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ORIGINAL PAPER

INCIDENCE OF PERIOPERATIVE DELIRIUM AT THE HOSPITAL NACIONAL ARZOBISPO LOAYZA, OCTOBER TO DECEMBER 2021, LIMA PERU

INCIDENCIA DE DELIRIUM PERIOPERATORIO EN EL HOSPITAL NACIONAL ARZOBISPO LOAYZA, OCTUBRE A DICIEMBRE 2021, LIMA PERÚ

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ABSTRACT

Objective: To determine the incidence of perioperative delirium (POD) at the Hospital Nacional Arzobispo Loayza, from October to December 2021. **Methods:** Qualitative and prospective observational study, carried out in a population of 910 patients, in which the AMT Test Confusion Assessment Method (CAM) and the Pfeiffer questionnaire (Short Portable Mental Status Questionnaire, SPMSQ) were applied. We used Chi2 to demonstrate the existence of association and Cramer's V and Phi tests to quantify the intensity of said relationship if it existed. **Results:** Of the total of patients (910), 18.46% presented perioperative delirium. Sex and religion do not influence this. Age does influence the presentation of POD since 50% (145) of the patients 61 years of age or older presented it, unlike those between 36-60 years of age only 5.31% and those of 18-35 only 0.88% presented POD. According to the level of education: 100% with no education, 73.1% with primary education, 18.5% with secondary education and 5.8% with higher education, presented DPO. According to the anesthetic technique, POD was found in 28.9% (60) of the spinal type with sedation, 22.4% (11) of the epidural type with sedation, 16.7% (83) of the General TIVA TCI type, 12.9% (4) of the Block type with sedation, 9.5% (10) of the General balanced type; for the types of general anesthesia manual TIVA, General Multimodal and Spinal anesthesia without sedation there were no cases of POD. According to the operative time: 100% (9) of the patients with more than 6 hours of operative time, 27.1% (38) of the patients who have 3 to 6 hours of operative time and 16.5% (121) of the patients who have 1 to 3 hours of operative time presented cases of POD. According to hospitalization time prior to surgery: 48% (36) of patients with hospitalization time of 16 to 30 days, 20.5% (26) of patients with hospitalization time of 8 to 15 days and 16% (97) of the patients with hospitalization time of 3 to 7 days presented POD. According to the presence of comorbidities: 51.6% (16) with AHT and RD, 41.7% (30) with Diabetes and 40.8% (20) with AHT and DM2 present POD. According to the presence of dementia: 100% (6) of the patients with a history of dementia and 17.9% (162) of the patients with no history of dementia presented POD. According to psychiatric history, 68.4% (13) of those who did have a history of psychiatric disorder and 17.4% (155) of those who did not have a history of psychiatric disorder presented POD. According to history of psychiatric treatment: 100% (6) of those who do have a history of treatment and 17.9% (162) of those who do not have a history of psychiatric treatment presented POD. According to the pre-surgical and post-surgical PFEIFFER questionnaire: 100% of those with mild, moderate or severe cognitive impairment according to the PFEIFFER PRE QX questionnaire presented POD. According to diagnosis of pre-surgical and post-surgical delirium: 100% presented POD. **Conclusions:** There is no association between sex and religion and the presentation of POD. If there is an association between age, educational level, type of anesthesia, operative time, hospitalization time prior to surgery, comorbidities, history of dementia, history of psychiatric disorder, history of psychiatric treatment, pre-, post-surgical Pfeiffer questionnaire, pre-surgical delirium and post-surgical delirium and the presentation of POD,

Keywords: Perioperative; delirium. (Source: MESH-NLM)

