Surgery in the elderly patient: a systematic review of the literature

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Abstract

Brazil is going through a period of demographic transition characterized by an increase in life expectancy. Concomitantly, the number of surgeries performing on the elderly has also increased. The present study seeks to understand this process by means of a systematic review on academic databases in the last 10 years. From this analysis, it is shown that there is a need for knowledge of the legal framework and the ethical and bioethical aspects by health professionals to perform humanized care directed to this new patient profile.
Keywords: Bioethics. Surgical procedures, operative. Aged.

Resumo

Cirurgia em pacientes idosos: revisão sistemática da literatura

O Brasil passa por um período de transição demográfica caracterizado pelo aumento na expectativa de vida. Concomitantemente, tem crescido o número de cirurgias realizadas em idosos. Este trabalho busca compreender esse processo por meio de revisão sistemática de textos publicados nas bases de dados acadêmicas nos últimos 10 anos. Dezessete documentos compõem o corpus da pesquisa. A partir de sua análise, percebe-se a necessidade, por parte dos profissionais de saúde, de conhecer a legislação e refletir sobre aspectos éticos e bioéticos a fim de humanizar o atendimento ao paciente cirúrgico idoso.
Palavras-chave: Bioética. Procedimentos cirúrgicos operatórios. Idoso.

Resumen

Cirugía en pacientes ancianos: revisión sistemática de la literatura

Brasil pasa por un período de transición demográfica caracterizado por el aumento de la expectativa de vida. Concomitantemente, ha aumentado el número de cirugías realizadas en ancianos. Este trabajo busca comprender dicho proceso por medio de una revisión sistemática de textos publicados en las bases de datos académicas en los últimos 10 años. Diecisiete documentos componen el corpus de la investigación. A partir de su análisis, se percibe la necesidad, por parte de los profesionales de salud, de conocer la legislación y reflexionar sobre los aspectos éticos y bioéticos a fin de humanizar la atención brindada al paciente quirúrgico anciano.
Palabras clave: Bioética. Procedimientos quirúrgicos operativos. Anciano.

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Socrates, at the end of his life, learned to play the lyre, and Cato discovered Greek literature; however, as Cicero recalls in his book "Knowing to grow old", there are people who *wish to advance in old age, but when they grow old, they lament. This is the consequence of stupidity* [1]. Therefore, the aging process is multifactorial and subjective, so that each individual has his own way of going through this phase of life. The passage of time becomes a nightmare for many people, who trace useless and even pathetic struggles for eternal youth, often under the influence of the so-called "beauty industry," known for cosmetology and plastic surgery.

The elderly are usually seen as subjects that have gone through the various stages of life: growth, development (learning), financial contribution (apex) and, finally, retirement. At this stage, if they reach the "end of life" without having enough income to support themselves, they are seen as dependent, as a "burden" to society. But is it really necessary to speak of "end of life" when it is increasingly noticed that it is possible to reach "old age" keeping one's health?

At the beginning of the 20th century, the elderly corresponded to 3.2% of the Brazilian population; in 1960, they were 4.7%; and in 2050, according to the 2010 estimate of the Brazilian Institute of Geography and Statistics (IBGE), they will total 47 million, which will correspond to 18% of population [2]. These data reflect the increase in life expectancy, which increased from 65 to 73.5 years, thanks to sanitary improvements, the control of infectious-parasitic diseases, access to health and the improvement of diagnoses and treatments.

With life expectancy, there has also been an increase in the number of surgeries to which people over 65 are subjected. Currently, at least one in four surgical patients is above this age group [3]. In this context, this article poses the following specific question: what would be the ethical and bioethical analysis of the indication or refusal to surgery in the elderly?

Goals and methods

This article aims to understand how the systematized process of surgery in the elderly has been practiced by health professionals in Brazil in the last 10 years, starting from the ethical and bioethical assumption of health care of individuals and the applicability of current Brazilian legislation.

The systematic review of scientific articles method was used. For the bibliographic search, the Google Scholar, Latin American and Caribbean Literature in Health Sciences (Lilacs), PubMed and Scopus databases were chosen because they provide a large amount of content in different areas of health. The texts were searched between September and October 2017, from the following descriptors: "bioethics", "elderly" and "surgery".

