Epidemiologic and morbimortality profile of the intensive care unit of a public hospital

Perfil epidemiológico e de morbimortalidade da unidade de terapia intensiva de um hospital público

Perfil epidemiológico y de morbimortalidad de la unidad de cuidados intensivos de un hospital público

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RESUMO
Objetivo: caracterizar o perfil epidemiológico e de morbimortalidade da UTI de um hospital regional do Distrito Federal **Método:** trata-se de uma pesquisa transversal, quantitativa, retrospectiva e observacional. A amostra foi constituída por 182 pacientes e a coleta de dados foi realizada no ano 2016 e usou um instrumento semiestruturado próprio da pesquisa para avaliação de dados sociodemográficos, de admissão e de desfecho na unidade. **Resultados:** prevaleceram os pacientes do sexo masculino, idosos, idade média de 56,42 anos, procedentes do próprio hospital analisado, com principal diagnóstico de internação e de óbito a sepse e/ou choque séptico. A taxa de mortalidade foi de 33%, sendo associada (p≤0,05) ao uso de drogas vasoativas na admissão, a um menor tempo de internação, e escores de APACHE acima de 20 pontos, enquanto a alta foi associada a um menor tempo de ventilação mecânica e a não necessidade de hemodiálise. **Conclusão:** homens, com sepse, em uso de drogas vasoativas e APACHE ≥20 pontos estão relacionadas a mortalidade.
Descritores: Unidades de Terapia Intensiva; Estudos epidemiológicos; Mortalidade; Enfermagem.

ABSTRACT
Objective: to characterize the epidemiologic and morbimortality profile of the ICU of a regional hospital in the Federal District. **Method:** this is a cross-sectional, quantitative, retrospective and observational study. The sample consisted of 182 patients and data collection was carried out in 2016, using a semi-structured research instrument to assess sociodemographic, admission and outcome data of the unit. **Results:** male patients, elderly, mean age of 56.42 years old, coming from the analyzed hospital, with main diagnosis of admission and death from sepsis and/or septic shock prevailed. The mortality rate was 33%, being associated (p≤0.05) with the use of vasoactive drugs at admission, a shorter hospital stay and APACHE scores above 20 points, while discharge was associated with a shorter duration of mechanical ventilation and no need for hemodialysis. **Conclusion:** men, with sepsis, using vasoactive drugs and APACHE ≥20 points are related to mortality.
Descriptors: Intensive Care Units; Epidemiologic Studies; Mortality; Nursing.

RESUMEN
Objetivo: caracterizar el perfil epidemiológico y de morbimortalidad de la UCI de un hospital regional del Distrito Federal. **Método:** estudio transversal, cuantitativo, retrospectivo y observacional. La muestra estuvo conformada por 182 pacientes y la recolección de datos se realizó en 2016, utilizando un instrumento de investigación semiestructurado para evaluar los datos sociodemográficos, de ingreso y de resultados en la unidad. **Resultados:** hubo un predominio de pacientes del género masculino, ancianos, con una edad promedio de 56,42 años, procedentes del mismo hospital analizado, con sepsis y/o shock séptico como diagnóstico principal de ingreso y muerte. La tasa de mortalidad fue del 33%, asociándose (p≤0,05) al uso de fármacos vasoactivos al ingreso, menor estancia hospitalaria y puntajes APACHE superiores a 20 puntos, mientras que el alta se asoció a una menor duración de la ventilación mecánica y sin necesidad de hemodiálisis. **Conclusión:** hombres, con sepsis, utilizando fármacos vasoactivos y APACHE ≥ 20 puntos se relacionan con la mortalidad.
Descriptores: Unidades de Cuidados Intensivos; Estudios Epidemiológicos; Mortalidad; Enfermería.

