

ARTIGO ORIGINAL

Patient Satisfaction in Ambulatory Surgery: Spinal Versus General Anaesthesia for Lower Limb Varicose Vein Stripping

Satisfação dos Doentes em Cirurgia do Ambulatório: Anestesia Geral Versus Raquianestesia para Cirurgia de Stripping de Varizes dos Membros Inferiores

João Rodrigues¹ , Inês Morais¹ , Cláudia Peixoto¹ , Inês Sousa¹ , Ana Morais² 

Afilições

¹Anaesthesiology Resident. Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE, Vila Nova de Gaia, Portugal.

²Physician Anaesthesiologist. Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE, Vila Nova de Gaia, Portugal.

Keywords

Ambulatory Surgical Procedures; Anesthesia, General; Anesthesia, Spinal; Patient Satisfaction; Varicose Veins; Vascular Surgical Procedures

Palavras-Chave

Anestesia Geral; Procedimentos Cirúrgicos Ambulatórios; Procedimentos Cirúrgicos Vasculares; Raquianestesia; Satisfação do Doente; Varizes

ABSTRACT

Introduction: Lower limb varicose vein stripping is a common procedure performed in day surgery units, under spinal (SA) or general anaesthesia (GA). We aim to identify differences in patient satisfaction between these two types of anaesthesia and propose strategies to improve quality of care.

Material and Methods: Observational prospective study. From December 2018 to January 2019, patients submitted to lower limb varicose vein ambulatory surgery in our centre were asked to answer the "Heidelberg Peri-anaesthetic Questionnaire".

Results: Ninety-two patient's questionnaires were validated and included in the analyses. GA was used in 60% of cases. Twenty-nine percent of patients were older than 60 years and 59% were female. SA scored worse satisfaction in 5 items: item#7 and item#8 - fear of anaesthesia and fear of surgery was important to you; item#11 - before surgery you felt an uncontrollable fear; item#14 - fear or agitation at the time before anaesthesia was important; item#17 - pain in the administration of anaesthesia caused you anxiety. Patients submitted to GA scored worse satisfaction when asked about pain in the area of surgery, sore throat, thirst and weakness of the muscles following anaesthesia.

Discussion: SA caused a greater feeling of fear and anxiety, which seems to be caused by the execution of the technique rather than the patient being awake during surgery. Worse satisfaction in GA group is possibly derived from side effects resulting from the use of an airway

device or the presence of residual general anaesthetic drugs in the post-operative period.

Conclusion: There are differences in patient satisfaction between GA and SA. Anaesthesiologists should consider patient fears when performing SA. GA post-operative side effects, such as thirst and pain, should be addressed and promptly resolved, to improve quality of care in the ambulatory unit.

RESUMO

Introdução: O *stripping* de varizes dos membros inferiores é um procedimento frequentemente realizado em unidades de cirurgia do ambulatório, no qual a raquianestesia (SA) ou a anestesia geral (GA) podem ser usadas. O objetivo deste estudo é avaliar se existem diferenças na satisfação dos doentes entre esses dois tipos de anestesia, bem como propor estratégias para melhorar os cuidados prestados.

Material e Métodos: Estudo observacional prospetivo. De dezembro de 2018 a janeiro de 2019, os doentes submetidos a cirurgia do ambulatório de *stripping* de varizes dos membros inferiores, no nosso centro, foram convidados a responder ao "The Heidelberg Peri-anaesthetic Questionnaire".

Resultados: Noventa e dois questionários foram validados e incluídos na análise. A GA foi utilizada em 60% dos casos. Vinte e nove por cento dos doentes tinham mais de 60 anos e 59% eram mulheres. A SA obteve pior satisfação em 5 itens: item#7 e item#8 - o medo da anestesia e o medo da cirurgia tiveram papel importante; item#11 - antes da cirurgia sentiu um medo incontável; item#14 - o medo ou agitação no momento antes da anestesia foi importante; item#17 - dor na administração da anestesia causou-lhe ansiedade. Os doentes submetidos a GA tiveram pior satisfação quando questionados à cerca

Autor Correspondente/Corresponding Author:

João Tiago Souteiro Rodrigues

Morada: Serviço de Anestesiologia. Centro Hospitalar de Vila Nova de Gaia/Espinho, Rua Conceição Fernandes, 4434-502, Vila Nova de Gaia, Portugal.