Scientific papers published in the last 10 years (between January 2007 and January 2017) and written in Portuguese, English or Spanish were included (although the research was limited to studying the management of the elderly surgical patient in Brazil). We excluded articles with abstracts unavailable in the databases, those that had no ethical or bioethical approach or did not refer to surgical situations in a hospital setting. Therefore, studies on clinical hospitalizations in an intensive care unit or on the elderly patient undergoing outpatient surgery (when discharged immediately after the procedure) were not considered, as well as texts that could not be accessed by the Integrated System of Libraries of the Federal University of Amazonas (SISTEBIB/UFAM).

After the establishment of the corpus, the articles were read and classified in tables according to the subject addressed. The process allowed to visualize the results of the studies in order to know the bioethical aspects of the surgery in the elderly in Brazil in the last 10 years.

Results

Initially, 12,379 texts were obtained: 12,100 in Google Scholar, 223 in PubMed, 49 in Scopus and 7 in Lilacs. After application of the exclusion criteria, there were 70 articles left from Google Scholar, 112 from PubMed, 44 from Scopus and 5 from Lilacs: 231 in total. However, without the repeated texts, 161 articles were selected for a complete reading of the abstract. When the abstract was relevant to the purpose of the research, the work was read in its entirety. Finally, 13 texts were selected from Google Scholar, 1 from Lilacs, 1 from PubMed and 2 from Scopus, reducing the corpus to 17 scientific articles, as shown in Figure 1 and Table 1.

The articles selected included legislative aspects relevant to health professionals, anatomical and physiological alterations of the elderly and multi-morbidity, changes in the profile of the

patients and number of surgeries, general aspects of preoperative evaluation and issues of elderly care in perioperative conditions. The 17 texts were divided as follows: seven review articles, four cross-sectional analytical studies, a data-software development project, two qualitative researches, a case study, an application of legislation and a cohort study (Frame 1).

Figure 1. Process of article selection

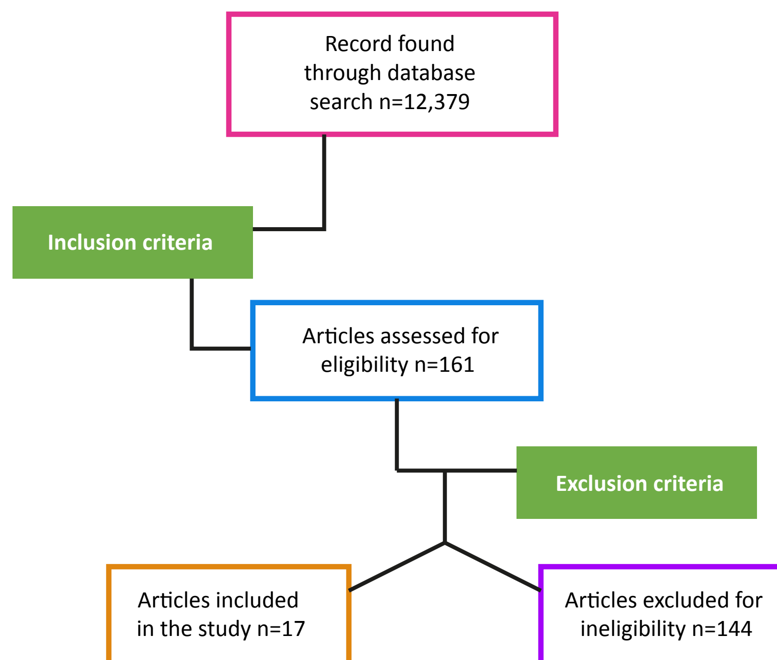

Table 1. Number of articles per database

Base de datos	Encontrados	Seleccionados
Google Scholar	12.100	13
LILACS	7	1
PubMed	223	1
Scopus	49	2

Frame 1. Systematization of the corpus

Author	Title	Type of production	Journal	Sample
Moimaz et al.; 2009 [2]	O idoso no Brasil: aspectos legislativos de relevância para profissionais de saúde ("The elderly in Brazil: legislative aspects of relevance for health professionals")	Review article	*Espaço para a Saúde*	–
Tibo; 2007 [4]	Alterações anatômicas e fisiológicas do idoso ("Anatomical and physiological changes of the elderly")	Review article	*Revista Médica Ana Costa*	–
Botelho; 2007 [5]	Idade avançada: características biológicas e multimorbilidade ("Advanced age: biological characteristics and multi-morbidity")	Review article	*Revista Portuguesa de Clínica Geral*	–

continues...

