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Identification of delirium and subsyndromal delirium in intensive care patients

Identificação de delirium e delirium subsindromático em pacientes de terapia intensiva

Identificación de delirio y delirio subsindromático en pacientes de terapia intensiva

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ABSTRACT

Objective: identify delirium and subsyndromal delirium in intensive care patients; age, hospitalization time, and mortality. **Method:** a retrospective, quantitative study conducted in the Intensive Care Unit, using the Richmond Agitation-Sedation Scale to evaluate sedation and the Intensive Care Delirium Screening Checklist for the identification of delirium, with the participation of 157 patients. For statistical analysis, the t-test and the Chi-square test was carried out. **Results:** the majority presented subsyndromal delirium (49.7%). Mortality was 21.7%. The relationship between delirium and its subsyndromal with hospitalization time was statistically significant for both (p=0.035 and p <0.001), while age was significant only in the subsyndromal delirium (p=0.009). **Conclusion:** the majority of the patients presented subsyndromal delirium. The length of hospital stay was statistically significant in delirium and subsyndroma delirium. Age was significant only in subsyndromal delirium. The mortality of patients with delirium was higher than the others.

Descriptors: Nursing Assessment; Intensive Care Units; Mortality; Delirium; Length of Stay.

RESUMO

Objetivo: identificar *delirium* e *delirium* subsindromáico em pacientes de terapia intensiva; relacionar com idade, tempo de internação e demonstrar a mortalidade. **Método:** estudo retrospectivo, quantitativo, realizado em Unidade de Terapia Intensiva, por meio da escala *Richmond Agitation-Sedation Scale* para avaliar sedação e a escala *Intensive Care Delirium Screening Checklist* para identificação de *delirium*, com participação de 157 pacientes. Para análise estatística, foram aplicados o teste t e o Qui-quadrado. **Resultados:** a maioria apresentou *delirium* subsindromático (49,7%). A mortalidade foi de 21,7%. A relação entre o *delirium* e sua subsíndrome com o tempo de internação foi estatisticamente significativo para ambos (p=0,035 e p<0,001), enquanto a idade foi significativa apenas no subsindromático (p=0,009). **Conclusão:** a maioria dos pacientes apresentou *delirium* subsindromático. O tempo de internação foi estatisticamente significativo no *delirium* e no subsindromático. A idade foi significativa apenas no subsindromático. A mortalidade do paciente com *delirium* foi maior do que os demais.

Descritores: Avaliação em Enfermagem; Unidade de Terapia Intensiva; Mortalidade; Delirium; Tempo de Internação.

RESUMEN

Objetivo: identificar delirio y delirio subsindromáico en pacientes de terapia intensiva; relacionar con edad, tiempo de internación y demostrar la mortalidad. **Método:** el estudio retrospectivo, cuantitativo, realizado en Unidad de Terapia Intensiva, a través de la escala *Richmond Agitation-Sedation Scale* para evaluar la sedación y la escala *Intensive Care Delirium Screening Checklist* para identificación de delirio, con participación de 157 pacientes. Para el análisis estadístico, se aplicó la prueba t y el Qui-cuadrado. **Resultados:** la mayoría presentó delirio subsindromático (49,7%). La mortalidad fue del 21,7%. La relación entre el delirio y su subsíndrome con el tiempo de internación fue estadísticamente significativa para ambos (p = 0,035 y p <0,001), mientras que la edad fue significativa sólo en el subsindromático (p = 0,009). **Conclusión:** la mayoría de los pacientes presentó delirio subsindromático. El tiempo de internación fue estadísticamente significativo en el delirio y en el subsindromático. La edad fue significativa sólo en el subsindromático. La mortalidad del paciente con delirio fue mayor que los demás.

Descriptores: Evaluación en Enfermería; Unidades de Cuidados Intensivos; Mortalidad; Delirio; Tiempo de Internación**.**

INTRODUCTION

Neurological pattern's alteration presented by patients in the Intensive Care Unit (ICU), commonly called psychosis is nowadays more understood, being called delirium and defined as a potentially reversible acute cerebral dysfunction that develops in a short period of time (hours or days)[1-4].

Delirium can be classified as acute, that is, one lasting for a few hours and persisting, lasting from weeks to months. Hospitalized patients usually present it for about a week; however, some characteristics may persist even after hospital discharge. Clinically, it may be hyperactive or hypoactive. In the hyperactive form, agitation is prominent, sometimes with aggression and risk of self and hetero-aggression. In the hypoactive, the patient presents with low level of consciousness, usually prostrate and uncommunicative. The mixed form may also occur, with alternation between the two poles[5].

