ARTIGO ORIGINAL

Patient Satisfaction with Anesthesia Care After Curative Surgery for Neoplastic

Satisfação com os Cuidados Anestésicos Após Tratamento Cirúrgico de Neoplasias

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ABSTRACT

Introduction: Satisfaction is an important measure for the evaluation of patient care and a significant tool for promoting improvements in clinical practice. We aimed to evaluate the association of quality of recovery and anesthesia related factors with patient satisfaction with anesthesia care (PSAC) after curative neoplastic surgery.

Material and Methods: An observational, prospective study was performed in patients scheduled for neoplastic curative surgery. PSAC was evaluated on day 3 after surgery using a five-point Likert scale, and patients were grouped according to their score: those with Complete Satisfaction who rated 5 points, and those with Incomplete Satisfaction who rated < 5. Perioperative demographic data, type of anesthesia and Quality of Recovery 15 score (QoR-15) were recorded and evaluated in both groups. The QoR-15 was performed before surgery (T0) and 24 hours after surgery (T1).

Results: One hundred thirty-three patients of the 148 total included completed the questionnaires. Completed satisfaction was observed in 85% of the patients and was more frequent in patients submitted to general anesthesia ($p = 0.014$). When comparing the total QoR-15 score by groups, there were no differences at both T0 (130 vs 126.6, $p = 0.932$) and T1 (114 vs 118,5, $p = 0.233$). At T1, the QoR-15 showed that patients with incomplete satisfaction felt less rested (9 vs 7, $p = 0.041$) and more worried and anxious (10 vs 8, $p = 0.040$).

Discussion and Conclusion: In our study, we found a global high rate satisfaction with anesthesia care in neoplastic patient, which was increased in those submitted to general anesthesia. Patient satisfaction with anesthesia care was not related with the QoR-15.

RESUMO

Introdução: Satisfação é uma medida importante para avaliação dos cuidados prestados, que permite melhorar a prática clínica. O objetivo do estudo foi avaliar a associação da qualidade do recobro e do procedimento anestésico com a satisfação dos doentes.

Material e Métodos: Foi realizado um estudo prospetivo observacional em doentes propostos para cirurgia neoplásica curativa. A satisfação com os cuidados anestésicos foi avaliada 3 dias após a cirurgia, utilizando uma escala Likert de 5 pontos e os doentes foram agrupados de acordo com a pontuação obtida: satisfação completa se pontuaram com 5 pontos e satisfação incompleta se pontuaram com menos de 5 pontos. Os dados demográficos perioperatórios, tipo de anestesia e *scores* na escala *Quality of Recovery* (QoR) - 15 foram recolhidos e avaliados em ambos os grupos. A escala QOR-15 foi aplicada antes da cirurgia (T0) e 24 horas após a cirurgia (T1).

Resultados: De um total de 148 doentes, 133 completaram os questionários. A satisfação completa foi observada em 85% dos doentes e foi mais frequente naqueles submetidos a anestesia geral ($p = 0,014$). Comparando o *score* total da escala QoR-15 por grupos, não houve diferenças em T0 (130 *vs* 126,6, $p = 0,932$) e T1 (114 *vs* 118,5, $p = 0,233$). Em T1, o QoR-15 mostrou que pacientes com satisfação incompleta se sentiam menos descansados (9 *vs* 7, $p = 0,041$) e mais preocupados e ansiosos (10 *vs* 8, $p = 0,040$).

Discussão e Conclusão: No nosso estudo, encontrámos uma elevada satisfação global com os cuidados anestésicos em doentes neoplásicos, que foi maior naqueles submetidos a anestesia geral. A satisfação do doente com os cuidados anestésicos não se relacionou com a qualidade do recobro avaliada pelo QoR-15.

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INTRODUCTION

The assessment of patient satisfaction with anesthesia care (PSAC) is an important tool to evaluate health care quality, motivating improvements in clinical practice.

