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Original Article

Factors associated with readmissions to an adult intensive care unit at a university hospital*

Fatores associados às reinternações em unidade de terapia intensiva para adultos de hospital universitário

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ABSTRACT

Objective: to verify the rate and factors associated with readmissions in the Intensive Care Unit. **Methods:** a documentary study, carried out with a sample (n=441) of medical records of adult patients admitted to the Intensive Care Unit of a university hospital. The descriptive and inferential statistical analysis was applied, using Pearson's correlation, the chi-square test, and the t-student test, at a 5% confidence level. **Results**: most were men (66.2%), with 52.8±18.5 years of age and hospital stay of 10.2±10.8 days. Of these, 29 (6.5%) were readmitted. Death was similar (p=0.893) between readmitted (31.0%) and not readmitted (29.8%). There was no significant correlation between the readmission outcome and age, Nursing Activities Score and time on mechanical ventilation. By comparison, the hospital stay, and extubation were significantly longer (p<0.05) among those readmitted. **Conclusion:** the rate of readmission was slightly low. Only extubation time was negatively and significantly correlated with the readmission outcome.

Descriptors: Patient Readmission; Intensive Care Units; Quality Indicators, Health Care; Length of Stay; Risk Factors.

RESUMO

Objetivo: verificar taxa e fatores associados à reinternação em Unidade de Terapia Intensiva. **Métodos**: estudo documental, realizado com amostra (n=441) de prontuários de pacientes adultos internados em Unidade de Terapia Intensiva de hospital universitário. Aplicou-se análise estatística descritiva e inferencial, por meio da correlação de Pearson, do teste qui-quadrado e *t-student*, em nível de significância de 5%. **Resultados**: eram homens (66,2%), com 52,8 ±18,5 anos de idade e tempo de internação de 10,2 ±10,8 dias. Destes, 29 (6,5%) foram reinternados. O óbito foi equânime (p=0,893) entre reinternados (31,0%) e não reinternados (29,8%). Não houve correlação significativa pelo desfecho reinternação com as variáveis idade, pontuação do *Nursing Activities Score* e tempo de ventilação mecânica. Por comparação, o tempo de internação e de extubação foram significativamente maiores (p<0,05) entre reinternados. **Conclusão**: a taxa de reinternação foi discretamente baixa. Apenas tempo de extubação foi correlacionado negativa e significativamente ao desfecho reinternação.

Descritores: Readmissão do Paciente; Unidades de Terapia Intensiva; Indicadores de Qualidade em Assistência à Saúde; Tempo de Internação; Fatores de Risco.

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Introduction

A critical/risky patient is one who is at imminent risk of losing the life or function of the organ/system of the human body. Thus, the Intensive Care Unit serves critically ill or at-risk patients who need uninterrupted multidisciplinary assistance, besides specialized equipment and resources[1].

Due to the severity of the patients admitted to the Intensive Care Unit, readmissions to this unit (during the same hospitalization) are associated with greater morbidity and mortality, with the main risk factors highlighted: aged; male patient; clinical or surgical emergency hospitalization; severity of acute illness; previous comorbidities (chronic diseases aggravated by acute changes, liver diseases and transplant patients); waiting time for transfer to the Intensive Care Unit; high degree of organic dysfunction (shock, respiratory or renal failure), being considered responsible or factors that increase the chance of readmission in this unit by up to three times[2].

The short availability of intensive care beds and the need to free beds for the admission of severe patients can lead to early discharge of those who still need intensive treatment[1-2]. Besides, the determining criteria for critical patient discharge are subjective and broad, contributing to increased risks, including death[1].

The readmission and mortality of patients, after discharge from the Intensive Care Unit, are considered indicators of the quality of healthcare. The identification of these criteria is useful to indicate the performance of the service and to direct improvement actions, strengthening decision making[2-4]. Thus, even though there is some knowledge about the factors associated with the readmission of the critical patient, institutional studies are relevant to encourage constant comparisons about the readmissions and possible related factors. This is because taking into account the eminently clinical and also organizational influences inherent to readmission[2], it is considered that the definition of an acceptable "standard" for this measure is challenging, and, in this sense, research, over time, contributes for investigation.

Given the above, raises the question: what are the rate of readmission to the Intensive Care Unit and the factors associated with it, of a university hospital? Thus, this study aimed to verify the rate and factors associated with readmission to the Intensive Care Unit

Methods

A documentary study carried out in the Intensive Care Unit for adults of a public university hospital, in the instate of Paraná, Brazil. The hospital has 195 beds exclusively linked to the Unified Health System.