RESUMEN

Objetivo: Determinar la incidencia de delirium perioperatorio (DPO) en el Hospital Nacional "Arzobispo Loayza", de octubre a diciembre del 2021. **Métodos:** Estudio observacional cualitativo y prospectivo, realizado en una población de 910 pacientes, en los que se aplicó: AMT Test Confusion Assessment Method (CAM) y el cuestionario de Pfeiffer (Short Portable Mental Status Questionnaire, SPMSQ). Utilizamos Chi2 para demostrar la existencia de asociación y las pruebas de V de Cramer y Phi para cuantificar la intensidad de dicha relación en caso existiera. **Resultados:** Del total de pacientes (910) el 18,46% presentaron de delirium perioperatorio. El sexo y la religión no influye en esta. La edad sí influye en la presentación del DPO puesto que el 50% (145) de los pacientes de 61 años o más la presentaron, a diferencia de los que tenían entre 36-60 años solo el 5,31% y los de 18-35 solo el 0,88% presentaron DPO. Según el nivel de instrucción: el 100% sin instrucción presentaron DPO, el 73,1 con primaria presentaron DPO, el 18,5 con secundaria presentaron DPO y el 5,8% con educación superior presentaron DPO. Según la técnica anestésica se encontró DPO en el 28,9% (60) del tipo raquídea con sedación, el 22,4% (11) del tipo epidural con sedación, el 16,7% (83) del tipo General TIVA TCI, el 12,9% (4) del tipo Bloqueo con sedación, el 9,5% (10) del tipo General balanceada; para los tipos de anestesia General TIVA manual, General Multimodal y Raquídea sin sedación no se presentaron casos de DPO. Según el tiempo operatorio: el 100% (9) de los pacientes con más de 6 horas de tiempo operatorio, el 27,1% (38) de los pacientes que tienen de 3 a 6 horas de tiempo operatorio y el 16,5% (121) de los pacientes que tienen de 1 a 3 horas de tiempo operatorio presentaron casos de DPO. Según el tiempo de hospitalización previo a la cirugía: el 48% (36) de los pacientes con tiempo de hospitalización de 16 a 30 días, el 20,5% (26) de los pacientes con tiempo de hospitalización de 8 a 15 días y el 16% (97) de los pacientes con tiempo de hospitalización de 3 a 7 días presentaron casos de DPO. Según la presencia de comorbilidades: el 51,6% (16) que tienen HTA y ER, el 41,7% (30) que tienen Diabetes y el 40,8% (20) que tienen HTA y DM2 presentan casos de DPO. Según presencia de demencia: el 100% (6) de los pacientes que tienen historia de demencia y el 17,9% (162) de los pacientes que no tienen historia de demencia presentaron DPO. Según historia de antecedentes psiquiátricos, el 68,4% (13) de los que sí tienen historia de trastorno psiquiátrico y el 17,4% (155) de los que no tienen historia de trastorno psiquiátrico presentaron DPO. Según historia de tratamiento psiquiátrico: el 100% (6) de los que sí tienen historia de tratamiento y el 17,9% (162) de los que no tienen historia de tratamiento psiquiátrico presentaron DPO. Según cuestionario PFEIFFER pre-quirúrgico y post-quirúrgico: el 100% de los que tienen deterioro cognitivo leve, moderado o severo según el cuestionario PFEIFFER PRE QX presentaron DPO. Según diagnóstico de delirio pre-quirúrgico y post-quirúrgico: el 100% presentaron DPO. **Conclusiones:** No existe una asociación entre el sexo y la religión y la presentación de DPO. Sí existe una asociación entre la edad, grado de instrucción, tipo de anestesia, tiempo operatorio, tiempo de hospitalización previo a la cirugía, comorbilidades, historia de demencia, historia de trastorno psiquiátrico, historia de tratamiento psiquiátrico, cuestionario Pfeiffer pre, post quirúrgico, delirio pre quirúrgico y delirio post quirúrgico y la presentación de DPO.

Palabras claves: Delirio perioperatorio. (Fuente: DeCS- BIREME)

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INTRODUCTION

Delirium has been described in medical literature for more than two thousand years and is still not recognized, evaluated or managed appropriately⁽¹⁾. It is also known as acute confusional syndrome, metabolic encephalopathy, or altered mental status, among 30 other descriptive terms. Delirium could be described as acute brain failure and is the end of multiple mechanisms similar to that of heart failure. The official definition of delirium is described in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5)⁽²⁾, which mentions that a disturbance of attention and consciousness is required that develops acutely and tends to fluctuate. The pathophysiology of delirium remains in theory, it has not been possible to explain 100% but studies have included neurotransmitters such as norepinephrine and acetylcholine and neuroinflammation as its cause^(3,4).