PSAC represents an evaluation of the healthcare and can be used to assess its real impact on the patient's quality of care. Previous studies reported that PSAC is usually considered very high.[1-7]

Many factors must be considered when evaluating PSAC, including accessibility of services, institutional structure, interpersonal relationships, competence of health professionals, patient's own expectations and type of anesthesia. Neoplastic patients are a more fragile population and pose a particular challenge; it is crucial to evaluate PSAC in order to improve our practice in this group of patients. The psychological distress, fear, anxiety about postoperative results and changes in their quality of life are important issues that affect satisfaction of a patient with neoplastic disease after surgery.[8-10]

Quality of recovery (QoR) after anesthesia can be measured by several instruments,[1,4,11] which can provide helpful insights into how patients feel about their recovery.[12,13] Myles *et al* developed an instrument to evaluate QoR consisting of a comprehensive 40-item score questionnaire (QoR-40).[1] The QoR-40 is a global measure of QoR, which demonstrates high validation and reliability and is usually completed under 10 minutes. This instrument has been the most widely used to measure patient-assessed QoR after surgery.[14-16] Later, a shorter version of the QoR-40 was developed, the Quality of Recovery 15 score (QoR-15), equally validated and reliable and less time consuming (mean: 2.5 minutes) to evaluate patients QoR after anesthesia and surgery.[11,17]

Recovery after surgery and anesthesia is a multifactorial process related with patient, surgical and anesthesia factors, as well as the presence of adverse events. Although QoR after anesthesia is an important measure of the early postoperative health status from patient's perspective, few studies have been done to evaluate its impact in PSAC in neoplastic patients.

Therefore, we aimed to evaluate the association of QoR with PSAC after curative neoplastic surgery. Additionally, we aimed to assess the impact of anesthesia related factors on PSAC.

MATERIAL AND METHODS

After the approval of the institutional ethics committee, a prospective observational study was performed at a University Hospital with 1200 beds to evaluate the association of QoR and anesthesia-related factors with PSAC.

We included patients scheduled for neoplastic curative surgery in plastic, gynecologic, urologic and general surgery, between March and September 2016. These patients were admitted at the Post Anesthetic Care Unit (PACU) immediately after the intervention. Patients unable to give informed consent, admitted to the Intensive Care Unit or those with less than 18 years of age were excluded from our study.

In order to evaluate the QoR, the Portuguese version of the QoR-15 was performed by anesthesiologists for all included patients at T0 (before surgery) and at T1 (day 1 after surgery).[16] QoR-15 includes 15 questions with an 11-point numerical scale between 0 and 10 with a total score ranging from 0 (poor recovery) to 150 (excellent recovery). It assesses several dimensions such as pain, physical comfort, physical independence, psychological support and emotional state.[11,17] Poor quality of recovery was defined as a QoR-15 score lower than the mean score at T1 minus 1 standard deviation, which represents a score of less than 90 points.

Regarding PSAC, patients were asked to provide a score on a five-point response Likert scale on the third postoperative day: completely satisfied; moderately satisfied; neither satisfied nor unsatisfied; moderately unsatisfied; completely unsatisfied. Patients were grouped into: those with Complete Satisfaction (COMP_SAT), which included patients who answered completely satisfied, and those with Incomplete Satisfaction (INCOMP_SAT), in which all four responses other than 'completely satisfied' were included.

The influence of the QoR on PSAC was evaluated with QoR-15 score in COMP_SAT and INCOMP_SAT groups. Additionally, we analyzed the impact of several patient's characteristics on satisfaction namely, age, weight, height, body mass index, comorbidities, usual medication, education, American Society of Anesthesiology (ASA) status, medical history, Revised Cardiovascular Risk Index (RCRI),[18] duration of surgery, PACU length of stay and hospital length of stay. The impact of the type and duration of anesthesia on PSAC was also studied.

Statistical Analysis

A descriptive analysis of variables was used to summarize the data. Ordinal and continuous data are presented as medians and interquartile ranges, since they do not follow a normal distribution. The Mann-Whitney U, the Chi-square and Fisher's exact tests were used for comparisons. Differences were considered statistically significant when *p* value < 0.05. The statistical software SPSS version 22.0 for Windows (SPSS, Chicago, IL) was used to analyze the data.

