

Depression in the surgically intervened elderly adult

Depresión en el adulto mayor intervenido quirúrgicamente

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Abstract

Objective: The objective of the study was to determine the degree of depression in elderly adults after surgery and its relationship with the duration of anesthesia. **Methods:** We conducted an observational, comparative, prospective, and longitudinal study. We included 73 elderly adults aged 60 scheduled for different surgical procedures. Their degree of depression was evaluated before and after the surgery with the short version of the Yasavage Geriatric Depression Scale. They were classified according to the score: no depression (0-5), mild depression (6-9), and established depression (10-15). The relation of depression with anesthesia duration was determined. The sample size was calculated for proportions. Descriptive statistics were used as well as χ^2 ($p < 0.05$). **Results:** In the first evaluation, 47 patients (64%) were not depressed, 21 (29%) had mild depression, and 5 (7%) had established depression. In the second evaluation, we found that 44 patients (60%) were not depressed, 21 (29%) had mild depression, and 8 (11%) had established depression. The relationship between depression and anesthesia duration was $\chi^2 = 0.81$. **Conclusions:** We did not establish a relation between depression and anesthesia duration in surgically intervened elderly adults.

Keywords: Adult. Anesthesia. Depression. Aging. Spinal.

Resumen

Objetivo: Determinar el grado de depresión en el adulto mayor tras una cirugía y su relación con el tiempo anestésico. **Métodos:** Estudio observacional, comparativo, prospectivo y longitudinal. Se incluyeron 73 adultos mayores de 60 años programados para diferentes cirugías. Se evaluó el grado de depresión antes y después de la cirugía con la Escala de Depresión Geriátrica de Yasavage versión corta. Se clasificó según la puntuación: sin depresión (0-5), depresión leve (6-9) y depresión establecida (10-15). Se relacionó la depresión con el tiempo anestésico. El tamaño muestral se calculó para proporciones. Se utilizó estadística descriptiva y prueba χ^2 ($p < 0.05$). **Resultados:** En la primera evaluación se observaron 47 (64%) pacientes sin depresión, 21 (29%) con depresión leve y 5 (7%) con depresión establecida. En la segunda evaluación se encontraron 44 (60%) pacientes sin depresión, 21 (29%) con depresión leve y 8 (11%) con depresión establecida. Para la relación entre depresión y tiempo anestésico, $\chi^2 = 0.81$. **Conclusiones:** No se encontró relación entre la depresión y el tiempo anestésico en adultos mayores intervenidos quirúrgicamente.

Palabras clave: Adulto. Anestesia. Depresión. Envejecimiento. Espinal.

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Introduction

The population pyramid in Mexico has been inverted in recent lustrums due to factors such as birth and infection control; for this reason, life expectancy has increased and there are increasingly more older adults in our country. Calculations indicate that, by 2050, one quarter of Mexicans will be older than 60 years. The demand for medical services and elevated costs will be a huge challenge for the provision of care to this age group and its associated diseases, such as diabetes, cardiovascular diseases, neuropsychiatric disorders (depression and anxiety), and neurodegenerative diseases that cause loss of cognitive, functional, and emotional abilities, which limit daily activities and leading an independent life.

Aging is associated with a loss of neuronal reserve, cerebral blood flow decrease, slow nerve conduction, poor psychomotor coordination, impaired ability to solve complex problems, and short-term memory loss. This progressive loss of higher mental functions that occurs during the aging process is associated with depression, which by 2020, according to the World Health Organization, will be the second cause of morbidity and mortality in older adults hospitalized for medical or surgical procedures with risk of complication, which increases in the latter¹⁻³.

Depression is a highly prevalent neuropsychiatric disorder in patients hospitalized at both medical and surgical facilities; its prevalence is 16-43% in patients admitted for acute diseases.

Depression is characterized by affective symptoms, such as sadness, anhedonia or dysphoria, and by somatic symptoms, such as sleep, appetite, or neurovegetative disorders (palpitations, chest pain, dyspnea, hyperventilation, sweating, nausea, and chills). There may be some psychological symptoms, such as a sense of death, loss of self-control, and depersonalization.