Perioperative delirium is a frequent and relevant complication in surgical patients⁽⁵⁾. Its genesis is multifactorial, involving pre-existing characteristics of the patient, and triggers such as medications, pain, and inflammation associated with surgical trauma, among others⁽⁶⁾. Delirium corresponds to an acute-onset brain function disorder that can develop in hospitalized patients, especially older adults, characterized by an alteration in the level of consciousness of fluctuating course and by alterations of variable degrees in several domains of the brain. Brain functioning, such as the organization of thought, the relationship with the environment, and characteristically a deficit in attention. Occasionally it manifests as motor agitation and positive mental symptoms (illusions, hallucinations), but the most frequent are the hypoactive forms and the mixed variant.

The appearance of perioperative delirium is associated with adverse outcomes, such as a longer hospital stay, a higher risk of complications, and a reduction in functionality and cognitive status in the long-term evolution⁽⁶⁾. During the last five years and after observing a high incidence of delirium, as well as its association with adverse health outcomes, this condition has become an opportunity to improve hospital care through the implementation of multimodal prevention strategies⁽⁷⁾. In the hospital setting, it continues to be poorly diagnosed and treated, and up to 80% of patients are not recognized or

treated perioperatively⁽⁸⁾. It turns out to be the second most common hospital psychiatric syndrome, after depressive disorders. For the patient, it implies an association of greater morbidity, mortality, persistent functional impairment.

Delirium reaches an incidence between 15 and 50% in older adults hospitalized for medical pathology, in patients subjected to mechanical ventilation, its incidence ranges between 60 and 85%. Thus, the highest incidences of POD described are observed in patients undergoing vascular surgery, heart surgery, and in adults older than 70 years undergoing surgery for hip fracture⁽⁹⁾. In major abdominal surgery, Koebrugge et al, describe an incidence of 24%, Patti et al, document an 18% incidence of POD in older adults undergoing colon surgery for cancer, a value similar to that observed by McAlpine in women undergoing surgery for suspected gynecological cancer.

It should also be noted that delirium occurs mostly at night and can be of three types: hyperactive, hypoactive, and mixed, with hypoactive being the most frequent⁽⁶⁾. Multimodal non-pharmacological prevention strategies have documented a significant reduction in the incidence of delirium. Delirium therapy should focus on the search and management of precipitating factors, on favoring an adequate non-pharmacological environment, and on the appropriate use of neuroleptics.

The proper recognition of this entity and the implementation of non-pharmacological prevention strategies currently constitute a standard that promotes quality and safe care for surgical patients. The prevention and diagnosis of delirium are important to be able to treat it in an inter and multidisciplinary approach since it is closely related to less functional and cognitive deterioration and greater satisfaction on the part of the family.

The aim of this study is to visualize the incidence of perioperative delirium at the Hospital Nacional Arzobispo Loayza according to distribution by age, sex, religion, educational level, type of anesthesia, operative time, preoperative stay time, comorbidities, the existence of preoperative dementia, history of psychiatric disorder and history of psychiatric treatment. The tests that will be applied in this study are the Test Confusion Assessment Method (CAM) or Abbreviated Mental Test (AMT), which is a test that,





observes the patient quickly, at the bedside, with simple questions of orientation in time and space allows us to diagnose delirium with 95% sensitivity and specificity.

The Pfeiffer questionnaire (Short Portable Mental Status Questionnaire, SPMSQ) , is similar to the AMT, with a little more weight for the MS and with the difference that the errors are scored, instead of the correct ones. The SPMSQ has a good performance for the detection of dementia in PC (PdC 2/3)69 and in AE (PdC 2/3)70 and excellent in the geriatric setting (PdC 4/5)71⁽¹⁰⁾.