Frame 1. Continuation

Author	Title	Type of production	Journal	Sample
Weiser et al.; 2008 [6]	An estimation of the global volume of surgery: a modeling strategy based on available data	Technical project/data software	*Lancet*	n=192 countries
Padrón Chacón et al.; 2008 [7]	Algunas variables del tratamiento quirúrgico maxilofacial y bioética en el adulto mayor ("Some variables of maxillofacial surgical treatment and bioethics in the elderly")	Cross-cut study	*Revista Cubana de Cirurgía*	n=60
Enokibara, Lamarca, Albuquerque; 2015 [8]	O idoso na cirurgia cardíaca – mudança do perfil da clientela: adaptações no cuidar da enfermagem ("The elderly in cardiac surgery - changing the profile of the clientele: adaptations in nursing care")	Cross-cut study	*Estácio Saúde*	n=16
Vendites, Almada-Filho, Minossi; 2010 [9]	Aspectos gerais da avaliação pré-operatória do paciente idoso cirúrgico ("General aspects of the preoperative evaluation of the elderly surgical patient")	Review article	*Arquivos Brasileiros de Cirurgia Digestiva*	–
Brazil; 2013 [10]	Lei 12.802, de 24 de abril de 2013 ("Law 12,802, of April 24, 2013")	Legislation	*Diário Oficial da União*	–
Niemeyer-Guimarães, Cendoroglo, Almada-Filho; 2016 [11]	Course of functional status in elderly patients after coronary artery bypass surgery: 6-month follow up	Prospective cohort	*Geriatrics & Gerontology International*	n=73
Cavalcanti, Jucá; 2016 [12]	Avaliação do estresse em idosos submetidos à cirurgia eletiva geral e digestiva ("Evaluation of stress in elderly subjects submitted to general and digestive elective surgery")	Cross-cut study	*Portal: Saúde e Sociedade*	n=64
Veiga, Gomes, Melo; 2013 [13]	Fatores estressores em Unidade de Terapia Intensiva: percepção de pacientes idosos e adultos no pós-operatório de cirurgia cardíaca ("Stressors in the Intensive Care Unit: perception of elderly and adult patients in the postoperative period of cardiac surgery")	Cross-cut study	*Kairós Gerontologia*	n=40
Garcia et al.; 2014 [14]	O significado do cuidado perioperatório para o idoso ("The meaning of perioperative care for the elderly")	Review article	*Revista de Enfermagem da UFSM*	–
Prochet et al.; 2012 [15]	Afetividade no processo de cuidar do idoso na compreensão da enfermeira ("Affectivity in the process of caring for the elderly in the understanding of the nurse")	Qualitative research	*Revista da Escola de Enfermagem da USP*	–
Silva, Caldas; 2009 [16]	Aspectos éticos da abordagem contemporânea do envelhecimento ("Ethical aspects of the contemporary approach to aging")	Review article	*Arquivos de Ciên-cias da Saúde*	–
Carboni, Reppetto; 2007 [17]	Uma reflexão sobre a assistência à saúde do idoso no Brasil ("A reflection on health care for the elderly in Brazil")	Review article	*Revista Eletrônica de Enfermagem*	–
Teixeira, Lefèvre; 2008 [18]	Significado da intervenção médica e da fé religiosa para o paciente idoso com câncer ("Meaning of the medical intervention and religious faith for the elderly patient with cancer")	Qualitative research	*Ciência & Saúde Coletiva*	n=20
Ho, Pinney, Bozic; 2015 [19]	Ethical concerns in caring for elderly patients with cognitive limitations: a capacity-adjusted shared decision-making approach	Case study	*The Journal of Bone and Joint Surgery*	–

Research

The statute of the elderly

In order to guarantee the duties of the family, the institutions, the citizen and the State for this population, the Estatuto do Idoso - EI (Statute of the Elderly), consisting of 118 articles, was enacted by Law 10.471/2003. From it, a chronological framework of 60 years or more was established for legal characterization of the elderly, although some articles consider age 65 or over to guarantee benefits [2].