RESULTS

After applying the exclusion criteria, 133 patients were included in our study. Regarding PSAC, 85% (n=113) of the patients were COMP_SAT with the anesthetic care provided by our institution.

The baseline characteristics of the included patients, according to patient satisfaction, are displayed in Table 1. There were no differences between COMP_SAT and INCOMP_SAT groups

Table 1. Patient characteristics, according to their satisfaction with anesthetic care

Variables	INCOMP_SAT (n= 20)	COMP_SAT (n= 113)	p value
Age in years, *Median (IQR)*	71 (58-79)	63 (54-73)	0.08[a]
Age Group, *n (%)*			0.16[b]
<65 Years	7 (35)	59 (52)	
≥65 Years	13 (65)	54 (48)	
Gender, *n (%)*			0.21[b]
Male	11 (55)	45 (40)	
Female	9 (45)	68 (60)	
ASA Physical Status, *n (%)*			0,42[b]
≤II	12 (60)	78 (69)	
≥III	8 (40)	35 (31)	
BMI in kg/M², *Median (IQR)*	25 (23-28)	26 (23-29)	0.38[a]
Comorbidities/Medication, *n (%)*			
Coronary Disease	3 (15)	14 (12)	0.72[c]
Cardiac Failure	3 (15)	10 (9)	0.41[c]
Diabetes Mellitus	1 (5)	6 (5)	1.00[c]
Chronic Renal Failure	1 (5)	4 (4)	0.22c
Cerebrovascular Disease	1 (5)	1 (1)	0.28[c]
Benzodiazepines Therapy	4 (20)	23 (20)	1.00[c]
Pre-medication with Benzodiazepines	4 (20)	22 (19)	1.00[c]
RCRI score, *n (%)*			0.18[c]
≤2	15 (75)	98 (87)	
≥3	5 (25)	15 (13)	
Duration of Surgery (Min.), *Median (IQR)*	109 (53-151)	120 (89-173)	0.17[a]
PACU Length of Stay (Minutes), *Median (IQR)*	160 (106-1000)	130 (90-212)	0.35[a]
Hospital Length of Stay (Days), *Median (IQR)*	6 (2-7)	7 (2-8)	0.26[a]

COMP_SATISF – Complete Satisfaction;
INCOMP_SATIS – Incomplete Satisfaction;
IQR- Interquartile Range;
ASA- American Society of Anesthesiologists;
BMI- Body mass index;
RCRI- Revised Cardiovascular Risk Index;
PACU- Post Anesthetic Care Unit;
a- Mann-Whitney U test; b- Pearson Chi-Square; c- Fisher's Exact Test.

Table 2. Anesthesia characteristics, according to patient satisfaction with anesthetic care

Variables	INCOMP_SAT (n= 20)	COMP_SAT (n= 113)	p value
Type Of Anesthesia, *n (%)*			**0.01[b]**
General	9 (45)	82 (73)	
Regional/Combined Anesthesia	11 (55)	31 (27)	
Duration of Anesthesia (Min.), *Median (IQR)*	135 (65-180)	150 (120-210)	0.10[a]

COMP_SAT - Complete Satisfaction;
INCOMP_SAT - Incomplete Satisfaction;
IQR- Interquartile Range;
a- Mann-Whitney U test; b- Pearson Chi-Square

Table 3. QoR-15 score at T0 (before surgery), according to patient satisfaction with anesthetic care

