesiologists and anesthesiology residents

at Teaching and Training Centers regarding upper and lower limb blocks.

METHODS

The study was approved by the Ethics on Research Committee of the institution. To develop the questionnaire, initially, the authors formulated, independently, questions that might reflect the objectives of the study. Those questions were submitted to the other members in three rounds of a Delphi process to obtain consensus among the investigators⁷. In the Delphi process, each investigator attributed independently scores from one to five to each question according to his interpretation of the relevance of the item for the objective of the study. After each round the median of the scores of each question was calculated and given to the members of the group, who reviewed the scores. This process was repeated until the scores of each item of the questionnaire did not show a difference greater than one unit from the median. Questions with scores equal or lower than two were eliminated. Each item of the questionnaire was answered in 5-point Likert scales (0 = strongly disagree, 1 = disagree, 2 = neither agree nor disagree, 3 = agree, 4 = strongly agree). The questionnaire was sent by mail to those responsible for 80 Teaching and Training Centers accredited by the Brazilian Society of Anesthesiology (CET/SBA, from the Portuguese), asking them to stimulate their instructors and residents to answer the questionnaire. An electronic version of the questionnaire was available at a web site in which the questionnaire could also be answered. The following parameters were collected: age, gender, geographic region (south, southeast, northeast, north, and center-west), position at the CET (resident or anesthesiologist), practice of Orthopedic Surgeries (frequently or rarely), and predominant surgical population (adult or pediatric). Psychometric analysis of the questionnaire included the Cronbach's alpha coefficient, that evaluates the internal consistency of the instrument, and principal component factor analysis with orthogonal factor rotation (varimax) to identify the dimensions measured by the instrument and the amount of score variance explained by each factor through the respective eigenvalues. The scores of each subscale of the questionnaire were compared between those classes by the Student *t* test for independent samples. Additional comparisons were undertaken among the subgroups determined by the remaining parameters of the study: gender, geographic region, practice of orthopedic surgeries, and predominant population, by the Student *t* test for independent samples or unifactorial analysis of variance. An alpha value of 0.05 was established.

RESULTS

The authors identified 36 questions before the Delphi process. After three rounds, 25 items remained, composing the questionnaire (Chart I).

Table I describes the demographic data of the study population. Forty-two CETs (52.5%) returned 188 questionnaires, of which 62 (32%) were from residents and 126 (68%) from anesthesiologists. Nineteen questionnaires did not have the identification of the CET it came from. The number of answers varied from one and 32 (median = 1; lower quartile = 1; upper quartile = 4). The questionnaire Cronbach's alpha was 0.79. The adjusted mean correlation coefficient among the items of the questionnaire was 0.13. The mean correlation between the items and the total scale was 0.32. Three items were excluded from the original questionnaire due to very low item-total correlation and for contributing negatively for the alpha coefficient. Factor analysis revealed six factors that grouped different questions, as shown in Chart I. Those factors explained 53% of score variance: factor 1 – positive attitudes (eigenvalues = 4.44), composed by six items (1; 6; 10; 15; 21; and 24), was responsible for 18.34% of the variance; factor 2 – training/application (eigenvalues = 2.81), composed of five items (9; 14; 16; 23; and 27), responsible for 11.73% of the variance; factor 3 – negative aspects (eigenvalues = 1.76), composed by seven factors (2; 3; 4; 13; 18; 26; and 28), responsible for 7.11% of the variance; factor 4 –

Table I – Demographic Data

Region	
South	77
Southeast	91
Northeast	3
Center-west	17
Age (years)	37,6 ± 11,59 (24 – 68)
Position	
R-I	20
R-II	25
R-III	17
Instructor	126
Time	
<5	91
5 – 10	27
11 – 15	17
16 – 20	14
> 20	39
Population	
Adults	78
Children	110
Orthopedic	
Frequently	159
Rarely	29