ORIGINAL

Introduction

The current demographic transition in Brazil also affects the profile and the demand and supply of beds for critically ill patients in the Intensive Care Unit (ICU) setting. The increase in life expectancy and the evolution of technological and scientific resources are factors that have changed, in recent decades, the profile and clinical conditions that lead to the need for admission of individuals to ICUs, such as, for example, acute chronic diseases that require high-cost technologies.[1-4] The length of stay of patients in the ICU is a matter that generates high financial costs for the hospital, the municipality and the country, which are related to both material resources and specialized human resources.[2]

In a survey conducted with ICU patients using non-prolonged mechanical ventilation (MV), the cost of the ICU for the hospital was approximately 36.4%; while, for those using prolonged MV, the cost of the ICU rose to 51.3% of the hospital costs.[2] Another factor is the presence of sepsis, which can be responsible for up to 60% of the mortality rate in the ICU setting, one of the problems that greatly increases the costs of ICU treatment.[5] The number of beds in the ICU setting in Brazil in 2020 was 45,848 units, 49.82% of which belong to the Brazilian Unified Health System (SUS, as per its Portuguese acronym) and 50.18% are in the private system.[1] Maintaining bed availability is essential for turnover flow, which can help patients eligible for critical care in the ICU setting, in order to improve turnover and/or bed availability.

In the Midwest region, there are 4,570 ICU beds, of which 60% are in private institutions and 40% in the SUS, showing a smaller number of beds in the public environment.[1] Patients served by the SUS can wait for ICU beds to become available. Thus, patients with more severe clinical picture are prioritized for admission, thus increasing the mortality risk rates of the unit. [2-5]

To quantify mortality rates, mortality risks, among other epidemiologic data from the ICU setting, helps to know the bed turnover profile, quality indicators and can help the health team to define future goals and know the results of care. In addition, prognostic scores available for ICU are also important to plan actions and direct the assistance of the team. [3,5] According to the National Registry of Intensive Care, the rate of stay in Brazilian ICUs varied from 5.6 in 2016 to 6.01 days in 2020, while the mortality rate was 1.35 in the SUS and 1.04 in the private network in 2016; and 2020, it was 1.58 in the SUS and 0.99 in the private network.[1]

Thus, morbimortality profile studies have been identified in ICU inpatients nationally[1,6], internationally[7,8] and in studies of theorists.[7-8,9] In Brazil, the mortality rate varied from 15% to 89%[1,6-7,11-13]; and, in international studies, it is higher than 57%.[7-8,14]

Mortality can be associated with several factors, both internal and external to the individual, such as age, length of stay, use and length of invasive mechanical ventilation, prognostic score, admission diagnosis, use of vasoactive drugs, among others, as also shown in several other studies.[5,8-14]

Given the high demand for ICU beds in the Brazilian hospital environment and the experience of professional practice, where it is observed that quality care is an essential tool for reducing the length of stay in these

units, it is believed that knowing and understanding the mortality profile of the sector is essential to obtain knowledge and plan actions in the ICU environment. This research had the objective of characterizing the epidemiologic and morbimortality profile of the ICU of a regional hospital in the Federal District.

Method

This is a cross-sectional study with a quantitative and retrospective approach. The research was conducted in the Adult Intensive Care Unit of a regional public hospital in the western region of the Federal District.

The study population consisted of patients admitted to the unit during the year 2016, totaling 192 patients. The sample was composed of patients who met the inclusion criteria: patients of both genders and over 18 years of age; treated in the ICU of the regional hospital between January and December 2016; inpatients with an ICU stay of more than 24 hours. A total of 10 patients who did not meet these criteria were excluded from the research, being 5 under 18 years of age and 5 with a hospital stay of less than 24 hours. Accordingly, the final research sample consisted of 182 individuals. Data collection took place from April to August 2017.

In the first moment of data collection, all patients admitted in 2016 were identified through the use of the unit's admission and discharge book, and analyzed according to the research inclusion criteria. Then, a semi-structured data collection instrument was adopted, filled according to the data contained in the patient's electronic medical record, where demographic data variables were collected (age, gender and marital status), clinical status at admission, and the patient's outcome in the intensive care unit. In order to preserve participants' privacy, patients' names were replaced with numbers. This research is in accordance with the ethical standards of CNS resolution 466/2012 and was approved by CEP/FEPECS opinion nº 2.027.942.

Subsequently, a database was created using the Statistical Package for the Social Sciences (SPSS®) software, version 20.0, and descriptive analysis was performed by absolute and relative frequencies, means, standard deviation, as well as minimum and maximum values obtained. In the analytical stage, In the analytical stage, the associations between the independent variables and the dependent variable were tested using the chi-square test. The significance level considered was $p< 0.05$.