QoR 15 at T0 per question, *Median (IQR)*	INCOMP_SAT (n= 20)	COMP_SAT (n= 113)	p value*
1. Able To Breathe Easily	10 (9-10)	10 (10-10)	0.79
2. Been Able To Enjoy Food	10 (9-10)	10 (10-10)	0.87
3. Feeling Rested	8 (5-10)	8 (5-10)	0.87
4. Have Had A Good Sleep	6 (4-10)	7 (5-10)	0.25
5. Abel To Look After Personal Hygiene Unaided	10 (10-10)	10 (10-10)	0.92
6. Able To Communicate To Family And Friends	10 (10-10)	10 (10-10)	0.93
7. Getting Support From Hospital, Doctors And Nurses	10 (10-10)	10 (10-10)	0.91
8. Able To Return To Work Or Usual Home Activities	10 (10-10)	10 (6-10)	0.16
9. Feeling Comfortable And In Control	8.5 (7-10)	10 (7-10)	0.28
10. Having A Feeling Of General Well-Being	8 (5-10)	8 (6-10)	0.67
11. Moderate Pain	10 (10-10)	10 (9-10)	0.13
12. Severe Pain	10 (10-10)	10 (10-10)	0.71
13. Nausea Or Vomiting	10 (10-10)	10 (10-10)	0.25
14. Feeling Worried Or Anxious	5 (2 -8)	5 (2-8)	0.79
15. Feeling Sad Or Depressed	6 (4-10)	7 (5-10)	0.59
QoR score total	127 (114-140)	130 (114-138)	0.93

COMP_SAT - Complete Satisfaction;
INCOMP_SAT - Incomplete Satisfaction;
QoR- Quality of Recovery;
T0 - before surgery;
IQR - Interquartile Range;
a- Mann-Whitney U test.

in terms of demographic characteristics, such as age ($p = 0.08$), gender ($p = 0.21$), ASA physical status ($p = 0.43$) and body mass index ($p = 0.38$). We also found no differences in the duration of surgery (120 vs 108.5 minutes, $p = 0.17$), PACU length of stay (130 vs 160 minutes, $p = 0.35$) and hospital length of stay (7 vs 6 days, $p = 0.23$). Regarding comorbidities, there were no differences between the groups for coronary disease ($p = 0.72$), cardiac failure ($p = 0.41$), diabetes mellitus ($p = 1.00$), chronic renal failure ($p = 0.22$); cerebrovascular disease ($p = 0.28$) and RCRI score ($p = 0.18$). We found no differences regarding medication, namely benzodiazepines therapy ($p = 1.00$) and pre-medication with benzodiazepines ($p = 1.00$). As for the association of type of anesthesia and PSAC, the COMP_SAT group was more frequently submitted to general anesthesia (73% vs 27%, $p = 0.01$). There were no differences

related to the duration of anesthesia (150 vs 135 minutes, $p = 0.10$) (Table 2). Concerning QoR-15, all patients presented a score higher than 90 points, which implies a good QoR. The baseline QoR-15 median scores (at T0) for each item of the questionnaire did not present differences between COMP_SAT and INCOMP_SAT groups (Table 3). However, at T1 (Table 4), INCOMP_SAT group felt less rested ($p = 0.04$) and more worried and anxious ($p = 0.04$) (Table 4). When comparing the total QoR-15 scores, there were no differences at both groups at T0 (130 vs 127, $p = 0.93$) and at T1 (114 vs 119, $p = 0.23$).

Table 4. QoR-15 score at T1 (24 hours after surgery), according to patient satisfaction with anesthetic care