E-mail: jtiago.rod@gmail.com

da presença de dor na área da cirurgia, odinofagia, sede e fraqueza muscular após a anestesia.

Discussão: A SA causou um maior sentimento de medo e ansiedade, que parece estar relacionado com a execução da técnica e não com o facto de o doente estar acordado durante a cirurgia. A pior satisfação no grupo da GA é possivelmente explicada pela ocorrência de efeitos secundários decorrentes do uso de um dispositivo na via aérea ou da presença do efeito residual dos anestésicos gerais no período pós-operatório.

Conclusão: Existem diferenças na satisfação dos doentes entre a GA e a SA. Os anestesiológicos devem ter em conta os receios dos doentes em relação à SA. Os efeitos secundários após GA, tais como sede ou dor, devem ser abordados e resolvidos atempadamente, com vista a melhorar os cuidados prestados na unidade de cirurgia de ambulatório.

INTRODUCTION

Over the recent years ambulatory surgery has widespread acceptance around the world, offering patients several advantages (reduced hospital length of stay, less hospital associated infections, faster return to daily activities). Patient morbidity and mortality are now very low and are becoming obsolete outcomes when measuring quality of care in developed countries.¹

Patient satisfaction is an important goal in ambulatory surgery and has been increasingly used as a quality measure to improve overall patient care.²⁻⁴ Satisfaction has been defined as the correlation between expectation and accomplishment. Satisfied patients are more prone to adhere to physician recommendations and are less prone to file professional malpractice suits. A satisfied patient will also recommend the service to his or her friends and relatives.¹ Measuring patient satisfaction is complex, as it involves multifactorial components such as the patient social background, level of literacy, affective issues or even gender.⁵ Several tools can be used to measure patient satisfaction, such as questionnaires, telephone surveys, or face-to-face interviews.^{6,7}

Questionnaires are a simple and quick tool to access patient beliefs regarding their health care.¹ The Heidelberg Peri-anaesthetic Questionnaire is an example of such questionnaires.⁸ It is a multidimensional tool that has already been used in clinical practice and validated to several populations, including the Portuguese one.⁹

Lower limb varicose vein stripping is a frequent procedure performed in day surgery units. Patients submitted to this procedure can be managed with general anaesthesia (GA) or spinal anaesthesia (SA).¹⁰ If the patient has no medical condition that favours one above the other, the choice of anaesthesia often relays on the anaesthesiologist. Therefore, our main goal is to access if there are any differences in

patient satisfaction between these two types of anaesthesia in lower limb varicose vein stripping. We aim to identify those differences and propose strategies that can help improve patient satisfaction with the anaesthetic technique. We also propose to evaluate overall patient satisfaction in our ambulatory unit, in this specific surgical population.

MATERIAL AND METHODS

This is an observational prospective study. Using consecutive convenience sampling from December 2018 to January 2019 (depending if a physician or nurse involved in the study were available), patients submitted to lower limb varicose vein ambulatory surgery in our ambulatory centre were asked to answer “The Heidelberg Peri-anaesthetic Questionnaire”. In the questionnaire, the patient establishes a level of agreement according to a four-point Likert scale (“I totally disagree”; “Disagree”; “Agree”; “I totally agree”) making it impossible to choose a central response. To the four possible questionnaire answers we attributed a number: 1 - I totally disagree; 2 - Disagree; 3 - Agree; 4 - I totally agree. The direction of the sense of satisfaction differs depending on the wording of each item. To best match our ambulatory unit reality and our main study objective we added one item to the questionnaire: “You were awake during surgery and this caused you anxiety” (item #21); and removed an original questionnaire item: “In the night after surgery you felt calm”. The questionnaire also included an introduction where the patient was asked to acknowledge its age, gender, marital status, level of scholarship and if he/she had previously undergone surgery. The adapted questionnaire was handled to the patients before home discharge by a member of the ambulatory surgery unit staff (nurse or physician anaesthesiologist not blinded to the anaesthetic technique) who explained the aim of the study (without revealing that the main goal was to compare general vs spinal anaesthesia) and asked for patient consent. After the patient answered the questionnaire, the staff member registered the type of anaesthesia and the ASA score of the patient in each questionnaire. Patients younger than 18-years-old, those with neuropsychiatric disorders and those who refused to answer were excluded. Numerical variables are presented as means and standard deviations. Categorical variables are presented as percentages. Groups were compared using t-testing for parametric data and the Mann-Whitney-U test was used for non-parametric data. All *p*-values below 0.05 were considered statistically significant. The data was anonymized and analysed using the software IBM SPSS Statistics version 25 for Windows. This study was approved by the local ethical committee.

