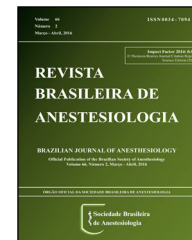




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## MISCELLANEOUS

# Quality of recovery from anesthesia in patients undergoing orthopedic surgery of the lower limbs

Eduardo Toshiyuki Moro\*, Manoel Arthur Nóbrega da Silva,  
Marcelo Gouvêa Couri, Danielle a Silva Issa, Julia Morais Barbieri

Faculdade de Ciências Médicas e da Saúde, Pontifícia Universidade Católica de São Paulo (PUC-SP), Sorocaba, SP, Brazil

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### KEYWORDS

Anesthesia;  
Orthopedics;  
Patient satisfaction;  
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### Abstract

**Background and objectives:** For patients undergoing regional anesthesia for orthopedic surgery, a common situation in our work environment, the quality of recovery may be influenced in different ways, which justifies studies to identify possible predictive factors of dissatisfaction. The aim of this study was to assess the opinion of patients on recovery from anesthesia for lower limb orthopedic surgeries. We also identified potential predictive factors for poor quality of recovery.

**Methods:** We evaluated patients undergoing lower limb orthopedic surgeries and able to participate in the study. Data related to surgery, anesthesia, possible complications in the post-anesthetic care unit (PACU) and in the ward were recorded. In the morning after surgery, patients were evaluated by a medical student who applied the QoR-40 questionnaire. The resulted score—between 40 and 200—was used to determine the quality of recovery and identify the potential predictors.

**Results:** We evaluated 172 patients. The questionnaire average score was 192 points. The chance to have lower scores in the QoR-40 was two times higher among males. Patients who remained under sedation, classified as greater than or equal to 4 on the scale proposed by Ramsay, had a 3.5 times higher risk of having lower scores in the QoR-40 compared to those who remained with level 1 or 2 of sedation. Regarding pain, at every increase of one unit in the numerical scale (0–10), there was a 19% increase in risk for  $QoR-40 \leq 195$ . Similarly, the risk for a score below the median was 2.3 times higher among those presenting with nausea and/or vomiting in the ward.

**Conclusion:** Male, nausea, vomiting, pain while in the ward, and deeper levels of sedation are possible predictive factors for lower scores according to the adopted instrument.

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\* Corresponding author.

E-mail: [eduardo.moro@terra.com.br](mailto:eduardo.moro@terra.com.br) (E.T. Moro).

## PALAVRAS-CHAVE

Anestesia;  
Ortopedia;  
Satisfação do  
paciente;  
Questionário;  
Complicações

## Qualidade da recuperação da anestesia em pacientes submetidos à cirurgia ortopédica em membros inferiores

### Resumo

**Justificativa e objetivos:** Para os pacientes submetidos à anestesia regional para cirurgias ortopédicas, situação comum em nosso meio, a qualidade da recuperação pode ser influenciada de diversas formas, o que justifica a determinação de possíveis fatores preditivos de insatisfação. O objetivo do estudo foi avaliar a opinião dos pacientes sobre a recuperação da anestesia para cirurgias ortopédicas em membros inferiores. Também foram identificados possíveis fatores preditivos para baixa qualidade da recuperação.

**Métodos:** Foram avaliados os pacientes submetidos à cirurgia ortopédica nos membros inferiores e aptos a participar do estudo. Os dados relacionados à cirurgia, à anestesia, às possíveis complicações na sala de recuperação pós-anestésica (SRPA) e na enfermaria foram registrados. Na manhã seguinte à cirurgia, os pacientes foram avaliados por um estudante de medicina que aplicou o questionário QoR-40. A pontuação obtida, entre 40 a 200, foi usada para determinar a qualidade da recuperação e identificar os possíveis fatores preditivos.

**Resultados:** Foram avaliados 172 pacientes. O escore médio do questionário foi de 192 pontos. A chance de ocorrência de valores menores de QoR-40 foi 2 vezes maior entre os pacientes do sexo masculino. Pacientes que permaneceram sob sedação classificada como maior ou igual a 4 segundo a escala proposta por Ramsay apresentaram risco 3,5 vezes maior de apresentar menor pontuação no QoR-40 quando comparados com aqueles que permaneceram com nível de sedação 1 ou 2. Em relação à dor, a cada incremento de uma unidade na escala numérica (0 a 10), houve um aumento de 19% no risco para  $QoR-40 \leq 195$ . Da mesma forma, o risco para pontuação abaixo da mediana foi 2,3 vezes maior entre aqueles que apresentaram náuseas e/ou vômitos na enfermaria.

**Conclusão:** O sexo masculino, a náusea, o vômito, a dor durante a permanência na enfermaria e níveis mais profundos de sedação são possíveis fatores preditivos para menor pontuação segundo o instrumento adotado.

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## Introduction

The growing concern with the quality of health care delivered gave rise to a new focus on clinical investigations in anesthesiology: the assessment of satisfaction with certain therapeutic options. It is in this scenario that researches on health-related quality of life have emerged as an appropriate option to allow anesthesiologists' awareness of the concerns and views of their patients and incorporate it into their practice. The development of the Quality of Recovery-40 questionnaire (QoR-40),<sup>1</sup> a validated instrument to assess the quality of anesthesia recovery, allows a more realistic approach to the factors that influence the perception of patients during the perioperative period. For patients undergoing regional anesthesia for orthopedic surgery, a common situation in our medical environment, many factors could influence the quality of the recovery, which justifies the QoR-40 application as a way to determine possible predictors of dissatisfaction. The results could contribute to the monitoring and adequacy of care in anesthesia for this group of individuals. The aim of this study was to evaluate the quality of recovery from anesthesia using the QoR-40 questionnaire in patients undergoing lower limb orthopedic surgery. We also identified potential predictive factors for poor quality of recovery.

## Material and methods

After approval by the Ethics Committee of the *Faculdade de Ciências Médica e da Saúde* at PUC-SP and obtaining written informed consent, patients undergoing lower limb orthopedic surgery at the *Hospital Santa Lucinda* and able to participate were evaluated. Patients undergoing lower limb orthopedic surgery under spinal anesthesia, with physical status ASA I or II, and aged between 18 and 65 years were included. Exclusion criteria were refusal to participate in the study, failure to communicate due to altered level of consciousness or presence of neurological or psychiatric disease, contraindication to the use of neuraxial anesthesia or allergy to any of the drugs used in the study, and history of alcoholism or drug dependence. Patients who underwent hip surgery were also excluded, as they are often sent to the intensive care unit for recovery on the first post-operative day. Age, sex, physical status, duration of the procedure, history of previous lower limb surgery or anesthesia, use (or not) of nonsteroidal anti-inflammatory or prophylactic antiemetic drugs, and need for urinary catheter were recorded.

After pre-anesthetic evaluation and admission to the operating room, all patients were monitored with cardioscopy, noninvasive blood pressure, and pulse oximetry. Midazolam (0.06–0.08 mg kg<sup>-1</sup>) was administered prior to spinal anesthesia. Patients received 0.5% hyperbaric bupiva-

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