QoR-15 at T1 per question, *Median (IQR)*	INCOMP_SAT (n= 20)	COMP_SAT (n= 113)	*p* value*
1. Able To Breathe Easily	10 (9.25-10)	10 (9-10)	0.50
2. Been Able To Enjoy Food	10 (4.25-10)	7 (1-10)	0.06
3. Feeling Rested	7 (7.25-10)	9 (5-10)	**0.04**
4. Have Had A Good Sleep	6.5 (5-10)	7 (5-9)	0.92
5. Abel To Look After Personal Hygiene Unaided	3 (2-9.75)	6.5 (2.25-10)	0.24
6. Able To Communicate To Family And Friends	10 (10-10)	10 (9.25-10)	0.36
7. Getting Support From Hospital, Doctors And Nurses	10 (9-10)	10 (9-10)	0.92
8. Able To Return To Work Or Usual Home Activities	5 (2-9.75)	5 (2-8)	0.92
9. Feeling Comfortable And In Control	8 (5.25-10)	8 (5-10)	0.99
10. Having A Feeling Of General Well-Being	7 (5-9)	8 (5-9)	0.45
11. Moderate Pain	10 (8-10)	8 (5-10)	0.07
12. Severe Pain	10 (10-10)	10 (10-10)	0.15
13. Nausea Or Vomiting	10 (5-10)	10 (6-10)	0.90
14. Feeling Worried Or Anxious	8 (5-10)	10 (9-10)	**0.04**
15. Feeling Sad Or Depressed	8 (5-10)	9.5 (4.25-10)	0.31
QoR score total	119 (105-130)	114 (98-127)	0.23

COMP_SAT - Complete Satisfaction;
INCOMP_SAT - Incomplete Satisfaction;
QoR- Quality of Recovery;
T1- 24 hours after surgery;
IQR- Interquartile Range;
a- Mann-Whitney U test.

DISCUSSION

PSAC is an outcome measure used in clinical trials, and should be considered an increasingly important component of the assessment of the quality of health care services.[7,18] Its measurement is also a major tool for promoting improvements in clinical care, providing an evaluation of the quality of anesthesia practice.[3]

Satisfaction with health care is usually reported as very high.[1-7,10,19] Myles *et al* conducted an observational study in which 10 000 patients were analyzed; 96.8% of these patients reported high rates of overall satisfaction on the first day after operation.[2] Other studies have shown similar high levels of satisfaction in different patient populations.[4,20-23]

We found an incidence of PSAC of 85%, which is in agreement with the literature. In settings of high-risk clinical situations, such as cancer, these high satisfaction rates may be related to the sense of relief that the procedure was completed safely.[7] Moreover, patients may be unwilling to criticize their doctors and nurses. This may occur because they trust in the healthcare system or because they are afraid to compromise any future care.[6] These reasons may contribute to the high levels of patient satisfaction found in studies in which satisfaction rates were obtained from hospitalized patients through personal questionnaires.[7,24,25]

In terms of the collected demographic data, there were no differences between the groups for both patient age and gender, ASA physical status and duration of the surgery. The results of the present study are not concordant with those of Dina *et al*, who found differences regarding gender, ASA physical status scoring and educational level. They found female dissatisfaction was significantly higher than male dissatisfaction.[20] Also, patients with ASA I–II were significantly less satisfied than ASA III patients, and a higher level of education was associated with lower satisfaction rates. The authors proposed a possible explanation for these findings that may be related to the fact that female patients were more prone to postoperative nausea and vomiting, have a lower threshold for pain and expressed more fears and different concerns about anesthesia than men.[16,24,25]

In our study, complete satisfaction was more frequent with general anesthesia compared to regional or combined anesthesia (73% vs 27%, p = 0.01). Our results are corroborated by Lehmann *et al*, which might reflect a higher comfort and lesser anxiety with general anesthesia.[23] However, the performance of regional anesthesia (RA), including providing the patients with adequate knowledge about the technique to mitigate some fears and doubts is a useful way to improve results and satisfaction with this type of anesthesia, with less pain, anxiety and discomfort related to the technique. In patients who had previously expressed doubts about the technique and consequently were less satisfied with it, the combination of adequate sedation and the correct anesthetic procedure may favor patient acceptance of RA and improve satisfaction results with these techniques.[23]

Multiple factors can affect the assessment of satisfaction such as preoperative expectations,[19] interactions and empathy between patients and staff,[14] the information given and perceived by patients,[21,22] and surgical outcome,[2,21] independent of the actual anesthesia delivery. As previously described by Capuzzo *et al*,[22] giving patients more than standard care, such as dedicated nursing attention and more than two postoperative visits by an anesthesiologist, were independent predictors of satisfaction.