Chart I – Questionnaire on the Attitudes Regarding Peripheral Nerve Blocks

Item	Contents
Factor 1	Positive Attitudes
1	I think the benefits of peripheral nerve blocks are greater than the cost of the nerve-stimulation needles.
6	If I need to undergo a surgery on the foot or ankle, I will always prefer sciatic and femoral blocks.
10	I am more relaxed to send a patient to the room with a lower limb nerve block than neuroaxis opioids.
15	I prefer lower limb nerve blocks instead of neuroaxis blocks due to their greater perioperative cardiovascular stability.
21	I think lower limb nerve blocks are indicated in outpatient surgeries.
24	I think peripheral nerve blocks are safer than general anesthesia.
Factor 2	Training/application
9	I was or have been stimulated, during my training, to learn the techniques of brachial plexus block.
14	I was or have been stimulated, during my training, to learn the techniques of lower limb nerve blocks.
16	During my training, I had colleagues who stimulated me to learn the techniques of regional blocks.
23*	I do not perform peripheral nerve blocks because it was not taught during my training.
27	I frequently perform peripheral nerve blocks.
Factor 3	Negative aspects
2*	The risk of being sued discourages my using peripheral nerve blocks.
3*	The surgeons I worked with do not favor peripheral nerve blocks of the lower limbs.
4*	I consider the time it takes to perform peripheral nerve blocks when indicating it.
13*	I think the costs of peripheral nerve blocks of the lower limbs are high.
18*	I think the spinal block is a better technique for lower limb surgeries.
26*	I think peripheral nerve blocks are safer in adults than in children.
28*	I think caudal block is the Best technique for lower limb surgeries.
Factor 4	Limiting factors
17*	I find it difficult to acquire adequate material for peripheral nerve blocks.
20*	The incapacity to immobilize the member that was not blocked decreases acceptance of lower limb nerve blocks.
Factor 5	Regional block as a differential of competence
11	I think an anesthesiologist differentiates him/herself when he/she is proficient on lower limb nerve blocks.
12	I think an anesthesiologist differentiates him/herself when he/she is proficient on brachial plexus block.
Factor 6	Respect for the patient
5	I consider patient satisfaction when I indicate peripheral nerve blocks.
22	I think peripheral nerve blocks are recommendable in children to guarantee postoperative analgesia.
25*	Since Children do not have the psychological make-up to deal with the sensation of prolonged motor blockade, I avoid peripheral nerve blocks in this population.

* = inverted score (4 = strongly disagree; 0 = strongly agree)

limiting factors (eigenvalues = 1.54), composed by two items (17 and 20), responsible for 6.39% of the variance; factor 5 – regional block as a differential of competence (eigenvalues = 1.38), containing two items (11 and 12), responsible for 5.79% of the variance; and factor 6 – respect for the patient (eigenvalues = 1.30), containing three items (5; 22; and 25), responsible for 5.4% of the variance.

Residents and anesthesiologists differed significantly regarding the scores of factors 3 (negative aspects), 5 (regional blocks as a differential of competence), and 6 (respect for the patient) (Table II). Comparing the scores of those who perform anesthesia for orthopedic procedures frequently or rarely, a significant difference was observed between factors 2 (training/application) and 4 (limiting factors) (Table III).

Table II – Comparison of the Scores between Residents and Instructors

Factor	Residents	Instructors
1	63.9 ± 14.1	62.6 ± 17.4
2	62.3 ± 21.0	65.1 ± 19.9
3	55.4 ± 10.4	61.2 ± 14.5 *
4	51.2 ± 21.7	53.4 ± 22.7
5	78.8 ± 23.9	67.7 ± 27.0 *
6	67.1 ± 15.5	74.5 ± 15.0 *
Total	61.7 ± 8.9	63.8 ± 11.2

Data shown as Mean ± SD

* p < 0.05

Table III – Comparison of the Scores between Mean Scores of Those Who Answered the Questionnaire and Frequently or Rarely Use Peripheral Nerve Blocks for orthopedic Procedures

Factor	Frequently	Rarely
1	63.4 ± 17.1	60.6 ± 10.1
2	67 ± 19.3	44.8 ± 15.4 *
3	59.3 ± 13.8	59.2 ± 12.2
4	54 ± 22.3	43.8 ± 21.2 *
5	72.3 ± 25.7	65.1 ± 31.5
6	72.6 ± 14.9	68.1 ± 19
Total	64 ± 10.6	57 ± 7.7

Data shown as Mean ± SD

* p < 0.05

DISCUSSION

The proposal of this study was to measure the attitudes of instructors (anesthesiologists) and residents at CET/SBA regarding upper and lower limb regional blocks using a questionnaire with reliable psychometric characteristics. The Cronbach's alpha coefficient (0.79) showed that this tool had adequate confiability and, therefore, could be used as a measure of the attitudes regarding upper and lower limbs nerve blocks⁸. The questionnaire also showed clear factorial structure that reflected the objective of the items constructed. Factors that influenced the rate of responses included the sensitive nature of the questions, unwillingness to participate, lack of interest on the objective of the study, lack of trust on the guarantee of confiability of the answers, and difficulty to access the questionnaire. To try to reduce those problems, the target population was limited to a group of individuals with common interests (instructors and residents), and the questionnaire was available both by mail and the Internet⁹⁻¹¹.

Residents valued more the negative aspects than anesthesiologists. The disadvantages emphasized included: the time necessary to perform peripheral nerve blocks, high costs, possibility of neurological complications, and the practicability of spinal blocks for surgeries of the lower limbs. Anesthesiologists showed more interest on patient-related aspects (reduced postoperative pain, greater satisfaction, and promotion of a comfortable surgical experience). The main concern of the residents included the acquisition of technical abilities to perform peripheral blocks since they emphasized positively regional blocks as a differential of competence. This could reflect the anxiety generated for inadequate teaching of regional blocks and low exposure of residents to those techniques during the residency¹².