In 2014, the 5th version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) was published, in which the definition of subsyndromal delirium was described. According to this manual, subsyndromal conditions are those that do not meet all the criteria for a medical diagnosis, because the signs appear in a smaller number, that is, in the subsyndromal, patients have one to three signs of delirium, but they do not characterize the diagnosis as clinical[4-5].

Delirium increases the time of mechanical ventilation, hospital stay and patient mortality. Subsyndrome also appears in recent studies, with a significant association with the length of hospital stay in the ICU and hospital, causing greater patient dependence after discharge, however, without association with mortality, and not presenting itself as a marker of disease severity, but as a risk factor for patients[1,3-6].

Studies have shown that delirium in critically ill patients on mechanical ventilation occurs in approximately 80%, but not all are correctly diagnosed and treated. The lack of attention of health professionals about this dysfunction costs from 4 to 16 billion dollars annually in the United States. Rarely, the primary cause of ICU hospitalizations is delirium, so those who work in this area do not perceive signs early, generally considered as a reaction promoted by the large amount of medications administered[3,5].

Subsyndromal delirium is present in up to 33.3% of hospitalized patients. It can be resolved or can evolve into delirium, requiring constant evaluation of the multiprofessional team in order to quickly recognize their characteristics and treat them effectively. In order to evaluate these signs, the nursing process, based on history and physical examination, problem assessment, evaluation of the degree of dependence of the subject and clinical judgment on the individual's responses[4,6-9].

The use of scales and protocols with theoretical and scientific basis in relation to the neurological pattern is important for the rapid recognition of delirium signs, making nursing care directed towards prevention and treatment.

OBJECTIVE

This study aims to identify the presence of delirium and subsyndromal delirium in intensive care patients to relate to age, hospitalization time and to demonstrate mortality.

METHOD

Ethical aspects

The study complied with Resolution 466/12, which involves research with human beings.

Design study place and period

A retrospective study, with a quantitative approach, performed in two General ICUs of a teaching hospital, with 27 beds of adult patients, which meets the Brazilian Unified Health System (SUS – *Sistema Única Saúde*). Data collection occurred from January 1, 2015 to January 31, 2016.

Population study

Of a population of 240 patients, 83 were excluded because they did not meet the inclusion criteria, which were: ICU stay at least 24 hours and patient light sedation, verified by the RASS scale ≥ -2, totaling a sample of 157. Therefore, the exclusion criteria were: patients with ICU stay less than 24 hours or with moderate sedation (RASS = -3) or intense/deep sedation (RASS = -4 and -5).

Data related to age, sex, medical specialty, length of hospital stay, ICU outcome (discharge and death), outcome after discharge from the ICU (discharge or hospital death) were obtained from the MV system, an electronic medical record that patient care, shared in a network, used in all units of the institution (hospital, outpatient) for hospital management.

The scales were filled by the nurses of the Intensive Care Unit, observing the patient at the bedside and scoring all the eight items that make up the tool to monitor sedation and delirium, from Monday to Friday, in all work shifts (morning, afternoon and night). Before implantation and implementation, all nurses received training to standardize the completion of the scales by the manager of the units studied.

Study protocol

The first phase of data collection involved 240 patients, assessed for sedation, using the Richmond Agitation-Sedation Scale (RASS). This scale is based on a score ranging from -4 to +4. The number zero refers to the alert patient, with no apparent agitation or sedation. Levels less than zero mean that the patient has some degree of sedation. Levels greater than zero show some degree of agitation[10].

The second phase occurred when the patient's RASS was between -2 and +4, which was the evaluation of delirium through the Intensive Care Delirium Screening Checklist (ICDSC). This scale is easy to apply and can be used by physicians and nurses. The application time varies between one and two minutes and can be used in patients with communication difficulties, especially those who are mechanically ventilated, and because of their capacity to identify subsyndromal delirium. ICDSC has the advantage of having been adapted to Portuguese and validated for use in Brazil by Gusmao-Flores et al[11-12].

The ICDSC scale is composed of a checklist for the diagnosis of delirium, consisting of eight items: awareness, attention,

disorientation, presence of hallucinations or psychosis, psychomotor retardation or agitation, inappropriate humor or speech, sleep disturbances and fluctuation of signs of delirium. Being a scale ranging from zero to eight, a patient is considered to have delirium if he scores a score greater than or equal to four, and the subsyndromal one, a score between one and three[4,10-11,13].