The patient loses interest in living, shows inability to perform activities and has sleep disorders, weight loss or gain, insomnia or hypersomnia, agitation, psychomotor retardation, fatigue or loss of energy, feelings of worthlessness or guilt, alterations in the ability to think or concentrate, thoughts of death, and suicidal ideation, which interfere with his/her quality of life. In short, it is a heterogeneous disorder with an indeterminate course and variable response to treatment.

People who suffer from a chronic or disabling disease, or who are candidates for surgery, are prone to depression, which is why identifying comorbidity is of

great importance due to the impact on their quality of life⁴⁻¹⁰.

The care of older adults requires a comprehensive evaluation that considers the activities of daily living and functionality, family dynamics, socioeconomic conditions, and neuropsychological status¹¹.

It is advisable for surgical procedures in these patients to be scheduled and minimally-invasive, since avoiding emergency surgery is sought due to the serious physical and mental complications it is associated with. Cognitive impairment, advanced age, social precariousness, and individual disability are related to a lower probability of recovery and higher risk of death¹²⁻¹⁶.

To assess if older adults with some type of scheduled surgery have mental status dysfunction, specifically depression, and several diagnostic tests are available. One of them is the Yesavage Geriatric Depression Scale, 15-item short version, which is a useful tool that is easy to use and has a sensitivity of 97% and specificity of 85% for detecting depression. The answer to each question is dichotomous: Affirmative (yes) or negative (no). Ten questions are designed to be affirmatively (yes) and five to be negatively answered (no). If patient answers match the affirmative or negative answers, a score of 1 is assigned. At the end, the points are added and the cutoff points are established: 0-5 points, no depression; 6-9 points, mild depression; and 10-15 points, established depression.

The present work has the purpose to determine the degree of depression in older adults after undergoing surgery and its relationship with anesthetic time.

Methods

An observational, comparative, prospective, and longitudinal study was carried out at the general surgery department of a zone general hospital over a period of 6 months. Adults aged 60 years and older, of either gender, who knew how to read and write, electively scheduled for abdominal, urological, orthopedic, or oncologic surgery, or for amputations, with regional anesthesia, were included in the study.

Patients who underwent emergency surgery and those without surgical evaluation in the medical record, or who were not on the surgical scheduling list, with a history of depression or who had taken antidepressants were excluded from the study. Patients who underwent elective surgery but were discharged

post-intubation from the operating room because they received general anesthesia were eliminated.

General data were obtained from the medical record. The degree of depression was evaluated using the Yasavage Geriatric Depression Scale, short version (15 questions) (Table 1).

The survey was applied by trained medical personnel at the patient admission department. The procedure was as follows: The interviewer stood or sat in front of the patient and read each question loudly, slowly, and clearly; once the question was understood, the patient answered verbally by agreeing (yes) or disagreeing (no). Questions 2-4, 6, 8-10, 12, and 14-15 are to be affirmatively answered (yes), and questions 1, 5, 7, 11, and 13, to be negatively answered (no). When patient answers matched the affirmative or negative answers, 1 point was assigned. The interviewer added up all the answers that were rated with a score of 1, and the cutoff points were as follows: 0-5, no depression; 6-9, mild depression; and 10-15, established depression.

The evaluation was carried out in two stages: before surgery at the hospitalization area, with the patient calm, in no pain and lying down, and after surgery in the recovery room, with the patient calm, in no pain, lying down, with good verbal communication, and able to move the lower extremities.

Anesthetic time was measured in minutes with a conventional stopwatch by the same person who conducted the survey, and it was considered from the time the anesthesiologist initiated regional block until the patient mobilized the lower extremities in the recovery room.

The sample size was calculated with the Epi Info program, version 3, for qualitative variables in order to estimate proportions ($n = 73$), in a finite population with a 95% confidence interval and significance established at $p = 0.53$. Patient selection was carried out by convenience, with selection criteria, anonymity, and confidentiality being respected.

Descriptive statistics were used to analyze the data, such as the mean, median, mode, and dispersion measures, and the Chi-square test to relate qualitative variables, using the SPSS statistical program, version 23.