The adult intensive care unit of the hospital has a surgery capacity of 14 beds for general critical care. Patients come from the Emergency Unit, more specifically from the Emergency Room, also from to the Operating Room and other adult units in the hospital, such as Neurology, Orthopedics, Medical and Surgical Clinic, and, sometimes, the Obstetric Unit.

The study included medical records of patients of both sexes, aged 18 years or older and who had been admitted to the adult Intensive Care Unit in the hospital, in the time frame from January to December 2017. Medical records of patients under 18 years of age (n=8) were excluded. To calculate the sample size, the WinPepi® program, version 11.65 was used, for the outcome of readmission to the adult Intensive Care Unit (overall rate). A 95% confidence level, a margin of error of 5% and a proportion of 10% for the prevalence of readmission were considered, according to a previous study[4]. Thus, the sample size was composed of 139 subjects. To this sample size, 20% was added for possible losses, totaling a sample of 167 subjects. There were no other exclusions and/or losses, so the study used a census of eligible patients (n=441), in the established time frame, exceeding the calculated sample size.

The data were collected from the electronic

medical records of patients admitted to the Intensive Care Unit, referring to the general aspects of the patient's demographic and clinical characterization, in addition to some information extracted from the records of the medical team and nurses.

For data collection, a specific form was created to manually enter the variables: age; sex; date of the first hospitalization in the Intensive Care Unit; previous unit; previous comorbidities; diagnosis of admission to the Intensive Care Unit; the Nursing Activities Score (NAS) (up to 176.8%) and Richmond Agitation Sedation Scale (ranging from -5, coma, to +4, combative patient) of the first day of critical hospitalization; use and time (days) of mechanical ventilation; time (days) of extubation and discharge from the Intensive Care Unit; use and time (days) of vasoactive drugs; the patient's outcome at the first admission to the Intensive Care Unit (discharge or death); readmission in the unit; and outcome after readmission (discharge or death).

After hand-operated collection, the data were recorded in electronic spreadsheets and later submitted to descriptive and inferential statistical analysis, using the *Programa* R® software. In the descriptive statistical analysis, categorical variables were described, by absolute and relative frequency, in addition to the 95% confidence interval for proportions. After the Shapiro-Wilk normality test, the quantitative variables were presented by measuring the central tendency (mean) and dispersion (standard deviation).

Pearson's correlation test was used to correlate variables with the readmission outcome. Correlation coefficients (r) from 0.7 to 0.9 positive or negative would indicate strong correlation; 0.5 to 0.7 positive or negative, moderate correlation; 0.3 to 0.5 positive or negative would refer to weak correlation; and, 0 to 0.3 positive or negative, negligible correlation. Positive values of r would indicate an increase in both variables (correlated variable and outcome), and, negative, that an increase in one variable implies a reduction in another variable or outcome.

The Chi-square test was also applied to compare proportions in a contingency table. Still, the t-student test was used to compare means between the groups of readmitted and non-readmitted patients in the analyzed Intensive Care Unit. In all inferential analyses, statistical significance was considered $p \leq 0.05$.

This study respected the ethics requirements in research involving human beings, being submitted for analysis, and approved by the Institutional Research Ethics Committee, with opinion No. 2,625,288/2018 and Presentation Certificate for Ethical Appreciation No. 87121218.7.0000.0107.

Results

A total of 441 medical records of adult patients admitted to the Intensive Care Unit were analyzed. The patients' mean age was 52.8 (± 18.5) years old and were admitted to the Intensive Care Unit for 10.2 (± 10.8) days.

The average Nursing Activities Score of the general sample (n=441) was 103.8 (± 9.9) points. The length of Mechanical Ventilation (days) of these patients was, a mean of 9.4 (± 11.8), and the time between extubation and discharge from the Intensive Care Unit was 2.9 (± 2.4) days. The time using vasoactive drugs in critical hospitalization was 8.2 (± 13.1) days.

Other demographic and clinical characteristics of the patients are described in Table 1, which highlights the prevalence of men, admitted for trauma, coming from the emergency room of the hospital and who underwent mechanical ventilation in critical hospitalization

Of the total number of patients, 29 were readmitted, which determined a rate of readmission to the Intensive Care Unit of 6.5%. Among the readmitted patients, 22 (75.8%) were male and seven (24.2%) were female. In comparison, those not readmitted (n=412) were male (n=270; 65.5%) and female (n=142; 34.5%), which resulted in a non-significant statistical difference (p=0.255).