Biological changes of aging

"Senescence" refers to the biological process of aging, inherent to the organism. This process, which has as its main determinants heredity and lifestyle, is invariably involutive and influenced by the physical and social environment [20]. Thus, although the EI defines a chronological framework and age is a risk factor for certain diseases, such as cardiovascular disease, it is not a completely accurate determinant for the changes of aging. In old age, as in any other age, there are healthy and sick people, and many of the diseases considered proper to this phase already existed previously and were manifested with less intensity [20].

There are several physiological alterations of aging, such as reduction of turgor and elasticity of the skin and decrease of 20% to 30% of total body water, with a greater risk of acute dehydration and changes in the distribution of water soluble drugs. On the other hand, there is a 20% to 30% increase in total body fat, mainly abdominal and visceral deposition, and prolongation of the half-life of liposoluble drugs [4,5]. There are also degenerative changes that reduce mobility: loss of muscle and bone mass, decrease in height by about 1 cm per decade from the age of 40, decrease in the arch of the foot, hyperkinesis - contributing to the patient's positioning difficulty on the stretcher -, flattening of intervertebral discs and pains in tendons and tendon-root nerve tracts [4,5].

As for cardiovascular changes, there is hardening and thickening of the ventricular wall and heart valves, lower resting or induced heart rate, murmurs, progressive increase of blood pressure, vascular stiffness and atherosclerosis, changes in the chest cavity, loss of elastic retraction of the lungs and the respiratory capacity of changes, pulmonary reflexes of cough, and reduced ciliary function, predisposing to the accumulation of secretions [4,5].

The digestive alterations are characterized by atrophy of the intestinal mucosa, muscle weakness (with increased constipation), predisposition to diverticulitis, pancreatic duct dilation, tendency to cysts formation and loss of 30% to 40% of hepatocyte mass, leading to lower protein synthesis and changes in the pharmacokinetics of drugs and in the ability to metabolize drugs. There is also a decline in the production of acidic secretion of the stomach and achlorhydria with deficiency in the absorption of iron; longer gastric emptying time and changes in gastric protection mechanisms; reduction of esophageal innervation and increased frequency of non-propulsive contractions; and, finally, changes in the taste and swallowing, with atrophy of the taste buds, loss of teeth and speech difficulties [4,5].

Epidemiological studies on surgeries in the elderly

With the increase in longevity, it is estimated that some 234 million operations are carried out worldwide each year. Considering this scenario, surgery becomes a worldwide concern, affecting public policies and patient safety [6]. In general, the authors concluded that age is a critical determinant of complications and mortality in the postoperative period.

A study conducted between 2012 and 2013 in a reference hospital in Rio de Janeiro observed that 59.7% of cardiac surgeries were performed in patients over 60 years of age. In Havana, a cross-cut study observed the demand for maxillofacial surgery related to the presence of cavities or aesthetic concern in the population above 60 years, mainly women [7]. Modifiable and non-modifiable factors related to aging were the main surgeries: aortic valve implant, myocardial revascularization due to coronary arterial disease, and pacemaker implantation [8].

In addition to cardiac procedures, the number of elderly patients submitted to various surgeries: abdominal, orthopedic, vascular and plastic, as well as surgeries in the digestive tract, mainly videolaparoscopic cholecystectomies [9,21] are expressive. However, aggressive interventions in cases of malignancies are not frequent. Authors also point out that there is reluctance to recommend them because of the greater morbidity and mortality of the elderly [9].

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Brazilian law

In its chapter on the right to health, the EI mentions the need for integral care for the elderly, which includes actions and measures to promote and recover it, making use, if necessary, of specific materials for complete rehabilitation [2,22]:

Art. 15. Comprehensive health care for the elderly is ensured through the Unified Health System ("Sistema Único de Saúde" – SUS), guaranteeing universal and equal access, jointly and continuously to actions and services, for the prevention, promotion, protection and recovery of health, including special attention to diseases that primarily affect the elderly.