METHOD

Design and study area

The present study is observational, analytical, and prospective in the period from October 1 to December 31, 2021, at the Hospital Nacional Arzobispo Loayza in Lima-Peru. Population and sample: The sample in this period obtained by non-randomization for convenience was constituted of the entire population of patients who underwent surgery in the surgical sectors called Operations Room 6 (S06) and Operations Room 10 (S010) comprised of 910 patients. Variables and instruments: the independent variables were studied by sex, categorized age, religion, level of education, types of sedation, operative time, and hospitalization time prior to surgery. The dependent variable was the occurrence of delirium.

Procedimientos

Para la recolección de datos se aplicaron los siguientes Tests: 1) AMT Test Confusion Assessment Method (CAM) que sirve para el diagnóstico de delirio y 2) El cuestionario de Pfeiffer (Short Portable Mental Status

Questionnaire, SPMSQ, que sirve para determinar si existe demencia . Estos 2 test que se aplicaron en 2 oportunidades, la 1ra en la evaluación pre-anestésica, donde también se obtenía el consentimiento informado, la 2da se realizaba en la noche del día de la cirugía o en la noche del día siguiente en caso de que las cirugías terminaran después de las 4 p m. (las evaluaciones nocturnas fueron después de las 6 p m).

Statistic analysis

Chi2 was performed at 99% confidence, to demonstrate the existence of association and Cramer's V and Phi tests to quantify the intensity of said relationship if it existed. The survey data was entered into a database of the SPSS 26 statistical program for analysis and the preparation of relevant tables and graphs.

Ethical Aspects

The project was evaluated and approved by the Ethics Committee of the Hospital Nacional Arzobispo Loayza. The anonymity of the patients was guaranteed by coding the data. The authors also declare that the procedures followed were in accordance with the Declaration of Helsinki.

RESULTS

We worked with a total of 910 patients. It was found that the majority were female (53.4%), those over 61 years old were 31.87%, the majority were Catholic (95.38%), the majority level of education was secondary (55.93%), the predominant type of sedation was general TIVATCI (83.23), the predominant operative time was 3 to 6 hours (80.55%), the predominant hospitalization time prior to surgery was 3 to 7 days (66.59%) (Table 1).

Table 1. Sociodemographic characteristics of a sample of patients (n: 910).

Characteristics	Perioperative delirium
Gender	
Male	424 (46.59)
Feminine	486 (53.4)
Categorized age	
18 to 35 years old	225 (24.73)
36 to 60 years old	395 (43.40)
61 years old or more	290 (31.87)





Religion	
Catholic	868 (95.38)
Evangelical	11 (4.61)
Level of instruction	
None	6 (0.66)
Primary	67 (7.36)
Secondary	509 (55.93)
Superior	328 (36.04)
Types of sedation	
Spinal cord with sedation	207 (22.74)
Epidural with sedation	49 (5.38)
General TIVATCI	495 (83.23)
Blockade with sedation	31 (3.40)
Balanced overall	105 (11.54)
Surgery time	
Less than 1 hour	28 (3.07)
1 to 3 hours	140 (15.38)
3 to 6 hours	733 (80.55)
More than 6 hours	9 (0.99)
Hospitalization time prior to surgery	
1 to 2 days	102 (11.21)
3 to 7 days	606 (66.59)
8 to 15 days	127 (13.95)
16 to 30 days	75 (8.24)

Most had no history of dementia, no history of psychiatric disorder, and no history of psychiatric treatment. Regarding the PFEIFER questionnaire, prior to surgery, the majority presented a cognitive evaluation (88.24%), and post-surgery, the majority

presented a cognitive evaluation (81.54%). Regarding the evaluation of the diagnosis of delirium, prior to surgery, those who had a diagnosis of delirium were 1.54% and post-surgery they were 3.08%. Those who presented perioperative delirium were 18.46% (Table 2).

Table 2. Characteristics of mental problems in a sample of patients (n: 910).