Table 1 – Demographic and clinical profile of patients admitted to an adult Intensive Care Unit at a university hospital. Cascavel, PR, Brazil, 2017 (n=441)

Variables	n (%)	CI 95%*
Sex		
Male	292 (66.2)	62.5 – 69.9
Female	149 (33.8)	30.1 – 37.5
Diagnostics on Admission to an Intensive Care Unit		
Trauma	132 (30)	25.7 – 34.4
Neurological Diseases	131 (29.7)	25.5 – 34.2
Respiratory diseases	70 (15.9)	12.6 – 19.6
Gastrointestinal Diseases	54 (12.2)	9.3 – 15.7
Other†	54 (12.2)	9.3 – 15.7
Origin		
Emergency room	274 (62.1)	57.4 – 66.7
Operation Room	121 (27.4)	23.3 – 31.9
Inpatient Units	39 (8.9)	6.4 – 11.9
Other Institution	7 (1.6)	0.6 – 3.2
Comorbidities		
Withou previous record	131 (29.8)	25.5 – 34.2
Systemic Arterial Hypertension	61 (13.8)	10.7 – 17.4
Smoking	56 (12.6)	9.7 – 16.2
Respiratory diseases	42 (9.5)	7.0 – 12.7
Diabetes Mellitus	30 (6.8)	4.6 – 9.6
Cardiovascular diseases	29 (6.6)	4.4 – 9.3
Neoplasms	26 (5.9)	3.9 – 8.5
Alcohol addiction	19 (4.3)	2.6 – 6.6
Obesity	6 (1.4)	0.5 – 2.9
Other‡	41 (9.3)	6.8 – 12.4
Richmond Agitation Sedation Scale		
-5	363 (82.3)	78.4 – 85.8
Not applicable (No sedation)	78 (17.7)	14.2 – 21.6
Mechanical ventilation		
Yes	388 (88)	84.6 – 90.9
No	53 (12)	9.1 – 15.4
Vasoactive Drugs		
No	405 (91.8)	88.9 – 94.2
Yes	36 (8.2)	5.8 – 11.1
Outcome		
Discharge to inpatient unit	301 (68.2)	63.7 – 72.6
Death	132 (30)	25.7 – 34.4
Transfer	8 (1.8)	0.8 – 3.5

*CI: Confidence interval for proportions; †Includes other less prevalent diseases, such as neoplasms, cardiovascular, genitourinary, infectious and/or sepsis diseases; ‡Includes other less prevalent comorbidities, such as liver disease and Others (Depression, Alzheimer, Parkinson, among others)

Table 2 shows the values of Pearson's correlation coefficient, the significance of the test of the variables age, length of stay in the Intensive Care Unit, length of mechanical ventilation, extubation time and the Nursing Activities Score with the outcome of readmission. It is noteworthy that most of the correlations were negative, but the correlation between extubation time and readmission was significant.

Table 2 – Pearson's correlation coefficients and significance of admission correlated to the readmission outcome in the studied Intensive Care Unit. Cascavel, PR, Brazil, 2017

Variables	Pearson's coefficients (r)	p-value*
Age	0.43	0.392
Discharge time	-0.45	0.069
Length of mechanical ventilation	-0.31	0.302
Extubation time	-0.66	0.051
Nursing Activities Score	0.19	0.378

*Pearson's correlation

Table 3 shows the comparison data between non-readmitted and readmitted patients, regarding the variables expressed on mean: age, admission Nursing Activities Score, length of mechanical ventilation and extubation time. It has been shown that the length of stay and extubation were significantly longer among the group of readmitted patients.

Table 3 – Comparison of variables expressed on average between patients not readmitted and readmitted. Cascavel, PR, Brazil, 2017

Variables	Non-readmitted patients (Mean)	Readmitted patients (Mean)	p-value*
Length of hospital Stay	22.1	45.5	0.000
Age	51.9	53.2	0.735
Nursing Activities Score	103.6	105.5	0.340
Length of mechanical ventilation	9.1	13.8	0.062
Extubation time	2.8	4.0	0.023

**T-student* test

Regarding the outcome, of the patients readmitted to the studied intensive care unit, 20 (69%) were discharged from the hospital and nine (31%) died. In comparison, non-readmitted patients (n=412) who died (n=123) resulted in a slightly lower rate (29.8%), which resulted in a statistically non-significant difference (p=0.893).