Results

The 182 ICU patients participating in this study were 53.8% male, with a mean age 56.42±18.11 years (Min.=18, Max.=96 years), most belonging to the 60-69 age group (22.5%), followed by those between 70-79 years (18.1%) (Table 1).

Table 1 – Sociodemographic data of individuals admitted to the ICU (n=182) in a regional hospital in an administrative region of the Federal District, 2016. Federal District, 2016.

Variable	N	%
Gender		
Female	84	46.2
Male	98	53.8
Age		
18 - 29 years	15	8.2
30 - 39 years	28	15.4
40 - 49 years	23	12.6
50 - 59 years	28	15.4
60 - 69 years	41	22.5
70 - 79 years	33	18.1
80 - 89 years	11	6
90 - 99 years	3	1.6
Marital Status		
Single	31	17
Married	54	29.7
Divorced	14	7.7
Widowed	8	4.4
Unknown	75	41.2

Most patients admitted in 2016, 50.56%, came from other sectors of the regional hospital itself, being the red room and yellow room of the Emergency Room and the surgical center (Table 2). The patients admitted were mostly sedated, 73.6%, without pressure ulcer (PU), 67.0%. Moreover, from a total of 182 admissions, 6 were patients admitted to the unit for the second time in the same year (Table 2). The mean number of days between the first and second admission for these 6 patients was 47±93.71 days (Min.=1, Max. =237 days).

Table 2 – Clinical status at admission of individuals admitted to the ICU (n=182) in a regional hospital in an administrative region of the Federal District. Federal District, 2016.

Variable	N	%
Origin		
Other hospital sectors	92	50.5
All other hospitals	68	37.4
Emergency Care Units (ECUs)	22	12.1
Level of Consciousness		
Sedated	134	73.6
Coma	10	5.5
Pressure Ulcer		
Yes	60	33.0
No	122	67.0
Mechanical Ventilation		
Yes	146	80.2
No	36	19.8
Vasoactive Drugs		
Yes	96	52.7
No	86	47.3

Readmission		
Yes	6	3.3
No	176	96.7

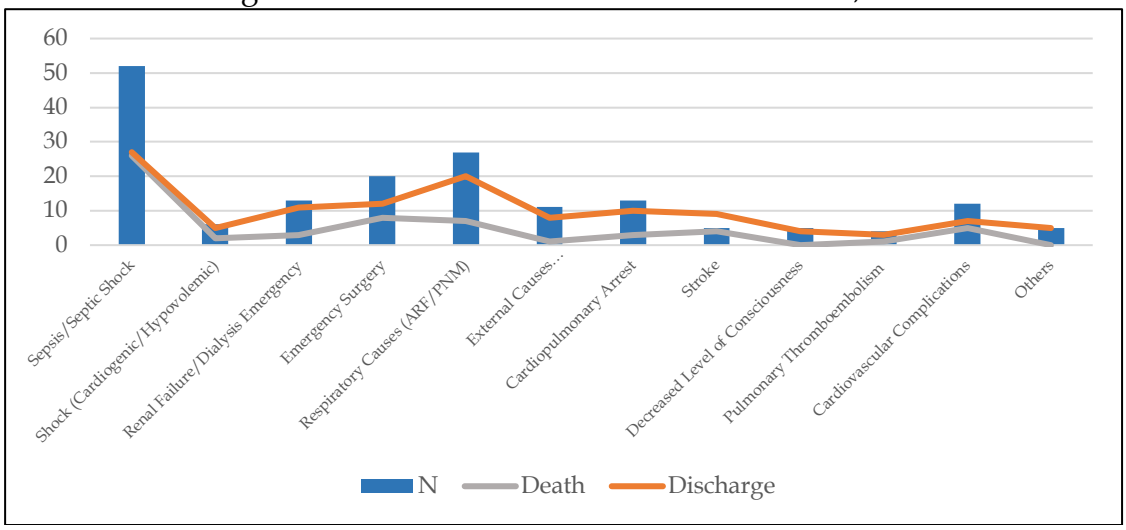
Patients admitted under invasive mechanical ventilation were prevalent, 80.2%, followed by patients who were using vasoactive drugs, 52.7%. Those patients who were using vasoactive amines were associated with a higher death rate, i.e., from the individuals who died, 70% used vasoactive drugs at admission (p=0.003). In the case of mechanical ventilation, among those who died, 90% were admitted on mechanical ventilation; while among those discharged, 75.2% used this therapy (p=0.056) (Table 3).