History of dementia	
No	904 (99.34)
Yes	6 (0.66)
History of psychiatric disorder	
No	891 (97.91)
Yes	13 (2,09)
History of psychiatric treatment	
No	901 (99.01)
Yes	6 (0.99)





PFEIFFER Pre Qx Questionnaire	
Cognitive assessment	803 (88.24)
Mild cognitive impairment	90 (9.89)
Moderate cognitive impairment	4 (0.44)
Severe cognitive impairment	13 (1.43)
PFEIFFER Post Qx Questionnaire	
Cognitive assessment	742 (81.54)
Mild cognitive impairment	141 (15.50)
Moderate cognitive impairment	14 (1.54)
Severe cognitive impairment	13 (1.43)
Pre Qx delirium diagnostic evaluation	
Yes delirium	14 (1.54)
Not delirium	896 (98.46)
Post Qx delirium diagnostic evaluation	
Yes delirium	28 (3.08)
Not delirium	882 (96.92)
Perioperative delirium	
No	742 (81.54)
Yes	168 (18.46)

It was observed that women had 16.20% and men 20.3% of presenting perioperative delirium. Patients aged 61 years and over had 50%; Regarding religion, Catholics had 18%; and those who had a primary education level were the ones who most presented this condition (63.64%). The types of sedation

that prevailed were spinal (28.99%) and epidural (22.45%). The hospitalization time prior to surgery that prevailed were 16-30 days (48%) and 8-15 days (20.5%). However, there was no association between the variables.

Table 3. Bivariate analysis of the characteristics associated with perioperative delirium in a sample of patients.

Characteristics	Perioperative delirium		P
	NO n% 742 (81.54%)	YES n% 168 (18.46)	
Gender			0,186*
Male	338 (79.7)	86 (20.3)	
Feminine	404 (83.1)	82 (16.9)	
Categorized age			0,558*
18 to 35 years old	223 (99.12)	2 (0.88)	
36 to 60 years old	374 (94.69)	21 (5.31)	
61 years old or more	145 (50)	145 (50)	
Religion			0,186*
Catholic	711 (82)	157 (18)	
Evangelical	11 (100)	0 (0)	



Level of instruction			0.462*
None	0 (00)	6 (100)	
Primary	18 (36.36)	49 (63.64)	
Secondary	415 (81.53)	94 (18.47)	
Superior	309 (94.21)	19 (5.79)	
Types of sedation			0.456
Spinal cord with sedation	147 (71.01)	60 (28.99)	
Epidural with sedation	38 (77.55)	11 (22.45)	
General TIVATCI	412 (83.23)	83 (16.77)	
Blockade with sedation	27 (87.10)	4 (12.9)	
Balanced overall	95 (90.48)	10 (9.52)	
Surgery time			0.246*
Less than 1 hour	28 (100)	0 (0)	
1 to 3 hours	102 (72.9)	38 (27.1)	
3 to 6 hours	612 (83.5)	121 (16.5)	
More than 6 hours	0 (0)	9 (100)	
Hospitalization time prior to surgery			0.372
1 to 2 days	93 (91.18)	9 (8.82)	
3 to 7 days	509 (84)	97 (16)	
8 to 15 days	101 (79.5)	26 (20.5)	
16 to 30 days	39 (48)	36 (48)	

It was observed that those who had a history of dementia had 100% and those who had a history of psychiatric disorder had 68.4%; those with a history of psychiatric treatment had 66.67%; the PFEIFFER questionnaire pre Qx mild, moderate, severe

deterioration were the majority. Pre-Qx diagnostic evaluation of delirium was the majority and those who had a post-Qx diagnostic evaluation of delirium were the majority. However, there was no association between the variables.

Table 4. Bivariate analysis of the characteristics of mental problems associated with perioperative delirium in a sample of patients.

History of dementia			0.171*
No	742 (82.1)	162 (17.9)	
Yes	0 (0)	6 (100)	
History of psychiatric disorder			0.188*
No	736 (82.6)	155 (17.4)	
Yes	6 (31.6)	13 (68.4)	
History of psychiatric treatment			0.171*
No	739 (82.1)	162 (17.9)	
Yes	3 (33.33)	6 (66.67)	
PFEIFFER Pre Qx Questionnaire			0.767*
Cognitive assessment	742 (92.41)	61 (7.59)	