Analysis of results and statistics

Analyses of the sample characterization variables were described in absolute and percentage numbers, and the quantitative variables were expressed by mean, Standard Deviation, median, minimum and maximum. The t-test for independent samples was applied in order to compare the quantitative variables in relation to the occurrence of delirium and the Chi-square test in order to observe associations between categorized variables and the occurrence of delirium. Significance level was 5%; that is, differences were considered significant when the descriptive level of the tests (p value) was less than 0.05.

RESULTS

The sample consisted of 157 patients, of whom 102 (65%) were male and 55 (35%) female. The most common specialty was Neurosurgery (42.7%), followed by Orthopedics (21.6%), Gastroenterology (13.5%), Cardiovascular Surgery (6.4%), Pulmonology (5.7%), Nephrology (4.4%), among others (5.7%).

Regarding the evaluation, 35 (22.3%) presented delirium, 78 (49.7%) presented subsyndromal delirium and 44 (28%) presented no signs of delirium and its subsyndrome. Regarding the age and length of hospital stay of the 157 patients in the ICU, the data are shown in Table 1.

Regarding the age and length of hospital stay of the 157 patients in the ICU with and without delirium, the data are shown in Table 2.

It was observed in Table 2 that, when compared the days of ICU stay in patients with delirium and subsyndromal delirium, there were significant differences (p=0.035 and p <0.001, respectively). However, when compared to age, in both groups only the patients who presented the subsyndromal delirium had statistically significant.

Table 1 - Descriptive statistics of variables of age and days of ICU stay, São José do Rio Preto, São Paulo, Brazil, 2017

Quantitative variables	N	Mean±SD	Median	(Min;Max)
Age	157	53.2±21.9	55.00	(15;96)
ICU days	157	10.6±9.3	7.00	(1;46)

Tabela 3 - Estatística descritiva de alta/óbito na UTI e no hospital dos pacientes com *delirium* e sua subsíndrome, São José do Rio Preto, São Paulo, Brasil, 2017

Variáveis	*Delirium* Não		Sim		SS	
	n	%	n	%	n	%
Na UTI						
Alta	35	79.54	25	71.42	63	80.76
Óbito	9	20.45	10	28.57	15	19.23
Total	44	100	35	100	78	100
No Hospital						
Alta	30	85.71	23	92.00	56	88.88
Óbito	5	14.28	2	8	7	11.11
Total	35	100	25	100	63	100

Note: SS = Delirium Subsyndromal.

Of the patients studied, 123 (78.3%) were discharged from the ICU, while 34 (21.7%) died. After discharge from the ICU, the patients were referred to the hospitalization unit where 109 (88.6%) were discharged after a while and 14 (11.4%) died in the hospital.

The ICU mortality of patients with delirium was higher than those who had subsyndrome, but when these patients were discharged from the ICU, they had a high hospital discharge rate.

DISCUSSION

Nursing is increasingly concerned with patient care in the use of analgesic sedatives in the ICU, especially regarding the appearance of delirium. In practice, the monitoring of delirium and subsyndromal delirium is important to obtain measures of prevention and safety of the patient and reduction of accidental injuries[4,14].

Studies report the incidence of delirium in ICU patients between 31 and 81%. On the other hand, the recent substudy has identified a mean of 33% in ICUs, which may reach 50% when evaluated in the elderly. In hospital services, a mean of 20% of the elderly are diagnosed with delirium at admission, and it is known that 40% of them after discharge from the ICU still remain with these signs[2,5,15-18].

In the present study, 22.3% of the patients presented delirium and 49.7% presented the subsyndrome, demonstrating that the percentage of delirium was slightly lower than the mean found in other studies, indicating that daily screening by the nursing team and recovery diagnosis in clinical decisions contributed to this decrease. On the other hand, the subsyndrome was present in almost half of the patients, corroborating with the other studies, calling attention to those patients who, if unidentified and

Table 2 - Comparison between patients with and without delirium and subsyndromal delirium with variables of age and days of ICU stay, São José do Rio Preto, São Paulo, Brazil, 2017

Variables		Age				ICU days			
Delirium	n	Mean±SD	Median	Min; Max	P value	Mean±SD	Median	Min; Max	*p* value
Não	44	45.86±23.39	43.00	15;91		6.94±6.90	4.00	1;29	
Sim	35	54.45±20.34	56.00	18;90	0.089	10.45±7.59	8.00	2;32	0.035
SS	78	56.70±20.97	57.00	16;96	0.009	12.80±10.47	9.00	1.46	**<0.001**

Note: P value = t-test for independent samples at p <0.05; SS = Subsyndromal Delirium.

treated in time, can progress to delirium. The early identification of the signs contributes to the treatment, preventing its evolution, so the identification of its subsyndrome is the first step for the treatment of delirium[2,5,7,15-18].