(...)

§ 2º It is incumbent upon the Public Power to provide to the elderly, free of charge, medicines, especially those of continuous use, as well as prostheses, orthoses and other resources related to the treatment or rehabilitation [22].

In the same year of publication of the EI, the Ministry of Health passed the Law 12,802/2013 [10] on reconstructive plastic surgery of the breast in women undergoing oncologic surgery, allowing "immediate reconstruction" when the necessary clinical conditions exist. The measure was considered the kick-off for older people with severe comorbid conditions to be covered by surgeries of the Unified Health System (SUS).

In addition to providing the means for these laws to be fully enforced, with an increase in the supply of public services, the health professional must follow bioethical principles to meet this demand. This implies not only performing procedures with skill and ability but also prescribing them when they may add benefits, not refuting possibilities of treatment only due to the chronological age of the patient.

Assistance to the elderly in surgical situation

Although cardiovascular diseases are the most common cause of death worldwide, current surgical strategies have contributed to increasing the life expectancy of affected patients by altering the course of the disease. Therefore, clinicians and surgeons must be prepared to decide between treatment options, although there is little data to guide them [11].

Some authors have developed studies not only on the technical ability but also on the behavior of the health professional in relation to the elderly surgical patient, as well as analyzing the latter's perception regarding the treatment received during the hospital stay. Assistance to the elderly in a surgical situation differs from care to other age groups. Changes due to aging and diseases associated with this phase of life can compromise the functional balance and increase the patient's vulnerability and the chances of postoperative complications [12].

Stressing agents

Among the stressors that affect the elderly, one can mention retirement and treatment costs, the death of loved ones in situations that resemble their own state of health and fear in relation to the surgery. There are also changes in the social role in the family structure, and especially the concern: who will be the decision-maker about their health, their surgery and their body? Themselves? Or is a child/caregiver to speak for the elderly?

Care begins before surgery when the subject becomes aware of the need for the procedure, through admission to the surgical block and finally getting to discharge. Therefore, special attention should be given to the patient from the preoperative period, since it is at this moment that individualized and comprehensive planning and the breakdown of fears and anxiety occur. What happens at this stage will influence the final decision of the elderly to agree to undergo the surgical procedure or not. If the process is not well conducted, the fear of death and loss of autonomy can create problems in family and social life, with the perception of the future as uncertain.

Prior to the surgery, stress increases vulnerability to viruses and bacteria and undermines the energy required for the procedure. After surgery, especially in cases of cardiac surgery, the elderly usually worry too much about becoming dependent on their relatives after discharge. These aspects interfere in the conditions of the elderly patient, impacting the surgical procedure, the recovery [12] and increasing the vulnerability to postoperative alterations [13].

Dialog as part of the care

The guidelines should be adequate for each stage of treatment, always respecting the education

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level of the patient. To promote health education, the professional must be understood by his interlocutor. The effectiveness of communication is fundamental, especially when considering that in many cases care will extend to the home [13,23].

The procedures during the period of hospitalization, considered routine for the professional, have different meanings for the elderly patient. Beliefs, values, norms and rites of care can have a powerful influence on their survival, state of illness and health, and sense of well-being [13].

Privacy and identity

It is common to see debilitated elderly patients in the wards, striving to hide their "private parts", easily exposed by the hospital gown. If, on the one hand, this type of gown facilitates the performance of technical procedures, on the other, it makes the subject feel totally vulnerable and exposed. In this situation, it is common for the elderly to limit their movements, even restricting themselves to the bed [22,24].

Technical procedures, especially those involving examination of the genitalia, may expose the patient to embarrassment. It is necessary to keep their privacy in order to protect them from exposure, either to the patient on the neighboring bed or to the companion, even if it is a relative (unless there is an express request from the elderly for the stay of the companion). Therefore, the appropriate technique for vaginal touch, scrotum or breast examination, anal inspection, and rectal examination should be applied, as well as avoiding unnecessary exposure of the penis when examining the inguinal region for herniations. Safeguarding privacy indicates respect for the patient. If not performed in a veiled way, procedures can cause undesired experiences during hospitalization, characterized by feelings of invasion and aggression that culminate in distortions of understanding.