Discussion

The absence of more robust statistical modeling (such as logistic regression) and geographical restriction were limitations of this study, which prevented the definition of predictors for readmission in the studied intensive care unit. Still, there is the restriction inherent in documentary data extraction, which always determines the non-full guarantee of the legitimacy of the data.

The study contributes to the improvement of knowledge, to outline the need of monitoring the rate of readmission in the Intensive Care Unit as an indicator of quality and the associated factors as elements of assertive recognition of this factor, serving as a source of benchmarking for future, since the readmission control is complex. Furthermore, the research raises discussions regarding the continuous review of discharge criteria in the Intensive Care Unit and alerts for early and rational multidisciplinary identification of necessary readmissions.

In line with the results found in the present study, other studies, in the critical care setting, point to a concentrated profile of men aged around 50 years[1,5]. Also, concerning the patients' profile, there was a high number of hospitalizations in intensive care for trauma, a public health problem in Brazil, affecting mainly men, besides an important growth in hospitalizations among the elderly for this external cause[6].

The length of stay in the intensive care unit surveyed was, in comparative terms, significantly higher among patients readmitted than those not readmitted. It is noteworthy that the length of stay of patients depends on several factors, such as underlying disease, therapeutic requirements and complications resulting from hospitalization[7-8].

When considering the significant difference between the length of hospital stay for readmitted patients compared to those not readmitted, even though the death rate between groups is similar, the need for continuous review of discharge criteria in the Intensive Care Unit and alerts for possible readmissions is reinforced in this unit, to avoid mortality and complications.

The use of the NAS aims to assess the nursing care/activities performed (workload) and that had direct interference from the degree of care dependence, therefore, the worst prognosis for mortality, for example, is not always related to the high level of the nursing activity, since NAS more accurately predicts the quantity (volume) of the nursing activities[5]. Although the admission NAS score was not significantly correlated to the outcome of readmission, the correlation was negligible positive, indicating that the increase in the variables is, to some extent, linear.

It is known that in clinical practice, the increase in the severity of the patient tends to increase the care actions, this corresponds, in fact, to the occurrence of a large number of serious comorbidities in the critical unit, such as infections, sepsis, hemorrhages and surgical procedures[1,7].

The use of mechanical ventilation is generally recommended in situations of aggravation, in which the patient evolves to respiratory failure, which implies Impaired Gas Exchange[9-10]. Of the total, 88.0% of patients underwent mechanical ventilation, at the first admission to the intensive care unit surveyed, corroborating the previous results, of which the main diagnoses that caused the need for mechanical ventilation were: lung diseases, such as pneumonia, Chronic Obstructive Pulmonary Disease and respiratory insufficiencies; neurological patients; traumatic brain injury; and post-surgical patients, in which 29.9% of patients were admitted with an initial diagnosis of

trauma at any level, 29.7% with some type of neurological condition and the third major cause identified, 15.9%, with respiratory conditions[11-12].

The strategies and tests to assess patient extubation require criteria and combinations, which will result in a lower risk of reintubation. Weaning from mechanical ventilation and extubation is difficult, so it is necessary to trace and follow protocols to increase the success of this procedure[9-10]. In this research, it is highlighted that the extubation time was negatively and significantly correlated with the outcome of readmission, so the increase in extubating time may have reduced readmission in the critical unit.

In comparative terms, extubation time was significantly longer among patients readmitted to the studied intensive care unit, even though it was not directly correlated to the outcome of readmission. This, perhaps, illustrates a possible greater severity of the readmitted patients, even though, as mentioned, the mortality rate has been similar among the groups of patients. This scenario reflects the importance of early identification of the need for rehospitalization in an Intensive Care Unit, even if it is unwanted.

The rate of readmission to the investigated Intensive Care Unit was 6.5%. Some factors must be considered, such as possible ineffective care at initial hospitalization and/or early discharge. However, it is also necessary to admit that the critical patient is naturally liable to complications, even after specialized care in the Intensive Care Unit, due to the common characteristic of clinical severity[11]. These complications tend to be mitigated when supplying and distributing resources, added to the culture of quality and patient safety[8].

The aforementioned fact justifies the need to use mechanisms to identify clinical worsening/deterioration in non-critical inpatient units, such as the Modified Early Warning Score, which is based on vital signs and the patient's level of consciousness, creating a score that aims to assess, and therefore, possible alert, with the evident role of nurses in this scope[12]. With this, the possibility of future studies that manage to verify the possible sensitivity of early alerts of clinical deterioration, in the prevention of readmission in the Intensive Care Unit, is conceived, in addition to the accuracy of the assessment of nurses in the use of management tools for the type of care.

