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SCIENTIFIC ARTICLE

Anesthesiologist: the patient's perception



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KEYWORDS

Anesthesiology;
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Abstract

Background and objectives: Anesthesia is still a major concern for patients, although the anesthetic complications have decreased significantly. Additionally, the role assigned to the anesthesiologist remains inaccurate. The aim of this study was to evaluate the concerns with anesthesia and assess the patient's knowledge about the anesthesiologist's duties.

Methods: Prospective study conducted over three months with patients in the preoperative anesthetic visit in a university hospital. Demographic information about the level of education and prior anesthesia was obtained. The knowledge of patients regarding the anesthesiologists' education was evaluated. Patients' concerns and anesthesiologist and surgeon responsibilities were classified with a 5-point scale. The analysis was performed with SPSS 21, and $p < 0.05$ was considered statistically significant.

Results: We included 204 patients, and 135 (66.2%) recognized the anesthesiologist as a specialist physician. Not waking up after surgery and postoperative infection were the main concerns compared to all others ($p < 0.05$). Women expressed more concern than men about not waking up after surgery, nausea and postoperative vomiting, medical problems, and waking up during surgery ($p < 0.05$). Ensure that patients do not wake up during surgery was the anesthesiologist task most recognized, compared to all other ($p < 0.05$). The surgeon was more recognized ($p < 0.05$) than the anesthesiologist in post-operative, antibiotics administration, and blood transfusions pain management.

Conclusions: Patients need to be informed about the current safety of anesthesia and the anesthesiologist's functions. The patient involvement will demystify some fears and reassure the confidence in the health system.

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PALAVRAS-CHAVE

Anestesiologia;
Relação
médico–doente;
Satisfação do doente

O anesthesiologista: a visão do doente**Resumo**

Justificativa/objetivos: A anestesia ainda é uma preocupação importante para os doentes, embora as complicações anestésicas tenham diminuído significativamente. Adicionalmente, o papel atribuído ao anesthesiologista permanece impreciso. Avaliar as preocupações com a anestesia e verificar o conhecimento dos doentes acerca das funções do anesthesiologista foram os objetivos deste estudo.

Métodos: Estudo prospetivo decorrido durante 3 meses em doentes com consulta de anestesia pré-operatória num Hospital Universitário. Foi questionada informação demográfica, nível de educação e anestesia prévia. Foi avaliado o conhecimento dos doentes relativamente à educação do anesthesiologista. As preocupações dos doentes, responsabilidades dos anesthesiologistas e cirurgiões foram classificadas usando uma escala de 5 pontos. A análise foi realizada com SPSS 21, $p < 0,05$ foi considerado estatisticamente significativo.

Resultados: Foram incluídos 204 doentes. 135 (66,2%) reconheceram o anesthesiologista como médico especialista. Não acordar após a cirurgia e infeção pós-operatória foram as principais preocupações, comparativamente a todas as outras ($p < 0,05$). As mulheres manifestaram maior preocupação do que os homens com ($p < 0,05$): não acordar após a cirurgia, náuseas e vômitos pós-operatórios, problemas médicos e acordar durante a cirurgia. Assegurar que os doentes não acordem durante a cirurgia foi a tarefa mais reconhecida no anesthesiologista, comparativamente a todas as outras ($p < 0,05$). O cirurgião foi mais reconhecido ($p < 0,05$) do que o anesthesiologista na gestão da dor pós-operatória, administração de antibióticos e transfusões sanguíneas.

Conclusões: Os doentes necessitam de ser informados acerca da atual segurança da anestesia e sobre as funções do anesthesiologista. Envolver o doente irá desmistificar alguns receios e reassegurar a confiança no sistema de saúde.

