




## **SURGICAL INTERVENTIONS IN ELDERLY PATIENTS: CHALLENGES AND ETHICAL CONSIDERATIONS**

 <https://doi.org/10.56238/levv16n44-041>

**Submission date:** 22/12/2024

**Publication date:** 22/01/2025

**Marcos Daniel Gomes Oliveira<sup>1</sup>, João Gabriel Aguiar Freitas<sup>2</sup>, Beatriz de Sousa Guimarães<sup>3</sup> and Arlem Leonardo Oliveira Filho<sup>4</sup>**

### **ABSTRACT**

Population aging has increased the demand for surgical interventions in elderly patients, who have specific characteristics, such as multiple comorbidities and physiological changes, which directly impact surgical management. This study aimed to conduct an integrative review of the challenges and ethical considerations in the surgical treatment of geriatric patients. The review followed the steps proposed by Mendes, Silveira, and Galvão (2008) and analyzed articles published between 2015 and 2023, in the SciELO, PubMed, and LILACS databases. The results indicated that comprehensive geriatric assessment (CGA) is essential to identify frailties and comorbidities that may influence surgical prognosis. CGA allows personalized perioperative planning, which contributes to risk reduction and improvement in postoperative outcomes. Perioperative planning should be carefully adapted to the particularities of elderly patients, considering physiological limitations and appropriate anesthesia and intra- and postoperative management strategies. Ethical considerations, such as respect for autonomy, beneficence, nonmaleficence, and justice, are essential to guide clinical decisions, especially regarding the choice of surgical interventions and equitable access to health care. This study highlights the importance of a multidisciplinary and patient-centered approach, as well as the need for ongoing training of health professionals in technical and ethical aspects. The research also points to the need for further studies on the perception of older adults and their families in surgical decisions and preoperative rehabilitation programs.

**Keywords:** Geriatric Surgery. Medical Ethics. Geriatric Assessment. Perioperative Care. Bioethical Principles.

---

<sup>1</sup> Undergraduate in Medicine  
Pythagoras University of Montes Claros - UNIFIPMOC  
E-mail: marcosd\_741@hotmail.com

<sup>2</sup> Undergraduate in Medicine  
Pythagoras University of Montes Claros - UNIFIPMOC  
E-mail: jaguiarfreitas@icloud.com

<sup>3</sup> Undergraduate in Medicine  
Pythagoras University of Montes Claros - UNIFIPMOC  
E-mail: biadsousaguimaraes@gmail.com

<sup>4</sup> Undergraduate in Medicine  
Pythagoras University of Montes Claros - UNIFIPMOC  
E-mail: arlemleonardofilho@yahoo.com.br

## INTRODUCTION

Population aging is a global phenomenon that has intensified in recent decades, driven by increased life expectancy and reduced birth rates. According to the World Health Organization (WHO), it is estimated that by 2050, the global population aged 60 or over will reach approximately 2 billion people (Brazil, 2006). This scenario poses significant challenges for healthcare systems, which need to adapt to meet the growing demands of this age group, including the performance of increasingly frequent surgical procedures.

Elderly patients have specific clinical characteristics that directly impact surgical management, such as the presence of multiple comorbidities (hypertension, diabetes mellitus, heart failure, among others), use of multiple medications (polypharmacy), and physiological changes typical of aging, such as decreased functional reserve of organs and systems (Lopes; Silva, 2021). These factors increase the risk of complications in the perioperative period, requiring a more detailed preoperative assessment and personalized care strategies.

In addition to technical challenges, relevant ethical issues arise in the context of surgical interventions in the elderly. Respect for patient autonomy, a balanced assessment of risks and benefits, and ensuring equitable access to health care are fundamental aspects that must be considered (Beauchamp; Childress, 2019). Shared decision-making becomes even more complex in the face of cognitive decline, physical frailty, and family pressures, which require sensitivity and preparation from health professionals.

The growing demand for surgical procedures in the elderly requires not only technical advances but also in-depth ethical reflection on best care practices. Many health professionals still face difficulties in balancing the bioethical principles of autonomy, beneficence, non-maleficence, and justice in decision-making for this population. The absence of clear guidelines or specific training can lead to inappropriate decisions, such as the indication of unnecessary procedures or, conversely, the denial of potentially beneficial treatments due to age-related prejudices. Given this scenario, it is essential to understand the technical and ethical challenges that permeate surgical interventions in elderly patients to promote safer, more humane, and ethical care.