Mild cognitive impairment	0 (0)	90 (100)	
Moderate cognitive impairment	0 (0)	4 (100)	
Severe cognitive impairment	0 (0)	13 (100)	
PFEIFFER Post Qx Questionnaire			1.000
Cognitive assessment	742 (100)	0 (0)	
Mild cognitive impairment	0 (0)	141 (100)	
Moderate cognitive impairment	0 (0)	14 (100)	
Severe cognitive impairment	0 (0)	13 (100)	
Pre Qx delirium diagnostic evaluation			0.263
yes delirium	0 (0)	14 (100)	
Not delirium	742 (82.81)	154 (17.19)	
Post Qx delirium diagnostic evaluation			0.374
Yes delirium	0 (0)	28 (100)	
Not delirium	742 (84.13)	140 (15.87)	

* Performed with the chi square test of independence

DISCUSSION

From the bibliographic reviews carried out, very few statistics related to general populations (18 to 64 years) have been found, so it is very difficult to carry out a discussion in this age group, the vast majority of publications refer to people over 65 years of age. In the present study, it was found that of the total number of patients (910), 18.4% presented POD similar to that found by Lucia Alvarez-Bastidas⁽¹¹⁾, 42% according to Cristina Arotce⁽¹²⁾. This difference stands out because in our group of The study ranges from 18 years old and over and those from Arotce are all over 65 years old, but in our age group of over 61 years old, 50% did present POD, a figure similar to that of Arcotce, according to the chi-square test, obtaining a significance of 0 and Cramer's V test obtaining a value of 0.558, demonstrating a median association between age and POD. These results coincide with many works^(6,11,13,14).

Regarding gender, the highest incidence of POD that we found was 20.3% (86) of men and 16.9% (82) of women presented cases of POD, as mentioned by Williams-Russo P⁽¹⁵⁾ and Fisher BW⁽¹⁶⁾ where it is mentioned that male sex is a predisposing factor for the development of delirium in patients undergoing orthopedic surgery, but only in those without previous dementia. In this study, the Chi-square test was performed, obtaining a significance of 0.186, rejecting an association between cases of POD and sex. Regarding religion, 18.1% (157) of the Catholics and 26.2%⁽¹¹⁾ of the Evangelicals presented cases of

perioperative delirium, and a significance of 0.186 was obtained using Chi², rejecting association; Between the cases of POD and religion, no other works related to this variable were found, so these results could not be discussed. According to the level of education, we found that the lower the level of education, the greater the possibility of presenting POD, so much so that 100% of those who did not have any level of education presented POD and only 5.8% of those with higher education presented it. In the work of Lucia Álvarez-Bastidas, she also mentions that lack of schooling are socioeconomic factors that are associated with said pathology⁽¹¹⁾.

According to the type of anesthesia: 28.9% (60) of the spinal type with sedation presented POD, 22.4%⁽¹¹⁾ of the epidural type with sedation presented POD, 16.7% (83) of the General TIVA type TCI presented POD, 12.9%⁽⁴⁾ of the Block type with sedation presented DPO 9.5% (10) of the General balanced type presented POD 9.5% (10) of the General balanced type presented DPO on 9, 5% (10) of the balanced General type presented POD. For the types of general anesthesia manual TIVA, General Multimodal and Spinal anesthesia without sedation, there were no cases of POD; no studies could be found with this stratification of anesthetic techniques, so it cannot be compared with other studies: it should be mentioned that according to SE Masson there would be no impact of general and regional anesthesia on the incidence of postoperative cognitive dysfunction⁽¹⁷⁻¹⁹⁾. According to the operative time: 100% (9) of the patients with more than 6 hours of



operative time, 27.1% (38) of the patients who have 3 to 6 hours of operative time and 16.5% (121) of patients who have 1 to 3 hours of operative time presented POD, it has not been possible to find bibliography in which the operative time is related to the presence of POD, but what we can infer is that the longer the operative time, the greater the possibility that changes in cerebral perfusion occur, which could condition the release of proinflammatory mediators (interleukins and tumor necrosis factor α ^(20,21), which in patients with increased permeability of the blood-brain barrier, such as elderly patients, cross it causing neuronal damage (ranging from dysfunction to neuronal death), producing the subsequent clinical presentation as short- or long-term delirium, postoperative cognitive dysfunction, or dementia. Said neuroinflammation will determine an alteration of neurotransmission, with a decrease in the release of acetylcholine⁽⁴¹⁾ and an increase in the levels of dopamine, gamma amino butyric acid (GABA), serotonin, and norepinephrine.