RESULTS

During December 2018 and January 2019, a total of 171 patients were submitted to lower limb varicose vein stripping

in our ambulatory unit. One hundred and one questionnaires were distributed. Three patients refused to answer and 6 questionnaires were excluded due to invalid or null answers. Therefore, a total of 92 patient's questionnaires were included in the analyses. The patient's characteristics are summarized in Table 1. Twenty-nine percent of the patients were older than 60 years. Most patients were married (52%) and 65% had completed at least 9th grade. The adapted Portuguese validated Heidelberg Peri-anaesthetic Questionnaire handled in our ambulatory unit, with mean overall patient satisfaction (including all patients, both the submitted to GA and SA) is presented in Table 2.

Table 1. Patient characteristics

Total Patients (n)	N = 92
Age (years)	
Mean ± SD	52 ± 11
Gender (%)	
Male	41
Female	59
Marital Status (%)	
Single	16
Married	53
Divorced	27
Widowed	4
Scholarship (%)	
Illiterate	2
1 th to 3 th grade	3
4 th to 8 th grade	30
9 th to 11 th grade	33
12 th grade	16
Bachelor degree or higher	16
Previous surgery (%)	
None	11
One or two surgeries	52
More than two surgeries	37
ASA score (%)	
I	4
II	84
III	12
Type of Anaesthesia (%)	
General anaesthesia	60
Spinal anaesthesia	40

There were differences in patient satisfaction concerning anaesthetic technique (GA vs SA) in 9 items of the questionnaire, all with a negative direction of satisfaction (highest score meaning worse satisfaction). SA scored worse satisfaction in 5 items: item#7 and item#8 - fear of anaesthesia (GA 2.33 vs SA 2.91; $p=0.02$) and fear of surgery was important to you (GA 2.48 vs SA 3.15; $p<0.01$); item#11 - before surgery you felt an uncontrollable fear (GA 2.02 vs SA

2.45; $p=0.02$); item#14 - fear or agitation at the time before anaesthesia was important (GA 2.15 vs SA 2.73; $p=0.01$); item#17 - pain in the administration of anaesthesia caused you anxiety (GA 2.02 vs SA 2.91; $p<0.01$).

GA scored worse satisfaction in 4 items: item#23 - "After waking up/end of anaesthesia, you felt pain in the area where you undergone surgery." (GA 2.65 vs SA 1.88; $p<0.01$); item#28 - "hoarseness or a sore throat was a problem following anaesthesia" (GA 2.04 vs SA 1.58; $p=0.04$); item#29 - "Muscle weakness was a problem after anaesthesia" (GA 2.07 vs SA 1.52; $p=0.01$); item#30 - "thirst was a problem following anaesthesia" (GA 2.04 vs SA 1.58; $p=0.03$). There were no statistical differences in satisfaction in the prior 9 items according to gender, age>60 years, marital status or scholarship > 9th grade ($p>0.05$).

DISCUSSION

In this study we choose to measure patient satisfaction regarding the type of anaesthesia in a specific surgical procedure: varicose vein stripping. We choose this procedure because it is a common surgery performed in day surgery units. Furthermore, both general anaesthesia and spinal anaesthesia can be used, as long as there are no patient specific concerns. We choose the "The Heidelberg Peri-anaesthetic Questionnaire" as it is validated to the Portuguese population and its question items seemed appropriate to attain our primary study objective.^{8,9}

Some studies have already evaluated patient satisfaction regarding type of anaesthesia in ambulatory settings. In a 2009 prospective non-randomized controlled trial comparing local versus general anaesthesia for varicose veins surgery, the assessment of patient satisfaction at six weeks postoperative demonstrated no intergroup difference.¹¹ On the other hand, a 2019 prospective double-centred observational study found that regional anaesthesia is associated with less patient satisfaction compared to general anaesthesia following distal upper extremity surgery.¹² This was attributable to a feeling of insufficient anaesthesia prior to surgery and patient discomfort with their insensate and uncontrollable extremity postoperatively. In another 2017 study comparing spinal anaesthesia versus general anaesthesia with a laryngeal mask airway in patients undergoing radiofrequency ablation for varicose veins, the patient satisfaction with anaesthesia was significantly higher in the general anaesthesia group than in spinal anaesthesia group.¹³ This was justified by the higher prevalence of adverse events such as headache and urinary retention in the spinal anaesthesia group.