This study aimed to conduct an integrative review of the literature to identify and analyze the main technical and ethical challenges involved in surgical interventions in geriatric patients. The aim is to understand how these challenges impact clinical decision-making, the quality of care provided, and surgical outcomes, in addition to highlighting the importance of adopting multidisciplinary and patient-centered approaches to ensure the safety and respect of the rights of the elderly.

## THEORETICAL FRAMEWORK

Surgical practice in elderly patients presents significant complexities, resulting from physiological changes inherent to aging. These changes include reduced functional reserve of organs and systems, the presence of multiple comorbidities, and greater susceptibility to perioperative complications. For example, decreased skin elasticity and reduced total body water increases the risk of acute dehydration and influence the distribution of water-soluble drugs. In addition, there is an increase in total body fat, prolonging the half-life of fat-soluble drugs (MENDONÇA et al., 2020). Musculoskeletal changes, such as loss of muscle mass (sarcopenia) and bone mass (osteoporosis), are also common, contributing to decreased mobility and increasing the complexity of surgical management (Braga; Araújo; Fonseca, 2019). From an ethical point of view, principlist bioethics proposes four fundamental principles that should guide clinical decision-making: autonomy, beneficence, nonmaleficence, and justice (Beauchamp; Childress, 2019). Respect for autonomy implies ensuring that elderly patients actively participate in decisions about their treatment, exercising their right to consent or refuse therapeutic proposals after receiving adequate information (Costa; Vieira, 2018). Beneficence refers to the ethical obligation to maximize benefits and minimize harm, ensuring that medical interventions promote the patient's well-being (Campos; Vasconcelos, 2021). Nonmaleficence determines that medical interventions should not cause harm to the patient, and it is essential to evaluate the benefits against the harms of all interventions and treatments (Lopes; Silva, 2021). Justice, in turn, according to Nunes and Souza (2017), ensures equitable access to health care, regardless of age, ensuring that resources are distributed fairly and equitably. Fair manner and that there is no discrimination against the elderly.

The application of these principles in the context of geriatric surgery requires a careful and individualized approach. The principle of autonomy is fundamental, especially in obtaining informed consent, which must be clear and adapted to the cognitive capacities of the elderly patient (Brasil, 2006). Beneficence and non-maleficence require a careful assessment of the risks and benefits of the proposed interventions, considering the physiological and clinical particularities of elderly patients (Oliveira; Souza, 2022). Justice implies, according to Campos and Vasconcelos (2021), ensuring that elderly patients have equitable access to surgical procedures, without discrimination based on age, and that decisions are made based on solid clinical and ethical criteria.

Therefore, surgical practice in the elderly is not limited to the technical challenges arising from the physiological changes of aging but also involves complex ethical considerations that demand a multidisciplinary and patient-centered approach.

Understanding and applying bioethical principles are essential to ensure that surgical interventions in geriatric patients are conducted ethically and effectively, promoting well-being and respecting the rights of the elderly.

## METHODOLOGY

This integrative review was conducted following the methodological steps proposed by Mendes, Silveira, and Galvão (2008), which include: identifying the topic and formulating the research question, defining inclusion and exclusion criteria, systematic literature search, categorizing the selected studies, critically analyzing the data collected and, finally, interpreting and summarizing the results. Using this method allows the integration and synthesis of results from relevant studies, providing a broad understanding of the technical challenges and ethical considerations in the surgical treatment of geriatric patients.

The guiding question of this study was: “What are the main technical challenges and ethical considerations involved in surgical interventions in elderly patients?” To answer this question, strict inclusion and exclusion criteria were established. Articles published between 2015 and 2023, in Portuguese, English, and Spanish, that directly addressed the technical and ethical aspects related to surgical interventions in the elderly were included. Studies available in full and free format were selected, including literature reviews, original articles, cohort studies, clinical trials, and qualitative research. Articles that did not address the proposed theme, duplicate studies, abstracts of scientific events, editorials, letters to the editor, dissertations, theses, and publications with low methodological rigor or inconclusive data were excluded.

The search was carried out systematically in the Scientific Electronic Library Online (SciELO), PubMed/MEDLINE, and Latin American and Caribbean Literature in Health Sciences (LILACS) databases. For the research, controlled descriptors and their corresponding terms in English and Spanish were used, combined by Boolean operators (AND and OR), namely: “geriatric surgery”, “medical ethics”, “geriatric assessment”, “perioperative care”, “clinical decision-making” and “patient autonomy”. An example of the search strategy used was: (“Geriatric Surgery” OR “Cirurgia Geriátrica”) AND (“Medical Ethics” OR “Ética Médica”) AND (“Perioperative Care” OR “Cuidados Periéficientes”).