Results

A total of 87 patients were collected, out of whom 73 were admitted to the study because they met the inclusion criteria. Twelve patients were excluded

Table 1. Yasavage Geriatric Depression Scale (short version)

		Yes	No
1	Are you satisfied with your life?	0	1
2	Have you dropped many activities?	1	0
3	Do you feel that your life is empty?	1	0
4	Do you often get bored?	1	0
5	Are you in good spirits most of the time?	0	1
6	Are you afraid that something bad is going to happen to you?	1	0
7	Do you feel happy most of the time?	0	1
8	Do you often feel helpless?	1	0
9	Do you prefer to stay at home rather than going out?	1	0
10	Do you feel you have more problems with memory than most people?	1	0
11	Do you think it is wonderful to be alive?	0	1
12	Do you have a hard time starting new projects?	1	0
13	Do you feel full of energy?	0	1
14	Do you feel that your situation is hopeless?	1	0
15	Do you think most people are better off than you?	1	0
Total score _____			

Interpretation:

0 to 5: normal.

6 to 9: mild depression.

10 or more: established depression.

because they underwent emergency surgery, and 2 post-intubated patients were eliminated because they received general anesthesia trans-operatively. Of those who entered the study, 47 (64%) were men and 26 (36%) were women, with mean age being 71 years (standard deviation: 8.6). As regards schooling, 17 (23%) were illiterate, 24 (33%) had incomplete primary education, 13 (18%) had complete primary education; incomplete secondary education, 3 (4%); complete secondary education, 7 (9%); incomplete high school, 1 (1%); complete high school, 4 (6%); and college education, 4 (6%). The general surgery department was the one that more surgical interventions performed, with 23 (32%) cases. The most common pre-operative diagnosis was prostatic transurethral resection in 15 (21%). The results of the depression degree evaluation before surgery showed 47 (64%) patients with no depression, 21 (29%) with mild depression and 5 (7%) with established depression. After surgery, 44 patients (60%) had no depression, 21 (29%) showed mild depression, and 8 (11%),

established depression. Men had depression more often before and after surgery. Mean anesthetic time was 156 min (standard deviation: 61).

The result between depression and anesthetic time was $\chi^2 = 0.81$ (non-significant).

Discussion

With this scale, the prevalence of depression before surgery in this sample of older adult patients scheduled for elective surgery was 36%, and after surgery, it increased by 4%. The latest reports in the literature refer that, in our country, the prevalence of depression in older adults ranges from 26% to 66%, although most of these studies were carried out in patients who were hospitalized for various causes and only few reports included surgical causes³. Our result is different from those reported in other countries, as, for example, Brazil, with a prevalence of depression of 22% in patients undergoing elective surgery, while in Europe it is lower¹⁷⁻¹⁹, and perhaps these lower figures are due to the diagnostic method and the criteria that were employed, because when the criteria of the International Classification of Diseases, 10th edition (ICD-10) or those of the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) are used, the result for prevalence of depression is lower compared to the results obtained with screening tests such as the Geriatric Depression Scale, which was used in this report, or when other questionnaires are employed²⁰.

On the other hand, the findings with regard to prostatectomy and educational level agree with reports in the literature because, after prostatectomy, patients, due to a lack of knowledge about their recovery or postoperative self-care, develop depression and require psychological support to adapt to their new life, deal with their ailment, and improve their quality of life.

The hospital where the study was carried out, of higher complexity than hospitals of its kind, does not offer psychological support, since it lacks a psychology department, which is essential for success throughout the process, and some studies that describe the participation of a psychologist as a fundamental part of the multidisciplinary team report favorable results. It is necessary for hospitals to have the support of a psychologist to better address the increasingly pressing needs of hospitalized older adults. One study found that adults aged 70-84 years with depression have an increased risk of mortality in comparison with those who do not have depression, dying on average three years earlier²¹, which is why

it is necessary to early diagnose it in this group of patients and start pharmacological and non-pharmacological treatment as soon as possible.

Our study has as limitation that the screening instrument that was used identifies patients at risk of depression, and definitive diagnosis is established with a psychiatric interview, which was not carried out in this report.

Conclusions

The prevalence of depression in older adults who are scheduled for elective surgery, in our study population, before surgery, was 36% and, after surgery, it increased by 4%.

There is no relationship between anesthetic time and depression in older adults who are surgically intervened.

Older adults scheduled for surgery should undergo mental status assessment in order to allow depression to be diagnosed and timely psychological or pharmacological treatment to be provided; this way, morbidity and mortality of these patients are influenced and quality of life is improved.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this research.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors declare that no patient data appear in this article.

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