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Introduction

Understanding the role of the anesthesiologist and its recognition in the eyes of the contemporary world has been an undervalued subject, being considered as a “behind the screen” specialty, in which the main actor is the surgeon and the anesthesiologist has only a secondary function.^{1–3}

Despite several studies on patients’ perception of anesthesiology, there has been no significant evolution in the results or efforts to expose this area of interest to the general public.^{1–7} The lack of patients’ knowledge is not limited to the anesthesiologist’s role in the operating room, but also to his functions in intensive care units (ICU), pain management, and teaching medical students.^{1–6} Patients’ concerns about anesthesia were also the subject of several studies in recent years, and although the development of anesthesia has significantly decreased the incidence of complications, it is still a major cause of concern.^{1,6,8,9} Moreover, most studies comparing the knowledge of patients with and without anesthetic experience does not show significant differences in the results, which may translate limitations in patient–anesthesiologist relationship.^{3,10}

With the recent explosion of information through the media and internet, one would expect the recognition of anesthesiology. This was an area of great development in recent years, which allowed boosting numerous surgical techniques and overcome physiological obstacles.^{2,5,7}

However, we assume that the dissemination and appreciation of this medical specialty is not successful and, as such, to prepare an action plan we must first evaluate what needs to be debated. Thus, it is important to know the patients’ perception of the anesthesiologist, so that we can promote measures that strengthen the relationship of trust between doctor and patient, demystify the perioperative processes causing anxiety, and clarify the role of the anesthesiologist as an important resource investment area.

In this line of thought, our study aimed to assess the patient’s knowledge of the anesthesiologist’s role, concerns regarding anesthesia, and the functions assigned to the anesthesiologist and the surgeon during the perioperative period in a university central hospital. For this, we used a questionnaire similar to the one used in the study by Gottschalk et al.

Methods

After approval by the Research Ethics Committee of the Centro Hospitalar São João EPE, we began a prospective study for 3 months, with patients undergoing anesthesiology consultation at the Hospital. All participants were aged ≥ 18 years and gave written informed consent after reading a leaflet on this investigation. Individuals with impaired autonomy or those illiterate were excluded. Data collection

Table 1 Demographic data of respondent patients: gender, age, number of previous anesthesia, and education.

Gender (M/F; %)	82/122; 40.2/59.8
Age (median; M/F)	59/49
<i>Previous anesthesia (%)</i>	
- No	19 (9.3)
- One	41 (20.1)
- More than one	143 (70.1)
- NR	1 (0.5)
<i>Education (%)</i>	
- Not finished high school	81 (39.7)
- High school	81 (39.7)
- Graduation	32 (15.7)
- Postgraduate education	9 (4.4)
- NR	1 (0.5)

NR, did not respond.

occurred only during the time prior to consultation, always before the patients had contact with the anesthesiologist. There was no help from any expert team in the distribution.

Each patient received a standardized questionnaire of 11 questions (Appendix A),⁶ with the following issues: demographic data of patients, maximum level of education, and number of previous anesthetic procedures they have undergone. The knowledge of the education and training of anesthesiologists was evaluated. Patients' concerns regarding the perioperative period were graded on a scale of five points, from 1 = no concern to 5 = very concerned. The questions about the responsibilities of anesthesiologists and responsibilities of surgeons in the operating room and the role of anesthesiologists in the hospital were classified on a scale of five points, from 1 = no responsibility/not involved to 5 = great responsibility/very involved.

Statistical analysis was performed using SPSS 21 software (Chicago, IL, USA). The information of questions classified 1–5 was evaluated using the Friedman analysis and pairwise comparisons. Wilcoxon test was used to compare the responsibilities assigned to anesthesiologists and surgeons. In the comparative analysis of groups with and without anesthetic experience we used the Kruskal–Wallis test, and the Mann–Whitney *U* test was used to compare between genders. Results are presented as median (25th percentile, 75th percentile) or percentages. A *p*-value < 0.05 was considered a statistically significant result.

Results

204 patients participated in the study, with 122 (59.8%) women and 82 (40.2%) men. Fifteen questionnaires were excluded for not fulfilling informed consent. Demographic analysis is presented in Table 1. The median age was 52 years. The maximum levels of education prevalent among patients were secondary or lower education (39.7% each). Regarding previous experience with anesthesia, 9.3% of patients had never undergone anesthesia, 20.1% had a prior anesthesia, 70.1% had more than two previous anesthetics, and one patient did not respond. The groups with and without previous anesthetic experience were comparable with regard to gender, age, and education.