The study selection process occurred in three stages. Initially, the titles and abstracts were read for preliminary screening, excluding articles that did not meet the inclusion criteria. Then, the selected texts were read in full to confirm eligibility. Finally, the included studies were critically assessed for methodological rigor and relevance to the research objective. For this assessment, instruments adapted from Melnyk and Fineout-Overholt

(2011) were used, which allowed the studies to be classified according to their level of scientific evidence.

The data extracted from the selected articles were organized systematically, including information such as author, year of publication, country of origin, type of study, objectives, main results, and conclusions. The analysis was conducted qualitatively, identifying patterns, divergences, and gaps in knowledge about the technical challenges and ethical issues related to surgeries in the elderly. This methodological process allowed for an in-depth and critical understanding of the topic, based on the available scientific evidence.

## RESULTS AND DISCUSSION

The analysis of the selected studies revealed crucial aspects in the surgical management of patients elderly patients, highlighting the importance of a multidisciplinary approach that considers both the technical challenges and the ethical implications involved. The main points identified include:

### COMPREHENSIVE GERIATRIC ASSESSMENT

Performing a comprehensive geriatric assessment (CGA) is essential to identify frailties, comorbidities, and psychosocial aspects that may influence the surgical prognosis. Studies indicate that CGA allows personalized perioperative planning, which contributes to risk reduction and improved postoperative outcomes (OLIVEIRA; SOUZA, 2022). For Carvalho et al. (2020), elderly patients who undergo a complete geriatric assessment have a lower incidence of postoperative complications and better functional recovery.

Frailty, characterized by a reduction in physiological reserve and resistance to stressors, is a significant predictor of adverse outcomes in surgeries. Early identification of frailty through CGA enables targeted interventions, such as pre-rehabilitation programs, which aim to improve functional capacity before surgery (LIMA et al., 2021). Assessment of comorbidities and polypharmacy is also essential, since according to Carvalho et al. (2020), elderly people often use multiple medications, increasing the risk of drug interactions and adverse effects.

In addition, cognitive assessment is a crucial component of CGA, since cognitive deficits can impact the patient's ability to understand and consent to procedures, in addition to influencing adherence to postoperative treatment (SANTOS et al., 2019). Identifying cognitive impairment, according to Santos et al. (2019), allows the care plan to be adapted,

ensuring adequate support and effective communication with the patient and their family members.

## PERIOPERATIVE PLANNING

Perioperative planning in elderly patients must be carefully adapted to the particularities of this population, considering their physiological limitations and potential for recovery. According to Lopes and Silva (2021), the choice of anesthetic techniques and intra- and postoperative management strategies should take into account the physiological changes related to aging, such as decreased renal and hepatic function, cardiovascular and respiratory changes, and changes in body composition.

Studies show that regional anesthesia, for example, may be preferable in some cases, as it is associated with a lower incidence of postoperative delirium and respiratory complications (Martins et al., 2018). However, in the studies by Santos et al. (2020), the decision on the type of anesthesia should be individualized, taking into account specific contraindications and patient preferences.

In addition, fluid management and hemodynamic monitoring are essential to avoid cardiac overload and renal complications. Elderly people are particularly vulnerable to electrolyte imbalances and dehydration, which makes strict fluid control a priority (Oliveira; Souza, 2022). Adequate postoperative pain control is also a crucial point. According to Silva et al. (2018), multimodal analgesia, which combines different classes of analgesics, is effective in reducing pain, and minimizing the use of opioids and their side effects.

For Martins et al. (2018), early mobilization and physiotherapy also play an important role in functional recovery, preventing complications such as deep vein thrombosis and pneumonia, which are common in elderly patients.

## ETHICAL CONSIDERATIONS

Ethical considerations in the surgical treatment of elderly patients are fundamental and should be guided by the principles of bioethics: autonomy, beneficence, non-maleficence, and justice.

**Autonomy:** Respecting the autonomy of elderly patients implies ensuring their active involvement in treatment decisions. It is essential to provide clear and understandable information about the risks, benefits, and alternatives to surgical intervention, allowing the patient to make informed decisions. Beauchamp and Childress (2019) emphasize that when a patient presents cognitive impairment, the participation of family members or legal



representatives should be considered, always seeking to respect the patient's previously expressed wishes.