Relationship to feeding

Elderly people tend to be very concerned about food, relating it to "being well." However, in the perioperative period, they go through variable periods of fasting. If surgery is postponed, this fasting may be repeated or extended unnecessarily. This possibility often frightens the patient, who starts to ask: "Will I stay in hospital much longer?"; "Am I going to miss the surgery?"; "Will I have to re-enter the SUS scheduling queue?" The elderly person who receives the news of the cancellation when in the surgical center feels frustrated, and even ashamed, for having been submitted to the situation unnecessarily.

Bioethics: knowledge and humanization

Older surgical patients know that they are subject to more risks. Thus, when dealing with the difficulties of the hospital environment, they feel insecure, placing all the trust in the health team. The professionals must be attentive to the conversations and the procedures that they execute, always transmitting assurance and comfort [15] – discussions about which team will take care of the patient at a certain stage of the disease should be avoided, for example.

The affective dimension is manifested in the humanization of care, which should inspire confidence. For this, good communication, an affectionate, gentle and understanding treatment, the touch, speech, listening, the look and the support to the patient are important - in short, one should take an interest in the patient. It is an ethical principle to guide the elderly patient with clarity about the evolution after surgery, allowing their active participation in decision making (often restricted by institutions or by the family itself)

Although younger people are dissatisfied with long periods spent caring for the elderly relative, the family tends to be the most supportive in these situations [16]. The health system tends to focus on acute care (treating a broken hip, for example); but it is family members who provide long-term care (such as food and mobility aids) [16]. Thus, the relationship between the caregiver and the elderly must be carefully observed by the health professional during hospitalization, since poorly understood or poorly performed guidelines may impair treatment after discharge.

The memory of the absence of family members may surface during hospitalization when the question is asked [14]: "Are you alone?" Or "Do you live alone?" - questions that can generate bad feelings in the patient. The presence of family members represents an important connection with the external environment, attenuating the feeling of being restricted to the hospital environment. The presence of the relative, who knows the particularities of the elderly and is part of his life [17], revives the memory of happy moments "at home."

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As a consequence, the patient finds the strength to recover and anticipate the return home.

It is also common for the elderly to cling to spirituality to keep hope in "better days". Thus, the professional must respect the patient's faith, always remembering that religious manifestations can give strength and joy to face complex health treatments, in addition to having a positive effect on recovery. Therefore, it is important to allow the patient access to the chaplaincy service of the hospital or to religious representatives who can assist them according to their own will [18,19].

Final considerations

Health facilities need to be adapted to meet the increased demand for surgeries in the elderly. Based on the assessment of vulnerabilities (cognitive, auditory, visual deficit and changes determined by disease and treatment), structural changes are required, such as the placement of anti-slip material on floors, bathroom support bars, and bed railings. No less important are the changes in planning and routine: extended and alternative schedules for visits or the stay of the family/caregiver in the intensive care center and service priority [8].

The new profile of users requires changes in the managerial and health care role, and not only in relation to technical issues. It is necessary to know the legal support and ethical aspects, seeking to humanize actions, individualize care and have an interdisciplinary perspective to solve problems. During the process of preparation, hospitalization and hospital discharge, it is also necessary to preserve the patient's identity and safeguard their privacy. By ensuring dignified treatment for the elderly, practitioners will feel that their efforts have been rewarded.

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Participation of the authors

Dulcyane Ferreira de Oliveira participated in the writing of the article. Gerson Suguiyama Nakajima and Jonas Byk participated as supervisors of the dissertation.

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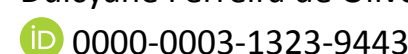 0000-0003-1323-9443

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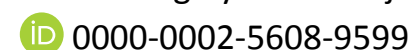 0000-0002-5608-9599

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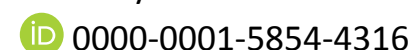 0000-0001-5854-4316

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