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Review

Anaesthesia and the elderly patient, seeking better neurological outcomes[☆]



Cristina Alexandra Benavides-Caro*

Anaesthetist Physician, Specialist in Bioethics, Adjunct Associate Professor in Neuroanaesthesia, Fundación Universitaria Sanitas, Bogotá, DC, Colombia

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ABSTRACT

Introduction: Elderly patients in need of surgery under anaesthesia present the challenge of maintaining their especially delicate balance under stress conditions.

Objective: This review of the literature aims to bring the anaesthesiologist closer to this group of patients, examining some of the physiological changes that occur with ageing, the effects that anaesthesia might have on their postoperative neurological state, the monitoring options, and the most frequent neurological complications.

Materials and methods: A search was conducted in the LILACS, MEDLINE and GOOGLE SCHOLAR databases using the terms anaesthesia, elderly, outcomes and neurologic, together with an ambispective snowball search from 2000 until today.

Conclusion: Institutions and staff responsible for the care of elderly patients must have the training and knowledge necessary for providing comprehensive treatment to this group of patients, in order to help them maintain their independence and physical and mental health which are so important during the final stage of life.

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Anestesia y paciente anciano, en busca de mejores desenlaces neurológicos

RESUMEN

Introducción: El paciente anciano llevado a cirugía y anestesia es un desafío al intentar mantener su delicado equilibrio bajo condiciones de estrés.

Objetivos: Esta revisión de la literatura tiene como objetivo aproximar al anestesiólogo a este grupo de pacientes al examinar algunos de los cambios fisiológicos que se presentan con el envejecimiento, los efectos que la anestesia puede tener sobre el estado neurológico postoperatorio; las opciones de monitorización y las complicaciones neurológicas más frecuentes.

Palabras clave:

Anciano
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* Correspondence to: Calle 23 # 66 - 46, consultorio 403-404, Colombia.

E-mail address: alexb36@gmail.com

Materiales y Métodos: Para este artículo se realizó una búsqueda en las bases de datos LILACS, MEDLINE Y GOOGLE SCHOLAR con los siguientes términos anestesia, anciano, desenlaces y neurológico, que se complementó con una búsqueda en bola de nieve ambispectiva a partir del año 2000 hasta la actualidad.

Conclusión: Las instituciones y personal a cargo del paciente anciano deben contar con la preparación y conocimiento necesarios para el manejo de este grupo de pacientes, con el fin de mantener la independencia y salud física y mental tan importantes en la etapa final de la vida.

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Introduction

With improved medical care and health conditions, average life expectancy has increased throughout the world.¹ This increase in longevity results in a growing number of patients over 65 that are taken to surgery.^{2,3}

When managing this group of patients it is important to remember that the definitions of ageing and elderly are in constant flux and depend on the environment in which the elderly individual lives. The characteristics used as the basis to define what an elderly individual is may be associated with multiple social factors, including the age at which he or she stops being fully active at work or in society, is forced to change roles, or has lost functional capacities.³ The definition of the healthy elderly individual must also be considered, including several concepts such as independence for activities of daily living, wellness, social participation and good quality of life.⁴ It is generally accepted that an elderly patient is 65 or older.⁵

Elderly patients are complex when it comes to the approach to their management, and it is important to take into account that outcome goals are different than for the rest of the population due to the functional implications that a surgery may have for this group of people.⁶ An important percentage of patients over 65 years of age exhibit preclinical stages of Alzheimer's disease, Parkinson's disease, Lewy body dementia or cerebrovascular disease⁷; and this, together with the physiological changes and the effects of surgical stress and anaesthesia, increases the risk of developing postoperative complications when compared with middle aged individuals.⁸

Methods

For this review, a search was conducted in the LILACS, MEDLINE and GOOGLE SCHOLAR databases, using the terms anaesthesia, elderly, outcomes and neurological, together with an ambispective snowball search between 2000 and today.

Most frequent postoperative complications in elderly patients

The frequency of complications in elderly patients is very high. In the United States, 30% of the patients living in retirement

homes who were taken to colectomy died within the first three months after surgery, and 40% of those who survived showed significant functional decline⁹; the incidence of complications increases with age, and 20% of patients over 80 years of age taken to surgery had a complication, and the presence of a complication increased mortality, with a range between 4% and 26%.¹⁰

The above implies that, in the elderly, the healthcare team is mandated to have a very clear indication for surgery and to give priority to the patient's decision regarding his/her disease and the management options, over those of the family. Close to three-fourths of critically ill patients living in the United States prefer not to undergo any intervention that may entail the risk of decline or loss of their ability to function.⁹

Two of the most frequent postoperative neurological complications with a greater impact on patient outcome are delirium and cognitive dysfunction.

Postoperative delirium is defined as an acute disturbance of consciousness with signs of inattention, disorientation and memory abnormalities that fluctuate over time.¹¹ It is independently associated with increased mortality, length of stay, functional decline, and overall costs for the institutions. It usually manifests between the first and third postoperative days, with an incidence ranging between 5% and 15%, and may be as high as 33–62% in some groups such as that of hip fractures. The exact cause of this syndrome is yet unknown but it appears to be influenced by several combined factors such as the use of benzodiazepines, opioids or steroid medications, the level of schooling, the type of surgery, the depth of anaesthesia, and comorbidities such as terminal kidney disease or diabetes.^{12–14}

Postoperative cognitive dysfunction is a term used to describe a syndrome characterized by consciousness, attention, perception, thinking, memory, behaviour and emotional disturbances that manifest after surgery. This complication appears within days or weeks, as early as within the first 7 days or as late as within the first 3 months. Incidence is highly variable and it is highly significant in cardiac surgery, ranging between 30% and 80%, and in major non-cardiac surgery, ranging between 25% for early stage and 9.9% for late stage. The causes of postoperative cognitive dysfunction are not clear and it appears to be the result of a combination of factors.^{15,16} In their study, Monk et al. found age to be an independent risk variable for postoperative cognitive dysfunction and also found a correlation between mortality within the first year after surgery and postoperative cognitive dysfunction. The

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