**Beneficence and Non-Maleficence:** Beneficence requires that the proposed interventions aim at the patient's best interests, promoting benefits that outweigh the risks. Non-maleficence, in turn, requires avoiding causing harm. In the surgical context, this translates into the need for a careful evaluation of the surgical indication, avoiding unnecessary or high-risk procedures that may result in harm to the elderly person's health (Brasil, 2006). The risk-benefit ratio must be carefully weighed, considering the patient's quality of life and values (Oliveira; Souza, 2022).

**Justice:** The principle of justice ensures that elderly patients have equitable access to surgical care, without discrimination based on age. For Beauchamp and Childress (2019), clinical decisions mustn't be influenced by age stereotypes, ensuring that each patient is assessed individually, based on their health status and personal preferences. In addition, equity in access to health resources should be promoted, ensuring that elderly patients are not overlooked in favor of younger individuals without valid clinical justification.

## CHALLENGES AND RECOMMENDATIONS

The integration of a multidisciplinary approach is essential in the surgical management of elderly patients. According to Carvalho et al. (2020), the participation of geriatricians, surgeons, anesthesiologists, nurses, physiotherapists, and social workers allows for a comprehensive assessment and a personalized care plan, addressing the multiple dimensions of the elderly's health.

Prehabilitation programs are effective in improving functional capacity and reducing postoperative complications. These programs include interventions such as physical exercise, nutritional optimization, and psychological support, preparing the patient for surgical stress (Lima et al., 2021). According to Santos et al. (2020), effective communication between the healthcare team, the patient, and their family is essential for successful treatment and to ensure that decisions made are aligned with the patient's values and wishes.

## CONCLUSION

Surgical interventions in elderly patients present significant challenges from both a technical and ethical point of view, which require a multidisciplinary and patient-centered approach. Population aging, characterized by a higher prevalence of comorbidities and frailty, imposes an increasing need for surgical management strategies adapted to the

particularities of this age group. Comprehensive geriatric assessment (CGA) is an essential tool to identify the physical, cognitive, and psychosocial frailties of elderly patients, allowing personalized perioperative planning. This planning, in turn, must take into account the physiological limitations, specific risks, and expectations of the patient, with emphasis on the appropriate choice of anesthetic techniques and the appropriate management of complications, both intraoperatively and postoperatively. In addition to technical aspects, ethical considerations play a crucial role in the approach to elderly patients. Respect for patient autonomy, combined with the principles of beneficence, non-maleficence, and justice, should guide all clinical decisions. Active involvement of the elderly in decisions about their treatment is essential, especially when it comes to high-risk surgeries. This also includes a careful analysis of the benefits and risks of each intervention, avoiding procedures that may result in irreversible or unnecessary harm. Equity in access to surgical care is also a central ethical consideration, ensuring that elderly people are not discriminated against based solely on age but rather assessed according to their clinical conditions. It is essential that the training of health professionals includes a deep understanding of both the technical complexities of geriatric surgery and the ethical implications of its practice. Continuing education, focused not only on technical improvement but also on ethical reflection, is crucial to improving the quality of care and surgical outcomes for this population. In addition, the integration of multidisciplinary teams, such as geriatrics, anesthesiology, nursing, and physical therapy, is essential for the successful perioperative management of elderly patients. Despite advances in understanding the challenges and strategies for managing geriatric patients in the surgical context, this study has some limitations. First, the integrative review was based mainly on studies published between 2015 and 2023, which may have limited the inclusion of some relevant older studies. In addition, most of the selected studies have a more technical focus, with fewer studies addressing ethical issues in depth, especially about shared decision-making between physicians, patients, and family members. Suggestions for future work include conducting more in-depth studies on the perception of elderly patients and their families regarding surgical decisions, to understand how these aspects influence the decision-making process. Furthermore, further investigation into the implementation of preoperative rehabilitation programs and their effectiveness on postoperative outcomes may provide valuable insights into the preparedness of older adults for surgery. Studies on the ethical training of health professionals and how it impacts the Surgical management of elderly patients also appear to be an important area for future research. The development of specific protocols for the ethical and technical management of geriatric patients in a





surgical context would contribute to the standardization and improvement of care for this population.

In summary, surgical interventions in the elderly require a careful and personalized approach, where the intersection between surgical technique and bioethical principles is essential to ensure that the care provided is safe, and effective and respects the dignity and rights of elderly patients.