Analysing our results, we realize that spinal anaesthesia scored a statistically significant worse satisfaction in a specific dimension of patient satisfaction: fear. Patients felt afraid not only about the anaesthetic delivery, but also felt stressed about surgery. It is important to highlight that these

Table 2. The adapted Portuguese validated Heidelberg Peri-anaesthetic Questionnaire handled in our ambulatory unit, with mean overall patient satisfaction [represented by the mean value (1 to 4 scale) of all 92 patients answers to each question]. The patients had four possible answers: 1 - I totally disagree; 2 - Disagree; 3 - Agree; 4 - I totally agree

	Mean Overall Satisfaction	Direction of Sense of Satisfaction*
1. In the anaesthesia consultation, the waiting time for the anaesthesiologist was long.	2.12	-
2. In the anaesthesia consultation, contact with the anaesthesiologist was made in a pleasant environment.	3.13	+
3. The anaesthesiologist, in the anaesthesia consultation, should be friendlier.	2.10	-
4. The anaesthesiologist, in the anaesthesia consultation, seemed to be in a hurry.	2.22	-
5. The anaesthesiologist, in the anaesthesia consultation, did not provide enough information.	2.13	-
6. The information given by the anaesthesiologist, in the anaesthesia consultation, was easy to perceive.	2.70	+
7. The fear of anaesthesia was important to you.	2.42	-
8. The fear of surgery was important to you.	2.72	-
9. The night before surgery you felt calm.	2.46	+
10. Surgery has been postponed to another day.	1.58	-
11. Before surgery you felt an uncontrollable fear.	2.09	-
12. The waiting time on the day of surgery was long.	2.16	-
13. Feeling alone bothered you.	2.01	-
14. Fear or agitation at the time before anaesthesia was important.	2.33	-
15. Thirst before anaesthesia was a problem for you.	1.76	-
16. You felt cold or tremor in the room where you were anesthetized.	2.04	-
17. Pain in the administration of anaesthesia caused you anxiety.	2.36	-
18. Anaesthesia took place exactly as the anaesthesiologist had explained to you.	2.58	+
19. The environment in the room where you were anesthetized was pleasant.	2.91	+
20. The team members took good care of yourself and were pleasant while you were being anesthetized.	3.10	+
21. You were awake during surgery and this caused you anxiety.	1.78	-
22. The wake up/end of anaesthesia was comfortable.	2.78	+
23. After waking up/end of anaesthesia, you felt pain in the area where you undergone surgery.	2.34	-
24. There was no pain or almost any pain in other areas of the body after surgery (e.g., head).	2.51	+
25. Team members showed they were truly concerned about your pain.	2.94	+
26. Team members quickly relieved their pain.	2.97	+
27. Nausea or vomiting was a problem after anaesthesia.	1.79	-
28. Hoarseness or sore throat was a problem after anaesthesia.	1.79	-
29. Muscle weakness was a problem after anaesthesia.	1.78	-
30. Thirst was a problem after anaesthesia.	1.78	-
31. An urgent need to urinate was a problem for you.	2.18	-
32. The feeling of cold or tremor was a problem after anaesthesia.	2.28	-
33. It was hard to breathe after anaesthesia.	1.57	-
34. Tiredness or inability to concentrate was a problem after anaesthesia.	1.66	-
35. Immediately after waking up/end of anaesthesia, team members were available to help you.	3.22	+
36. The members of the post anaesthesia care unit were friendly.	3.42	+
37. Recovery after anaesthesia went well.	3.33	+
38. You felt you could trust the anaesthesia team.	3.40	+
39. You could be sure that the anaesthesiologist made the decisions taking into account the patient's best interest.	3.45	+

* Direction of sense of satisfaction: "+" sign when higher score means better satisfaction; "-" sign when lower score means better satisfaction

differences occurred despite the groups were similar in terms of gender, age, marital status or scholarship ($p>0.05$). Spinal anaesthesia requires a collaborative and almost immobile patient while it is being performed, and multiple puncture attempts in the patient's back may be needed for successful anaesthetic delivery. This may be a cause of stress and pain when administering anaesthesia. Erroneous perceptions and assumptions about spinal anaesthesia (such as permanent neurological deficits) may also play a role.¹⁴ It is interesting to note that in item#21 ("You were awake during surgery and this caused you anxiety") patients submitted to spinal anaesthesia revealed a good level of satisfaction (2.12 of mean overall satisfaction in a negative sense of direction item). This may indicate that fear and stress of the patients about spinal anaesthesia is more related to the execution of the technique rather than being awake during surgery.