Table 3 – Analysis of admission with the outcome of individuals admitted to the ICU (n=182) of the regional hospital in an administrative region of the Federal District. Federal District, 2016.

	Total		**Discharge**		**Death**		
	N	**%**	**N**	**%**	**N**	**%**	**p**
Mechanical Ventilation							0.056
Yes	146	80.2	91	75.2	54	90.0	
No	36	19.8	30	24.8	6	10.0	
Vasoactive Drugs							**0.003**
Yes	96	52.7	53	43.8	42	70.0	
No	86	47.3	68	56.2	18	30.0	

Figure 1 shows the main diagnoses and causes of ICU admissions in 2016, with sepsis and/or septic shock standing out, accounting for 29.1% (n=53) of admissions. This was followed by 14.8% with respiratory causes, including acute respiratory failure and pneumonia, and 11.0% post-operative emergency surgery, as the main admission diagnoses. Regarding the number of discharges or deaths for each diagnosis, for all causes of admission, discharge was more prevalent than the number of deaths, a non-significant result in this sample. In the case of sepsis and/or septic shock, the difference between the number of discharges or deaths of these patients was the smallest among the diagnoses, being 50.9% with discharge outcome and 49.1% with death outcome.

Figure 1 – Admission diagnoses related to the number of discharges and deaths of individuals admitted to the ICU (n=182) of the regional hospital in an administrative region of the Federal District. Federal District, 2016.



In 2016, 66.5% of patients admitted had discharge from the unit as an outcome, with a mortality rate totaling 33%. Only 1 patient admitted in 2016 remained hospitalized in the ICU throughout the data collection period. In its outcome (discharge or death), 54.4% of patients had no pressure ulcer (PU), with 23 new cases of PU during 2016, according to the collected data. Among the patients who were discharged from the unit, 23.1% died after discharge in the first year (mean of 56.75 days; SD±88.37, Min.=3, Max.=349 days) (Table 4).

Table 4 – Evolution of individuals admitted to the ICU (n=182) of the regional hospital in an administrative region of the Federal District. Federal District, 2016.

Variable	N	%
Outcome		
Discharge	121	66.5
Death	60	33.0
Stay	1	0.5
Pressure Ulcer		
Yes	83	45.6
No	99	54.4
Death After Discharge		
Yes	28	23.1
No	93	76.9

Most patients were admitted to the ICU between 1-3 weeks (52.7%), followed by patients admitted for less than 1 week (29.7%). The mean length of stay was 17.46±26.29 days (Min. =1, Max. =259 days). Among the patients who evolved to death, 48.3% stayed in the ICU for less than 1 week, and a longer hospital stay was associated with the discharge outcome of these patients (p=0.002) (Table 5).

Regarding the length of stay on mechanical ventilation, those with less than 1 week prevailed (53.3%), followed by 1-2 weeks (34.6%). The mean duration of mechanical ventilation was 10.61±22.28 days (Min=0, Max=219

days). In this case, a longer duration of mechanical ventilation was associated with a higher number of deaths in the unit (p=0.032) (Table 5).

Table 5 – Analysis of evolution with the outcome of individuals admitted to the ICU (n=182) of the regional hospital in an administrative region of the Federal District. Federal District, 2016.