QoR is described as being related to patient satisfaction and quality of life, which might have an influence on patients outcomes.[3,13] When comparing the total QoR-15 score between groups, there were no differences at both T0 and T1. The two groups did not differ for any QoR-15 question at T0. At T1, patients with incomplete satisfaction felt less rested and more worried and anxious, in accordance with what may be expected in a dissatisfied patient. Our findings suggest that Satisfaction is a poor discriminator of the quality of recovery, which is in concordance with common findings from satisfaction surveys in which the incidence of complete satisfaction is high.[2,4,21-23]

There are some limitations in our study. The concept

of Satisfaction is a subjective rather than an objective measurement, being a poor discriminator of the quality of recovery after anesthetic care. Current measures of satisfaction in anesthesia care suffer from a lack of refinement and have uncertain reliability and validity. Cross-sectional surveys using a single question with a five-point Likert rating scale[23-25] have yielded uniformly high scores (>80% satisfied or very satisfied). These results, however, may be influenced and biased by the satisfaction with hospital or surgical care, the survival with the procedure or the gratitude and confidence with health care providers. Neoplastic patients may have more fears and greatest expectations for disease improvement with the surgery, which could explain the high rates of satisfaction in our study. This could limit the utility of simple measures of patient satisfaction in anesthesia.[7] On the other hand, the size of our sample is potentially small to assess such a large number of variables.[1] Furthermore, as we divided the sample into only two groups, we might have lost more subtle degrees of incomplete satisfaction.[7,23] Finally, our patients were submitted to neoplastic surgery in many different surgical areas, with a great variety in respect to magnitude and surgical risk, leading us to a heterogeneous group.

CONCLUSION

In our study, neoplastic patients presented a global high rate of PSAC and good QoR. Type of anesthesia played an important role in neoplastic PSAC and those submitted to general anesthesia had higher rates of PSAC. No differences were found between groups with respect to QoR, suggesting that PSAC was not influenced by the QoR.