Patients receiving general anaesthesia complained more about pain in the area of surgery after waking up from anaesthesia. We hypothesize that patients with a spinal anaesthetic are more likely to still have a complete sensitive block when waking up, consequently experiencing no pain. Patients in general anaesthesia group also complained more about hoarseness or a sore throat (possibly due to the presence of an airway device) and of weakness of the muscles following anaesthesia (due to possible residual presence of general anaesthetic drugs).

Based on these results, we can propose several strategies to minimize patient stress with spinal anaesthesia, some of which are already described in literature.^{2,15,16} Patients should be actively enrolled in the choice of the anaesthetic and their preferences must be considered. All steps of anaesthesia must be explained beforehand, including a description of the technique and myth debunking. Although we obtained a mean value of satisfaction above the average of 2.5 in the item#18 "Anaesthesia took place exactly as the anaesthesiologist had explained to you" (mean overall satisfaction of 2.58), we consider that this value may be an indicator that the information provided by the anaesthesiologist about the steps of the anaesthetic technique can be improved. Information regarding types and expected frequency of side effects must also be addressed. Patients should be reassured about the safety of spinal anaesthesia. They can additionally be informed about certain advantages of the technique, such as the ability to observe certain aspects of their procedure and have the opportunity to interact with the surgeon. This can have psychological benefits and improve patient satisfaction.¹⁷ Regarding the overall questionnaire results, we obtained a positive level of satisfaction within our ambulatory unit. In all except two items (item#8 - "the fear of surgery was important to you"; and item#9 - "the night before surgery you felt calm") the mean satisfaction was higher than the mean central response. We highlight that the patients demonstrated an

elevated level of satisfaction in the "team" dimension, feeling greatly reassured and supported by the nurses and physicians (items 35 to 39). This acknowledges and strengthens the professionalism and quality care provided by the staff of our ambulatory unit.

We recognize some limitations in our study: we do not describe if there were technical difficulties when performing spinal anaesthesia (which can influence some of the questionnaire answers) nor identified what type of airway device and if neuromuscular block/monitoring was used in the general anaesthesia group (which could help explain the complains of sore throat and muscle weakness). Despite these limitations, the results of this study reveal that fear, anxiety and some specific post-operative side effects are significant factors decreasing patient satisfaction in our centre. Those issues should be addressed in all the patients performing anaesthesia and surgery in ambulatory units.

In the future, we reinforce the need of continually performing quality care surveys, aiming to find specific factors that could be involved in low patient satisfaction. This way, we can identify those factors and act on improving them.

CONCLUSION

We identified several differences in patient satisfaction between spinal and general anaesthesia in patients submitted to lower limb varicose vein stripping, in the ambulatory setting. Spinal anaesthesia caused a greater feeling of stress and anxiety. Possible strategies to improve spinal anaesthesia satisfaction may include active identification and reassurance of patient specific fears concerning anaesthesia and surgery. In patients submitted to general anaesthesia, post-operative issues such as pain and thirst should be promptly identified in the post anaesthetic unit, with the ultimate goal of obtaining a higher level of satisfaction and an improved quality of care. Our global satisfaction score acknowledges the professionalism and quality care provided by the staff of our ambulatory unit.

Ethical Disclosures

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seguidos estavam de acordo com os regulamentos estabelecidos pelos responsáveis da Comissão de Investigação Clínica e Ética e de acordo com a Declaração de Helsínquia da Associação Médica Mundial.

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ORCID

João Rodrigues  <https://orcid.org/0000-0001-5456-116X>

Inês Morais  <https://orcid.org/0000-0002-0267-7117>

Cláudia Peixoto  <https://orcid.org/0000-0001-8789-1499>

Inês Sousa  <https://orcid.org/0000-0003-3653-9182>

Ana Morais  <https://orcid.org/0000-0002-1640-9906>

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