Table 2 Patients' understanding of the anesthesiologist's role and estimated time required for training.

<i>An anesthesiologist is (%)</i>	
- A specialist nurse	5 (2.5)
- A specialist physician	135 (66.2)
- A specialist technician	28 (13.7)
- A specialist surgeon	8 (3.9)
- Do not know	28 (13.7)
<i>Necessary study time to be an anesthesiologist after high school (%)</i>	
- 5 years	44 (21.6)
- 9 years	37 (18.1)
- 12 years	13 (6.4)
- 15 years	2 (1)
- Do not know	108 (52.9)

The anesthesiologist was recognized as a specialist by 135 (66.2%) patients, although many have considered him a specialized technician (13.7%) or did not know how to answer this question (13.7%). The anesthesiologist was only considered an expert surgeon and a specialist nurse by 3.9% and 2.5% of patients, respectively (Table 2).

The time required for the education and training of anesthesiologists was generally underestimated, with 44 (21.6%) patients reporting five years and 37 (18.1%) patients reporting nine years. However, most patients (52.9%) reported not knowing the education and training time required. Only 6.4% attributed the correct number of years and only 1% overestimated the training time (Table 2). Compared to the education and training of General practice and Surgery, most patients (53.4%) did not know differentiate the duration of each specialty education, although 17.2% recognize that the anesthesiologist training is longer than the general practice, but shorter than the surgery.

In general, patients were concerned with various situations in the perioperative period (Fig. 1). Not waking up after surgery and infection after surgery were the main concerns of patients [3 (4–5), *p* < 0.05 compared to all other concerns]. Medical problems during surgery [3 (2–4)], pain immediately after surgery [3 (2–4)], and decreased mental ability after surgery [3 (2–4)] were concerns similarly classified, all having a significantly higher score (*p* < 0.05) compared to an IV catheter insertion. Concern with postoperative nausea and vomiting (PONV) [3 (2–4)] and waking up during surgery [3 (1.25–4)] was lower than the previous ones, while an IV catheter insertion was the major perioperative concern [3 (1–3), *p* < 0.05 compared to all concerns except waking up during surgery]. Analyzing the answers from each gender, the scores of women were higher (*p* < 0.05) for waking up during surgery, not waking up after surgery, medical problems during surgery, and PONV. There were no statistically significant differences between the groups with and without previous experience with anesthesia regarding the assessed concerns.

Ensuring that patients do not wake up during surgery was the most recognized task as the anesthesiologist's responsibility [5 (4–5), *p* < 0.05 compared to all other responsibilities described], followed by waking the patient up after surgery [4 (3.5–5), *p* < 0.05 compared to all other