Older age is a risk factor for delirium, since in the elderly the effect of analgesic sedatives has prolonged action time due to the saturation of peripheral tissues and the presence of active metabolites that can accumulate. In the comparison between delirium and patient age, a significant statistic was observed only in those who presented subsyndromal delirium (p=0.009), as demonstrated in recent studies, where age did not increase the incidence of delirium (p = 0.009). The mean age of the patients who presented delirium was 54.4 years and the subsyndrome was 56.7 years, demonstrating that the signs of delirium also occur in young adults, diverging from the preexisting risk factor of old age[7-8,14,18].

It is known that the time of hospitalization is directly related to the presence or not of delirium. In the Guideline, the association of delirium with length of hospital stay and/or prolonged stay in ICU[8]. In the present study, patients who presented delirium remained on average 10.4 days and those who presented the subsyndrome remained 12.8 days in the ICU. When comparing the variables, a statistically significant statistic was observed both in the group of patients with delirium (p=0.035) and in the group that presented subsyndromal delirium (p <0.001). These data corroborate with the other studies and demonstrate that the appearance of delirium and its subsyndrome may worsen the prognosis, increase the length of stay in the unit, generating higher hospital costs and even increase the patient's dependence after discharge from the ICU[4,15,19].

In addition to length of hospital stay, another negative outcome associated with delirium is mortality. Delirium is an independent predictor of mortality, increasing by three times the risk of patient death as well as cognitive deficit in the long run. The overall mortality found in this study was 21.7% of patients admitted to the ICU and 11.4% of those who had been discharged from the ICU and died during hospitalization in other hospital units. Studies show that patients with delirium in ICU have mortality between 23 and 36% while those without delirium present between 9 and 23%[15,17]. In the present study, 28.57% and 19.23% of patients with delirium and delirium, respectively, died in the ICU, while those who did not show signs of delirium, 20.45% died.

The nursing team should not rely solely on the impressions to assess and diagnose delirium; it is necessary to use institutionalized, well-delimited and easily applied protocols to aid decision-making. A study conducted with nurses using the ICDSC to assess ICU delirium demonstrated that this is an indispensable tool for improving ICU patient care and encourages its use by the multidisciplinary team[4,10].

The ICU environment alone is already a risk factor for delirium, due to the absence of natural lighting and clocks, disruption of sleep patterns, wakefulness, and isolation of the patient from the family[9]. It is necessary to change critical patient care and accuracy in the surveillance of the neurological part, because once the team is trained and sensitized to such care, the risks for the patient with delirium and subsyndromal delirium are minimized, as well as the stressors that cause it.

Study limitations

The lack of information about the psychiatric history, the use of psychotropic medications, alcohol consumption and the use of narcotics of the patients studied before ICU admission was one of the limitations of the study, since they are fundamental for statistical analysis, since they were found symptoms of delirium in young adults and not only in the elderly considered to be at high risk because of age.

Contributions for the Nursing

Delirium and subsyndromal delirium assessment by the ICU nursing team should be carried out following protocols with theoretical and scientific basis so that critical patient care, with light sedation, is safer. The use of the ICDSC scale by nurses was essential in the early identification of signs and characteristics of the patients regarding the appearance of delirium and its subsyndrome, which helps in the treatment.

CONCLUSION

The majority of the patients presented subsyndromal delirium. The relationship between delirium and subsyndromal delirium with length of hospital stay in the Intensive Care Unit was statistically significant for both, while age was significant only in the subsyndrome. The mortality of patients with delirium in ICU was higher than the other groups studied.

The use of the ICDSC scale has been shown to be a necessary action for the identification and monitoring of delirium and subsyndromal delirium in patients with mild sedation, helping to adopt measures to minimize triggering stressors, which favors treatment.

Future studies are needed to understand and relate the history of psychiatric history, use of psychotropic medications, alcohol and narcotic abuse of the patients studied, in order to better understand the symptoms presented and to better target the treatment.

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