REFERENCES

1. Royse CF, Chung F, Newman S, Stygall J, Wilkinson DJ. Predictors of patient satisfaction with anesthesia and surgery care: A cohort study using the postoperative quality of recovery scale. Eur J Anaesthesiol. 2013;30:106-10. doi:10.1097/EJA.0b013e328357e584.
2. Myles PS, Williams DL, Hendrata M, Anderson H, Weeks AM. Patient satisfaction after anesthesia and surgery: results of a prospective survey of 10,811 patients. Br J Anaesth. 2000; 84:6-10. doi:10.1093/oxfordjournals.bja.a013383.
3. Barnett SF, Alagar RK, Grocott MP, Giannaris S, Dick JR, Moonesinghe SR. Patient-satisfaction measures in anesthesia: Qualitative systematic review. Anesthesiology. 2013; 119:452-78. doi:10.1097/ALN.0b013e3182976014.
4. Royse CF, Newman S, Chung F, Stygall J, McKay RE, Boldt J, et al. Development and feasibility of a scale to assess postoperative recovery: The post-operative quality recovery scale. Anesthesiology. 2010; 113:892-905. doi:10.1097/ALN.0b013e3181d960a9.
5. Donabedian A. The quality of care: how can it be assessed? J Am Med Assoc. 1998;260:1743-8. doi:10.1001/jama.1988.03410120089033.
6. Pascoe G. Patient satisfaction in primary health care: a literature review and analysis. Eval Program Plann. 1983;6:185-210. doi:10.1016/0149-7189(83)90002-2.
7. Fung D, Cohen MM. Measuring Patient Satisfaction with Anesthesia Care. Anesth Analg. 1998;87:1089-98. doi:10.1213/00000539-199811000-00020.
8. Westbrook JI. Patient satisfaction: methodological issues and research findings. Aust Health Rev. 1993; 16:75-88.
9. Hall JA, Dornan MC. What patients like about their medical care and how often they are asked: A meta-analysis of the satisfaction literature. Soc Sci Med. 1988;27:935-9. doi:10.1016/0277-9536(88)90284-5.
10. Ward SE, Gordon D. Application of the American Pain Society quality assurance standards. Pain.1994; 56:299-306. doi:10.1016/0304-3959(94)90168-6.
11. Stark PA, Myles PS, Burke JA. Development and psychometric evaluation of a postoperative quality of recovery score: The QoR-15. Anesthesiology.2013; 118:1332-40. doi:10.1097/ALN.0b013e318289b84b.
12. Bauer M, Böhrer H, Aichele G, Bach A, Martin E. Measuring patient satisfaction with anesthesia: Perioperative questionnaire versus standardised face-to-face interview. Acta Anaesthesiol Scand. 2001; 45:65-72. doi:10.1034/j.1399-6576.2001.450111.x.
13. Myles PS, Hunt JO, Nightingale CE, Fletcher H, Beh T, Nagy A, et al. Development and psychometric testing of a quality of recovery score after general anesthesia and surgery in adults. Anesth Analg. 1999; 88:83-90. doi:10.1213/00000539-199901000-00016.
14. Gower ST, Quigg CA, Hunt JO, Wallace SK, Myles PS. A comparison of patient self-administered and investigator-administered measurement of quality of recovery using the QoR-40. Anaesth Intensive Care. 2006; 34:634-8.
15. Gornall BF, Myles PS, Smith CL, Burke JA, Leslie K, Pereira MJ, et al. Measurement of quality of recovery using the QoR-40: A quantitative systematic review. Br J Anaesth. 2013;111:161-9. doi:10.1093/bja/aet014.
16. Sá AC, Sousa G, Santos A, Santos C, Abelha FJ. Quality of Recovery after Anesthesia: Validation of the Portuguese Version of the "Quality of Recovery 15" Questionnaire. Acta Med Port. 2015;28:567-74.
17. Lee A, Lum ME. Measuring anesthetic outcomes. Anaesth Intensive Care. 1996; 24:685-93.
18. Lee TH, Marcantonio ER, Mangione CM, Thomas EJ, Polanczyk CA, Cook EF, et al. Derivation and Prospective Validation of a Simple Index for Prediction of Cardiac Risk of Major Noncardiac Surgery. Circulation. 1999; 100:1043-9. doi:10.1161/01.CIR.100.10.1043.
19. Fitzpatrick R. Surveys of patient satisfaction: II--Designing a questionnaire and conducting a survey. BMJ. 1991;302:1129-32. doi:10.1136/bmj.302.6785.1129.
20. Ginosar Y, Davidson EM, Firman N, Meroz Y, Lemmens H, Weiniger CF. A randomized controlled trial using patient-controlled epidural analgesia with 0.25% versus 0.0625% bupivacaine in nulliparous labor: effect on analgesia requirement and maternal satisfaction. Int J Obstet Anesth. 2010; 19:171-8. doi:10.1016/j.ijoa.2009.11.002.
21. Lemos P, Pinto A, Morais G, Pereira J, Loureiro R, Teixeira S, Nunes CS. Patient satisfaction following day surgery. J Clin Anesth. 2009;21:200-5. doi:10.1016/j.jclinane.2008.08.016.
22. Capuzzo M, Gilli G, Paparella L, Gritti G, Gambi D, Bianconi M, et al. Factors predictive of patient satisfaction with anesthesia. Anesth Analg. 2007;105:435-42. doi:10.1213/01.ane.0000270208.99982.88.
23. Lehmann M, Monte K, Barach P, Kindler CH. Postoperative patient complaints: a prospective interview study of 12,276 patients. J Clin Anesth. 2010;22:13-21. doi:10.1016/j.jclinane.2009.02.015.
24. Dodds CP, Harding MI, More DG. Anesthesia in an Australian private hospital: The consumer's view. Anaesth Intensive Care. 1985; 13:325-9.
25. Keep PJ, Jenkins JR. From the other end of the needle. The patient's experience of routine anesthesia. Anesthesia. 1978; 33:830-2