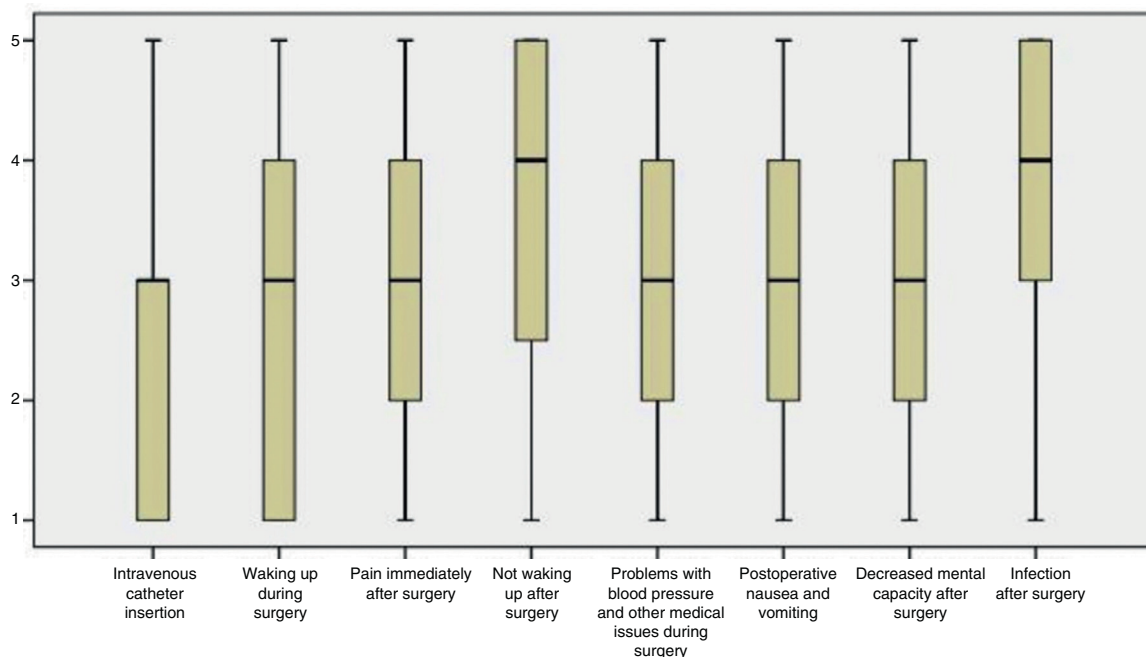


Figure 1 Concerns of patients in the perioperative period. 1 = no concern to 5 = very concerned.

responsibilities, except medical conditions management during surgery, $p > 0.05$] (Fig. 2). Other tasks have also been recognized as the anesthesiologist’s responsibility but on a smaller scale, such as managing medical problems during surgery [4 (3–4), $p < 0.05$ compared to performing blood transfusions], taking care of patients in the recovery room [4

(3–5)], managing pain immediately after surgery [4 (3–4)], and preventing PONV [4 (3–4)]. Giving antibiotics [3 (1–4)] and performing blood transfusions [3 (1–4)] during surgery were the least recognized tasks. Women attributed more responsibility to the anesthesiologist than men regarding the tasks of postoperative pain management and waking

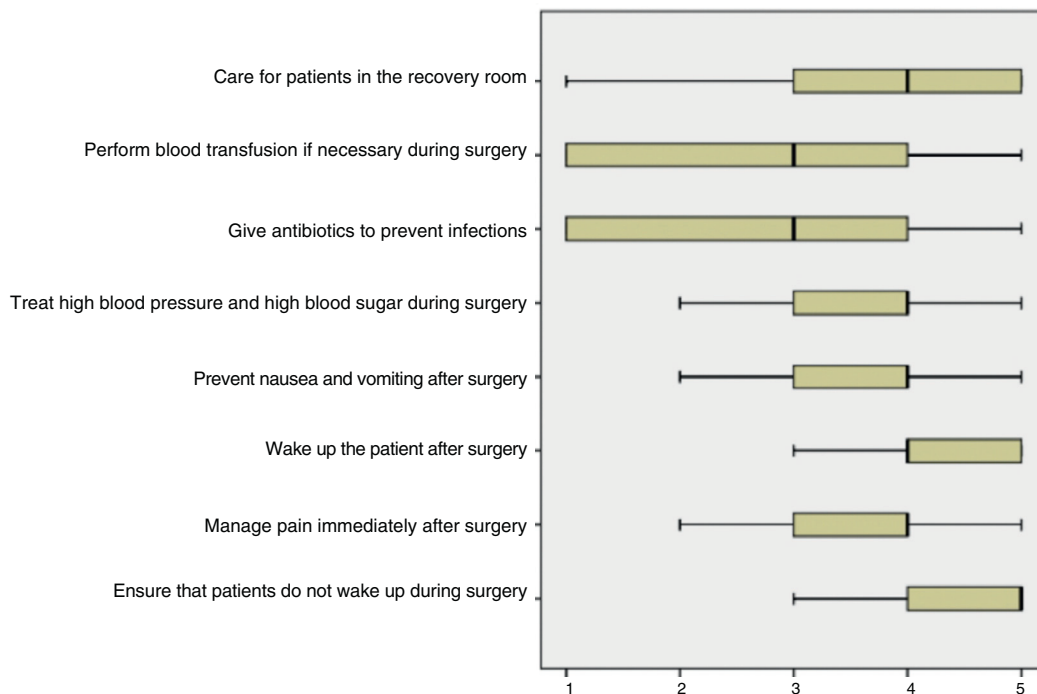


Figure 2 Knowledge of patients regarding the anesthesiologist’s responsibilities in the perioperative period. 1 = no responsibility to 5 = very responsible.