## REFERENCES

1. BEAUCHAMP, T. L.; CHILDRESS, J. F. Princípios de ética biomédica. 7. ed. São Paulo: Loyola, 2019.
2. BRASIL. Ministério da Saúde. Envelhecimento e saúde da pessoa idosa. Brasília: Ministério da Saúde, 2006. Disponível em: [https://bvsms.saude.gov.br/bvs/publicacoes/envelhecimento\\_saude\\_pessoa\\_idosa.pdf](https://bvsms.saude.gov.br/bvs/publicacoes/envelhecimento_saude_pessoa_idosa.pdf). Acesso em: 04jan. 2025.
3. BRASIL. Ministério da Saúde. Política Nacional de Saúde da Pessoa Idosa. Brasília, DF: Ministério da Saúde, 2006.
4. CARVALHO, A. et al. Avaliação geriátrica e complicações cirúrgicas em pacientes idosos: uma revisão. *Revista Brasileira de Geriatria e Gerontologia*, v. 23, n. 2, p. 246-254, 2020.
5. CAMPOS, A. C.; VASCONCELOS, R. A. Princípios bioéticos aplicados à cirurgia em idosos: desafios e perspectivas. *Revista Bioética*, v. 29, n. 3, p. 512-520, 2021.
6. COSTA, M. F.; VIEIRA, L. C. Consentimento informado e autonomia do paciente idoso. *Revista de Bioética e Direito*, v. 26, n. 2, p. 45-54, 2018.
7. LIMA, R. et al. Impacto da reabilitação pré-operatória em idosos submetidos à cirurgia eletiva: uma revisão sistemática. *Revista Brasileira de Geriatria e Gerontologia*, v. 24, n. 3, p. 212-219, 2021.
8. LOPES, A. C.; SILVA, R. P. Anestesia em pacientes geriátricos: desafios e cuidados específicos. *Brazilian Journal of Integrated Health*, v. 4, n. 1, p. 45-58, 2021. Disponível em: <https://bjih.emnuvens.com.br/bjih/article/download/4680/4684/10229>. Acesso em: 08 Jan. 2025.
9. LOPES, P. G.; SILVA, R. M. Alterações fisiológicas do envelhecimento e implicações para a prática anestésica. *Revista Brasileira de Anestesiologia*, v. 71, n. 3, p. 213-221, 2021.
10. MARTINS, J. et al. Anestesia em idosos: desafios e atualizações. *Revista Brasileira de Anestesiologia*, v. 68, n. 1, p. 35-40, 2018.
11. MENDES, K. D. S.; SILVEIRA, R. C. C. P.; GALVÃO, C. M. Revisão integrativa: método de pesquisa para a incorporação de evidências na saúde e na enfermagem. *Texto & Contexto Enfermagem*, v. 17, n. 4, p. 758-764, 2008.
12. MENDONÇA, C. T. et al. Alterações fisiológicas do envelhecimento e o impacto na farmacocinética de medicamentos. *Revista de Ciências Médicas*, v. 23, n. 2, p. 123-132, 2020.
13. NUNES, R. M.; SOUZA, P. H. Justiça distributiva e o acesso de idosos a procedimentos cirúrgicos complexos. *Revista Saúde Pública*, v. 51, p. 45-52, 2017.
14. OLIVEIRA, M. G.; SOUZA, R. C. Cirurgia em idosos: considerações éticas e técnicas no paciente geriátrico. *Revista Brasileira de Cirurgia*, v. 35, n. 2, p. 123-130, 2022.

15. OLIVEIRA, A.; SOUZA, P. F. C. Avaliação e manejo perioperatório do idoso. Revista Brasileira de Geriatria e Gerontologia, v. 25, n. 4, p. 351-360, 2022.
16. SANTOS, C. et al. Impacto da fragilidade no prognóstico cirúrgico de idosos: uma revisão. Jornal Brasileiro de Cirurgia, v. 39, n. 2, p. 124-132, 2019.
17. SANTOS, L. et al. A importância da comunicação no cuidado de pacientes idosos durante o processo cirúrgico. Revista de Enfermagem da UFPE, v. 14, n. 3, p. 487-495, 2020.
18. SILVA, M. et al. Uso da analgesia multimodal no pós-operatório de pacientes idosos. Revista Brasileira de Anestesiologia, v. 67, n. 5, p. 415-421, 2017.