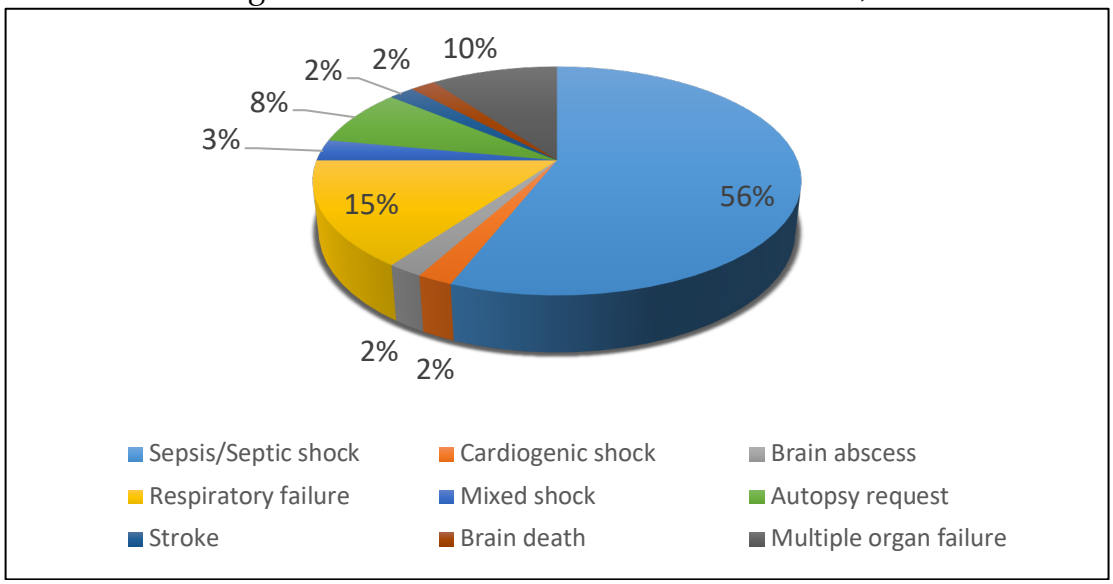
	Total		Discharge		Death		
	N	%	N	%	N	%	p
Hospital stay							**0.002**
< 1 week	54	29.7	25	20.7	29	48.3	
1 - 3 weeks	96	52.7	74	61.2	22	36.7	
4 - 6 weeks	22	12.1	16	13.2	6	10.0	
> 6 weeks	10	5.5	6	5.0	3	5.0	
Duration of mechanical ventilation							**0.032**
< 1 week	97	53.3	67	55.4	30	50.0	
1 - 2 weeks	63	34.6	45	37.2	18	30.0	
3 - 4 weeks	10	5.5	6	5.0	4	6.7	
> 4 weeks	12	6.6	3	2.5	8	13.3	
Hemodialysis							**0.001**
Yes	51	28.0	25	20.7	26	43.3	
No	131	72.0	96	79.3	34	56.7	
Apache II							**0.001**
0-4	3	1.6	3	2.5	0	0.0	
5-9	15	8.2	15	12.4	0	0.0	
10-14	24	13.2	18	14.9	6	10.0	
15-19	44	24.2	36	29.8	8	13.3	
20-24	39	21.4	23	19.0	16	26.7	
25-29	34	18.7	15	12.4	18	30.0	
30-34	19	10.4	11	9.1	8	13.3	
35-100	4	2.2	0	0.0	4	6.7	

Moreover, patients who did not undergo hemodialysis were prevalent (72.0%) (Table 4). Among those who performed hemodialysis, the mean time of dialysis therapy was 21.54±47.64 days (Min.=1, Max.=255 days), and 12 patients were discharged still dependent on this therapy. Those patients in the unit who did not undergo hemodialysis had the discharge outcome more prevalent than those who required renal replacement therapy (p=0.001) (Table 5).

Regarding the APACHE II index, in this sample, individuals with a value between 15-19 prevailed, followed by those with values between 20-24. The mean of the APACHE II value was 20.33±7.67 (Min.=1, Max.=41). In this research, values above 20 for APACHE II were associated with death, as well as values below 20 were associated with discharge (p=0.001) (Table 5).

Figure 2 illustrates the causes of death of individuals in 2016. Just as sepsis and/or septic shock was the main admission diagnosis, it was also the main cause of death in the unit, representing 56% of the total. Acute respiratory failure comes second (15%), followed by multiple organ failure (10%). It is noteworthy that the autopsy was requested in 8% of deaths either due to trauma and/or violence or to elucidate the cause of death.

Figure 2 – Causes of death in the ICU (n=182) in a regional hospital in an administrative region of the Federal District. Federal District, 2016.