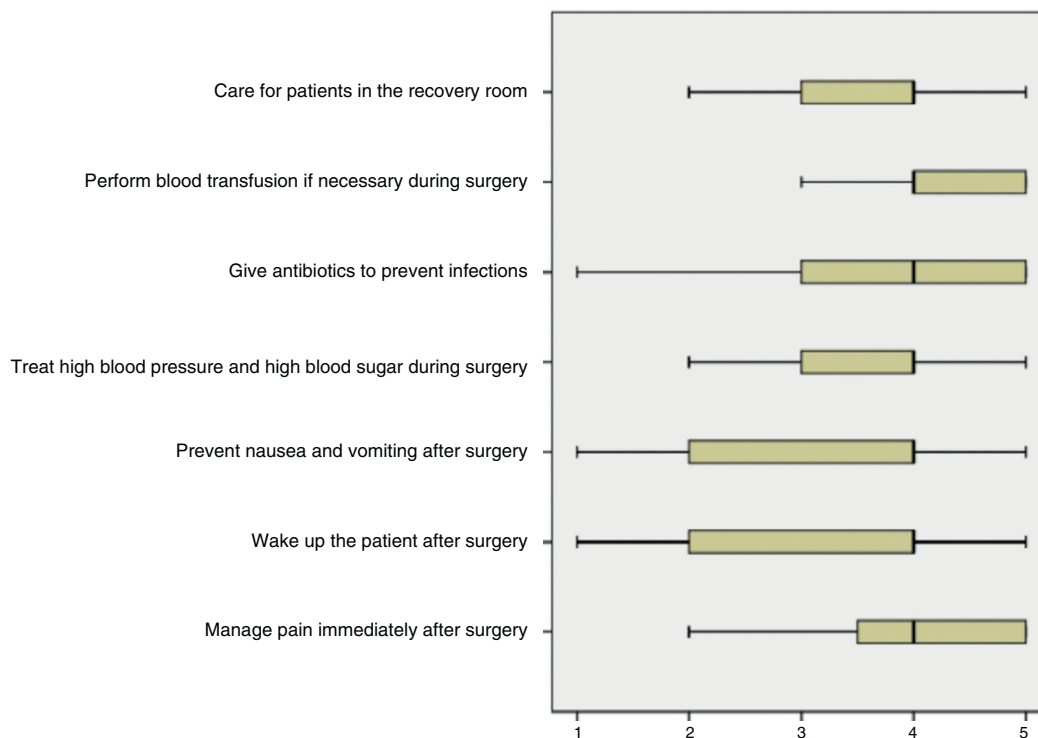


Figure 3 Knowledge of patients regarding the involvement of surgeon in the perioperative period. 1 = no involvement to 5 = very involved.

the patient up after surgery ($p < 0.05$). The previous anesthetic experience did not significantly affect the ratings of the anesthesiologist's perioperative responsibilities.

As for the surgeon's involvement of the on the tasks described in the questionnaire, the patients considered blood transfusion during surgery as the task with greater involvement of the surgeon (Fig. 3). Women attributed significantly higher scores ($p < 0.05$) for the responsibility of waking the patient up after surgery and giving antibiotics than men. Similarly to the previous question, the anesthetic experience did not change the ratings of patients regarding the surgeon's involvement in the described tasks.

Comparison of the functions assigned to anesthesiologists and surgeons during the perioperative period reveals that the anesthesiologist was rated more responsibility for waking the patient up after surgery ($p < 0.05$), preventing PONV, and taking care of the patient in the recovery room. On the other hand, the surgeon was considered more involved in pain management in the early postoperative period ($p < 0.05$), giving antibiotics ($p < 0.05$), and performing blood transfusions during surgery ($p < 0.05$).