Additionally, surgical stimulation increases plasma cortisol levels, which can maintain or cause POD⁽¹⁹⁾. According to hospitalization time before surgery: 48% (36) of patients with hospitalization time of 16 to 30 days, 20.5% (26) of patients with hospitalization time of 8 to 15 days, and 16% (97) of the patients with a hospitalization time of 3 to 7 days presented POD. Vibeke Juliebo mentions that one of the predisposing factors for POD is the long hospital stay before surgery, this is understandable since hospitals are institutions that are foreign to patients, and anguish, pain, worries, uncertainties, deprivation of family members who are also predisposing factors for POD. According to comorbidities: 51.6% (16) have hypertension and RD, 41.7% (30) have diabetes and 40.8% (20) have hypertension and DM2 have cases of delirium. According to Jimana Rodríguez ^(6,19), they report that comorbidities in patients predisposed to the appearance of POD, with the results we have that those with more comorbidities have a higher risk of presenting POD, as we see in those with high blood pressure + kidney disease. They have a higher risk than diabetics, which would prove this relationship.

According to the presence of dementia: 100%⁽⁶⁾ of the patients who did have a history of dementia presented POD and 17.9% (162) of those who did not have dementia presented DPO; according to Jimena Rodríguez⁽⁶⁾ mentions that patients who have dementia or another brain disease have a higher risk of presenting POD. This work agrees with this statement since 100% of the patients who presented dementia had POD. According to the history of psychiatric disorder: 68.4%⁽¹³⁾ of those who do have a history of psychiatric disorder and 17.4% (155) of those who do not have a history

of psychiatric disorder presented POD cases of perioperative delirium. Jimena Rodríguez ⁽⁶⁾ mentions that patients who have dementia or another brain disease have a higher risk of presenting POD, a concept that we see very similar since 68.4% who had brain disease presented POD. According to whether they had psychiatric treatment: 100%⁽⁶⁾ of those who did have a history of psychiatric treatment and 17.9% (162) of those who did not have a history of psychiatric treatment presented POD. These figures cannot be compared since We have not found a bibliography for this variable. According to the PFEIFFER PRE QX questionnaire: 100% of those with mild, moderate or severe cognitive impairment according to the PFEIFFER PRE QX questionnaire all presented POD: from the bibliographic reviews carried out we have not been able to find comparative studies between the CAM and the Pfeiffer7, but that if we can get closer to the idea that those with cognitive mental impairment are going to present POD.

According to the PFEIFFER POST QX questionnaire, 100% of those with mild, moderate or severe cognitive impairment present cases of perioperative delirium. From the literature reviews carried out, we have not been able to find comparative studies between the CAM and the Pfeiffer, but what we can predict is that those with cognitive mental impairment will present POD. According to pre-X-ray delirium diagnostic evaluation: 100% (28) of those who were positive in the pre-X-box delirium diagnostic evaluation and 15.9% (140) of those who were negative in the delirium diagnostic evaluation pre-QX present POD, so we can infer that those with pre-QX delirium will also present POD.

CONCLUSIONS

Advanced age, low education level, long surgery time, prolonged hospitalization prior to surgery, the presence of comorbidities such as high blood pressure, kidney disease, diabetes, and diseases that affect mental health, have influenced the presentation of DPO. In the same way, the anesthesia technique could influence the appearance of POD, with the regional ones with sedation presenting the highest POD, followed by TIVA in TCI, then blockade with sedation, then balanced general anesthesia, the ones with the highest risk: this does not is supported by the international bibliography. Sex and religion do not influence the appearance of this condition.

In relation to the pre-surgical Pfeiffer questionnaire, we have that those who have presented mild, moderate or severe deterioration all have presented POD, being a high association. In relation to the post-surgical Pfeiffer questionnaire, we have that those who have presented mild, moderate, or severe deterioration all have presented POD, being a strong association.





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