Thus, it can be suggested that the indication of a peripheral block by the resident does not always consider patient satisfaction, but his/her desire to achieve professional quali-

fication. It is possible that, after insertion of residents in the labor market and with an urging for higher quality in patient care (comfort and satisfaction), their attitudes would change. Besides, it was demonstrated that residents exposed to peripheral nerve blocks changed their concepts, valuing more patient-related aspects¹³.

The frequency of exposure to orthopedic procedures influenced the attitude of both groups regarding peripheral nerve blocks. Residents and instructors who rarely perform orthopedic procedures have more difficulties with peripheral nerve blocks, having a less positive attitude.

However, those who frequently perform peripheral nerve blocks were very positive. On their turn, their attitudes can be influenced by the opinion of orthopedic surgeons who emphasize positive aspects of peripheral nerve blocks, such as excellent postoperative analgesia, reduced incidence of nausea and vomiting, and greater safety. However, the time to perform the blocks and the unpredictable success rate were considered negative aspects². Those unfavorable characteristics could be avoided by using special room for peripheral nerve blocks and new techniques to identify the nerves, such as ultrasound. This imaging method makes peripheral nerve blocks easier to perform and has shown to increase safety and success rate, and to decrease latency time, probably by facilitating¹⁴⁻¹⁶ the spread of the anesthetics.

Fundamental factors for the practice of regional blocks, such as availability of training and adequate material, influenced the attitude of the physicians who participated in the study. Several studies to identify factors related to the adequate training of regional blocks have been undertaken¹⁷. Kopacz et al.^{18,19} demonstrated that the rate of success is proportional to the number of blocks performed. Besides, some authors emphasized the importance of individual confidence as fundamental in the application of what was learned about regional blocks during and after the specialization period¹⁹. This confidence or more predisposed attitude to learn new techniques should be stimulated by CETs/SBA by creating a teaching environment more amenable to learn the techniques of regional blocks. An adequate teaching method and a good learning environment are fundamental factors for the development of trainees. Measures to build this favorable environment include the use of rooms for peripheral nerve blocks, virtual classes, use of models, and training in cadavers. Such measures could favor training and stimulate the dissemination of regional blocks. However, norms on standardized practices for the teaching of regional blocks at the CETs/SBA do not exist. Therefore, by establishing specific rotations and promoting an adequate environment to teach regional blocks, it would be possible to offer a more complete anesthesiology formation in the residency programs of the CETs/SBA.

The questionnaire proved to be a reliable tool to measure the attitudes regarding regional blocks. Anesthesiologists demonstrated more interest in aspects related to patients, while the main focus of residents was the acquisition of technical abilities.

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RESUMEN

Helayel PE, Conceição DB, Conceição MJ, Boos GL, Toledo GB, Oliveira Filho GR - Actitudes de Anestesiólogos y Médicos en Especialización en Anestesiología de los CET/SBA con Relación a los Bloqueos Nerviosos de los Miembros Superior e Inferior.

JUSTIFICATIVA Y OBJETIVOS: *El uso de la anestesia regional, en especial de los bloqueos nerviosos periféricos (BNP) ha aumentado en la práctica anestesiológica, debido a una menor necesidad de instrumentación de las vías aéreas, a un menor coste y a una excelente analgesia postoperatoria. Sin embargo, su utilización sufre restricciones causadas por la falta de entrenamiento, un mayor tiempo de realización, el temor de las complicaciones neurológicas y la toxicidad sistémica. El objetivo de este estudio, fue medir las actitudes de anestesiólogos y médicos en especialización en los Centros de Enseñanza y Entrenamiento (CET/SBA) con relación a los BNP.*

MÉTODO: *Se constituyó un cuestionario con 25 ítems, quedando a disposición electrónicamente y por correo, para los responsables de 80 CET, sus instructores y médicos en especialización.*

RESULTADOS: *Cuarenta y dos CET (52,5%) devolvieron 188 cuestionarios, siendo 62 (32%) médicos en especialización (ME) y 126 (68%) anestesiólogos. El coeficiente de confiabilidad de Cronbach del cuestionario fue de 0,79. El análisis factorial reveló seis factores que explicaron un 53% de la variancia de los puntajes: factor 1 - actitudes positivas, responsables de un 18,34 % de la variancia; factor 2 - entrenamiento/aplicación, responsable de un 11,73 % de la variancia; factor 3 - aspectos negativos, responsable de un 7,11 % de la variancia; factor 4 - factores limitantes, responsable de un 6,39 % de la variancia; factor 5 - anestesia regional como diferencial de competencia, responsable de un 5,79 % de la variancia; y factor 6 - respecto del paciente, responsable de un 5,4 % de la variancia.*

CONCLUSIONES: *El cuestionario pareció ser una herramienta fidedigna para mensurar las actitudes con relación a la anestesia regional. Los anestesiólogos demostraron un mayor interés en los aspectos relacionados con los pacientes, mientras los ME tuvieron como foco principal la adquisición de habilidades técnicas.*