As for anesthesiologists' in-hospital tasks outside the operating room, the patients showed some recognition of the anesthesiologists' involvement in this task (Fig. 4). Teaching medical students was the anesthesiologist's most recognized task outside the operating room [4 (3–5), $p < 0.05$ compared to all other tasks, except compared to participation in hospital committees and medical schools [4 (3–5)]. Cardiopulmonary resuscitation [4 (2–4.75)] and chronic pain treatment [4 (2–4)] were recognized as anesthesiologist's functions, but to a lesser extent. The involvement of anesthesiologists in caring for patients in intensive care units

(ICU) was the least recognized task by patients questioned [3 (2–4)]. The rating of anesthesiologists' in-hospital functions between both genders was similar. On the other hand, patients who had never undergone anesthesia assigned more responsibility regarding caring for patients in the ICU ($p < 0.05$) compared to patients with prior experience in anesthesia.

Discussion

The knowledge of patients about the role and training of anesthesiologists is shallow and poorly understood, ignoring many of their functions. In this study, most patients recognized the anesthesiologist as a medical expert, although 27.4% of the patients considered him a specialized technician or did not know how to answer. These data are consistent with previous literature in which the recognition of anesthesiologists as expert doctors ranged from 50% to 99%.^{1,3,6,7,10}

More than half of patients are unaware of the education and training time of anesthesiologists, with its duration underestimated by most respondents. Similarly, most patients did not know to distinguish the training time for Surgery, Family Medicine, and Anesthesiology. Surprisingly, although the anesthesiologist training time is underestimated, only 5.4% of patients considered it the shortest of all.

Similarly to the study by Gottschalk et al., the main concerns of patients were not waking up after surgery and infection after surgery.⁶ Previous studies were consistent over the main concern of patients (not waking up after

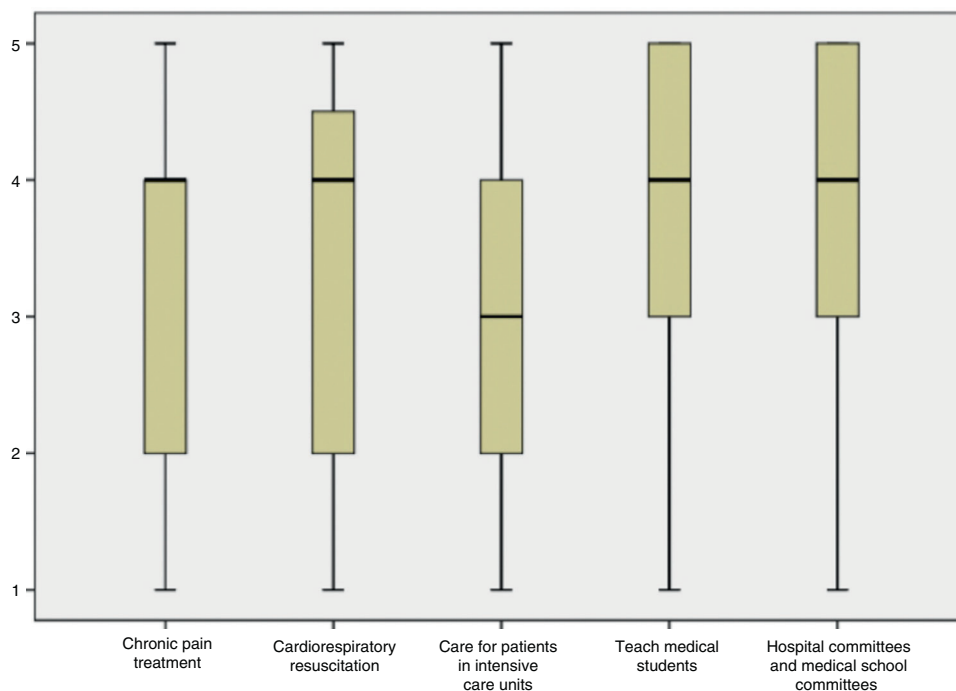


Figure 4 Knowledge of patients regarding the anesthesiologist's functions outside the operating room. 1 = no involvement to 5 = very involved.