Discussion

The prevalence of the male gender found in this survey is a recurrent fact in other studies, with this percentage varying from 43.4% to 67.2%.[6,15-19] This result can be justified by the fact that men are not the majority in health promotion and disease prevention services; not to mention that, when they are affected by a disease, they only seek such services when it is already in a more advanced and/or critical stage, requiring some kind of admission. On the other hand, some surveys in intensive care units already show the female gender as the most prevalent.[3,14]

The mean age found was 56.42 years, which is among the range found in other studies from 19 to 77.4 years of mean age. [2,15,6,8,11,15,17] The most prevalent age group was the elderly, especially between 60-69 years old, as described in other surveys. [2,3,20] This higher mean age and the prevalence of the elderly population is explained by the demographic transition that Brazil and the world in general have been undergoing in recent years. In addition, due to advanced age, the elderly individuals undergo physiological changes that make them more susceptible to diseases and complications.[7-8,14]

The origin of 50.5% of admissions came from sectors of the regional hospital of the research; and of these patients, 75% were from the Emergency Room and 25% from the Surgical Center. Another survey identified that most came from the surgical center, followed by those from the emergency room.[15]

At the admission of the research patients, sedated patients without pressure ulcers, using invasive mechanical ventilation and vasoactive drugs also prevailed. A retrospective study conducted in a regional hospital in the Federal District showed a 12.2% prevalence of pressure ulcer in patients at the time of admission, which was correlated with the degree of dependence for mobility of these individuals. In addition, during the period of stay in the unit, 50.8% of the patients used vasoactive drugs and 56.6% invasive mechanical ventilation.[1] A prevalence of mechanical ventilation use was also noticed in

another study, but the use of vasoactive drugs was not prevalent in its sample, and both variables were correlated with a higher risk of death.[17]

In this study, the ICU readmission rate was 3.3% in 2016, a value below the 7.5% in another survey.[17] The mean time between discharge and return to the unit was 47 days, with no association with increased mortality in these patients, unlike in another ICU where the mortality among readmissions was 69.7%.[19]

The main cause of admission was sepsis and/or septic shock, followed by respiratory causes and post-operative complications of emergency surgery. Other surveys in Intensive Care Units also brings these three situations as the most prevalent, especially respiratory causes, including Acute Respiratory Failure and Pneumonia.[2,16,19-20] In another survey, 51% of the sample was admitted to the hospital due to clinical causes and 14% after emergency surgery.[17]

Currently, sepsis is the main diagnosis and cause of death in ICUs, and remains a major challenge for all involved. In Brazil, data on this disease are quite old, despite its growing prevalence. An epidemiologic and multicenter study developed with sepsis patients in 75 Brazilian ICUs found a prevalence of 19.6%, 29.6% and 50.8% for sepsis, severe sepsis and septic shock, respectively. [21] Overall mortality was 46.6%, with 16.7%, 34.4%, 65.3% for sepsis, severe sepsis and septic shock, respectively, with higher rates in patients on mechanical ventilation, vasopressors and associated with number of comorbidities of each individual.[21] In a study conducted in 230 Brazilian ICUs, the Latin American Institute of Sepsis estimates that 30% of intensive care beds are occupied by septic patients and that 20 to 40% of the costs of an ICU are allocated to the care of these patients.[22] In other realities, sepsis has been found in values above 50%.[3,9-10,14]

The main outcome of the study subjects was discharge from the unit, with a mortality rate of 33%. Other studies have found mortality rates varying from 26.3% to 43.9%.[15-18,20] In another retrospective study in a regional hospital in the Federal District, it was found a mortality rate of 38.6%, where an APACHE II prognostic index, length of stay longer than two weeks, need for vasoactive drugs and use of MV were the main factors associated with non-survivor patients. In addition, there was also a relationship between the cause of admission and the patient's evolution. In this research, there was an association between mortality and length of stay, duration of mechanical ventilation and use of hemodialysis.[2]

Pressure ulcer (PU) at discharge and/or death was found in 45.6% of individuals. PU was found in an 18% prevalence in the ICU in another study, being associated with dependence for mobility and length of stay.[2]

Among those patients who were discharged, 23.1% died in the first year after discharge, with a mean of 56.75 days. A rate of 11% for deaths after discharge was found in another ICU in its assessed research.[15]

The mean length of stay in the sample was 17.46 days, with mortality associated with a time of less than 1 week in the unit. Literature addresses admission means varying from 6 to 23.2 days. [2,18-,19-20] Moreover, patients with length of stay between 1 and 3 weeks were prevalent, as well as in another ICU where it was shown that 2/3 of the patients in the sample stayed in the hospital for 7 days or more.[16] Other studies have shown higher values.[3,9,14]

The association between mortality and shorter length of stay was not the result found in another reality, where mortality was associated with a length of stay longer than 2 weeks.[2] The result of this study may have as possible justification the admission of more severe patients with greater chance of death and who evolve to death within the intensive care unit. Currently, the high demand for ICU beds influences the classification of patients referred to these units, where the most seriously ill have a priority to occupy the ICU bed, thus increasing the risk of death in the unit and raising mortality rates. On the other hand, a longer ICU stay also increases the risk of death, since it makes the individual more susceptible to worsening of the clinical condition, due to the decrease in the immune system associated with the increase in the number of invasive procedures that boost the risk of infection.