surgery), although post-operative pain has been highlighted as the second main concern in these studies, having occupied the fourth position in our study.¹ Matthey et al. reported greater concern for waking up during surgery, brain damage or memory loss, with the majority of patients showing no concern about post-operative pain. It is contrasting the fact that in this study the majority of patients have no concern about complications regarding anesthesia, also described in our study. However, the respondents consisted of a random population in a non-hospital setting, which demonstrates the variability of results according to the type of study population and the medium used for investigation.⁸

Within the perioperative concerns presented, women expressed greater concern. These findings are consistent with previous studies reporting increased anxiety by females. This reinforces the perioperative need for doctor-patient individualized and personalized relationship based on personal, social, and cultural characteristics of each patient.^{8,11} There were no significant differences in the intensity of perioperative concerns among individuals with and without previous anesthetic experience. These results may reflect the absence of progress in knowledge and familiarity with the perioperative procedures after the anesthetic experience, unlike the evolution reported in the study by Leite et al.⁷

As for patients' knowledge of the intraoperative tasks, the role of the anesthesiologist was much undervalued compared to that of surgeon. PONV prevention, management of medical problems during surgery, and taking care of the patient in the recovery room were similarly classified responsibilities between the two medical specialties. However, the surgeon was significantly valued in postoperative pain management, giving antibiotics, and blood transfusions compared to the anesthesiologist. The only task distinctly

classified as being the anesthesiologist's greater responsibility was waking the patient up after surgery, although the surgeon has also been considered involved. These results differ from the study by Gottschalk et al. regarding the less recognition of the anesthesiologist's functions and the clear overvaluation of the surgeon.⁶ It is also important to note that, in general, patients considered both surgeons and anesthesiologists at least somewhat involved in all perioperative functions described, which raises the possibility that the patients are unaware of the role of both in the operating room, but consider as the most involved the one they are most familiar with. Again, the previous experience with anesthesia did not appear to be a modifying factor in the knowledge of the patients asked about the intraoperative functions. This information has been a similar finding among various studies in this area, which highlights the existing weakness in the communication and transmission of information between the anesthesiologist and the patient.^{5,10} Therefore, in our study, the previous anesthetic experience seemed to have no influence on patient information.

In the hospital setting, outside the operating room, the anesthesiologist involvement was moderately recognized by most patients in all the activities described, with teaching medical students and participation in hospital and medical school committees as the most recognized responsibilities. However, the fact that this study was performed at a school hospital that incorporates the Medical School of the University of Porto, may have been suggestive in the valuation of these activities. Notwithstanding, between 13.7% and 17.2% of patients did not respond to points of this issue, which may correspond to the lack of knowledge on the subject. Occasionally, in the rating of the anesthesiologist's involvement in the ICU, the group with previous anesthetic experience significantly attributed less responsibility. This finding may

reflect a greater uncertainty of patients without previous anesthetic experience and hence greater need to consider the doctor and give him more functions. However, this difference was isolated, and therefore not fully understood.

The interpretations of our study may have several limitations, such as: the selection of individuals in the preoperative anesthesia consultation may have selected a group of patients with more surgical and anesthetic prior experience instead of common patients, the use of a questionnaire as a means of data collection may have limited the understanding of the subjects asked and possible answers, unlike an interview, for example.

The proper education of patients about anesthesiology competes primarily to anesthesiologists. This implies a greater interest by the medical specialty in communicate and foster ties with the patient, because patient satisfaction is clearly involved in clinical quality and therapeutic success.^{7,12,13} There is still controversy about the amount of information and how it should be transmitted to the patient, in order to reduce the anxiety regarding the procedures and prevent its aggravation, which has been discussed in several studies.^{12,14,15} It is important to reassure the patient about the safety of the procedures, as the level of perioperative concern remains in disharmony with the real incidence of anesthetic complications.^{8,9}

In conclusion, this study demonstrated that the patients' perception of anesthesiologists is still underestimated, and it is not clear to the studied population what is anesthesiology and what are the specific areas in which the anesthesiologist can intervene.

Engaging the patient in this process is important, as much of the success will depend on him. For such, it is necessary that the patient understands, rather than being a mere puppet in the hand of the artist.

Conflicts of interest

The authors declare no conflicts of interest.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.bjane.2014.05.014](https://doi.org/10.1016/j.bjane.2014.05.014).

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