Regarding the duration of mechanical ventilation, most used this therapy for less than 1 week, with a mean time of 10.61 days, and a longer time on MV was found in patients who died. A similar finding was highlighted in another reality in the ICU, where most of the study sample used mechanical ventilation, with a mean time of 15.4 days, mortality being higher in this group of individuals, and where a longer duration of MV was associated with mortality and a longer length of stay.[20] Another research found a mean time of 8.5 days, with 21.7% of the sample using MV for less than 1 week and 20.6% from 2 to 3 weeks, and mortality was also associated with the use of ventilation, where those who did not need this therapy had 23 times more chances of improvement.[2] This risk and association with mortality may be justified as it is another invasive procedure that increases the risk of infection, especially pulmonary, and also increases the length of stay in the intensive care unit. In another location, it was also found that most of the sample submitted to mechanical ventilation evolved to death, the *odds ratio* being 2.85 in this case.[17]

In this study, the prevalence of patients requiring renal replacement therapy (28%) was higher than in other studies.[3,9,23] Nevertheless, in this study, mortality among these dialysis patients was 51%, a value close to that found in two other realities.[23] The association found in this study between discharge and non-use of hemodialysis was not found in other studies.[7-8]

The results found for the APACHE index corroborate data from other studies in intensive care units, where the APACHE means vary from 18 to 31.6.[1,18] In addition, higher APACHE means were associated with death in this study, as well as values ≥20 points on the scale are more commonly found in patients with death outcomes among the analyzed surveys.[2,16-18]

APACHE is used and validated in several countries. It assesses physiological variables in order to predict the prognosis of critically ill patients, and is easy to operate.[16-17] It assesses the quality of care offered, the length of time this patient will require, and is able to identify the profile of the patient and of the unit.[20] By performing this death prediction and contrasting it with the actual ICU mortality rate, the clinical profile of care can be analyzed and compared according to previous values in order to identify care-related problems earlier.[24] In this sense, this study analyzed the clinical and epidemiologic profile of the ICU in question, with the purpose of producing data that allow knowing the reality and quality of care offered by the unit to the internal patients.

Regarding the causes of deaths, sepsis and/or septic shock, respiratory failure and multiple organ failure were the clinical conditions that prevailed as causes. Another study with sepsis in the ICU setting found mortality for SIRS, sepsis, severe sepsis and septic shock of 6.1%, 10.1%, 22.6% and 64.8% respectively.[18] In an Urgent and Emergency sector, 49.2% of deaths were for patients with severe sepsis and 74.4% for patients with septic shock, the latter being associated with a higher occurrence of deaths.[25]

Several results found in this research are corroborated by the literature and highlight that the analyzed variables are extremely important for the intensive care service. [3,7-9,12-16,18-21] Knowing them in each unit and perceiving the influence of each one on the individual's outcome in the ICU setting makes it possible to plan a more appropriate care for each of those patients.

The lack of data available in medical records was an obstacle to be overcome during data collection in this research, and this fact demonstrates the lack of knowledge and/or importance that professionals give to these data, because, besides safeguarding the professional practice, these are the data that will support not only investigations, but also statistics that will improve the services. Accordingly, a prospective research can minimize this lack of data and necessary information. A more in-depth analysis of each of these variables and greater associations between them can also increasingly help in the knowledge and planning of actions, services and assistance.

Conclusion

From the profile of patients admitted in 2016 in the ICU studied, we identified the predominance of male individuals, over 60 years old, coming from the hospital itself, and sepsis and/or septic shock was the main cause of admission and death in the unit. The actual mortality rate was 33%, and was associated with the use of vasoactive drugs at admission, shorter hospital stays and APACHE scores greater than 20, while discharge was associated with shorter duration of mechanical ventilation and no need for hemodialysis treatment.

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