Recent national studies have shown readmission rates for intensive care around 6.0%, in Rondônia[13]; 9.2%[2] and 4.5%[11], in São Paulo; and 10.0%, in Rio de Janeiro, Brazil[4]. When considering the rate found in this study and, based on the literature, it was observed that the rate of readmission was slightly low to moderate, which reinforces that each institution/unit knows the possible means and tools to be used, to control and reduce this rate, a number considered undesirable.

Researchers from the state of Pennsylvania, in the United States of America, to analyze results of patients readmitted to specialized intensive care units due to trauma and investigating strategies to reduce rates of readmission, verified that the most evident risk factors for readmission are: age; respiratory complications; severity of the disease; male; bleeding; chronic kidney disease; and days of mechanical ventilation. Therefore, it was inferred that the strategies to reduce readmissions in traumatic Intensive Care Units possibly result in the unique knowledge of each institutional reality[14].

Regarding the outcome of readmitted patients, 31.0% died. It is evident that readmitted patients, due to having a more severe clinical condition, have a worse prognosis, showing that readmission is a complicating factor of hospitalization and demonstrating that any error during the processes can trigger complications to the patient, leading to a worse prognosis[5, 8-10].

Death may be related to the natural evolution of the disease, when the therapeutic possibilities have been exhausted, but it may also be related to the limitation of human resources, unavailability of equipment or, still, to the premature discharge from the Intensive Care Unit[2]. Despite this, the proportion of

deaths among the group of non-readmitted patients was similar (29.8%) and with a non-significant comparative difference between those readmitted, which may be explained by the characteristic clinical and demographic profile of the clientele.

In this study, it was observed that there were no discharge plans and/or protocols described in the electronic medical records of patients, which may favor the early discharge. The discharge planning of the Intensive Care Unit must start with the patient's admission and, therefore, it is recommended the rational elaboration and the use of protocols to reduce the length of stay in the critical unit, since the availability of beds is unbalanced to the demand for need[15]. It is observed, however, that in addition to pursuing shorter stay in the Intensive Care Unit, the use of these means and management tools for critical care should also enable the planning of safe discharge, in a multidisciplinary way. Also, readmission to the critical unit is an indicator that deserves continuous monitoring.

Conclusion

The rate of readmission to the studied intensive care unit (6.5%) was similar and slightly low to moderate, considering other realities. Besides, there were no statistically significant correlations for the readmission outcome, except for extubation time, which was negatively correlated with the outcome. Death was equal between the groups of patients who were readmitted or not. However, by comparing means, the length of stay and extubation were significantly longer among those readmitted.

Collaborations

Lopes D, Fernandes LM, Alves DCI, Tonini NS and Oliveira JLC contributed to the conception and design or analysis and data interpretation, writing of the article, relevant critical review of the intellectual content and final approval of the version to be published.

References

1. Matias G, D'artibale EF, Almeida MM, Tenuta TF, Caporossi C. In-hospital morbimortality of adult patients. Epidemiological study – santa rosa hospital – Cuiabá (MT). Rev Cientif Hosp Santa Rosa [Internet]. 2018 [cited Apr 25, 2020]; 8(1):16-25. Available from: http://revistacoorte.com.br/index.php/coorte/article/view/104/86
2. Rodrigues CM, Pires EM, Feliciano JP, Vieira JM, Taniguchi LU. Admission factors associated with intensive care unit readmission in critically ill oncohematological patients: a retrospective cohort study. Rev Bras Ter Intensiva. 2016; 28(1):33-9. doi: https://doi.org/10.5935/0103-507X.20160011
3. Ricci H, Araújo MN, Simonetti SH. Early readmission in a high complexity public hospital in cardiology. Rev Rene. 2016; 17(6):828-34. doi: https://doi.org/10.15253/2175-6783.2016000600014
4. Albuquerque JM, Silva RFA, Souza RFF. Epidemiological profile and monitoring after discharge of patients hospitalizes at an intensive care unit. Cogitare Enferm. 2017; 3(22):e50609. doi: http://dx.doi.org/10.5380/ce.v22i3.50609
5. Nassiff A, Araújo, TR, Meneguetti MG, Rodrigues FB, Filho AB, Laus AM. Nursing workload and the patient mortality at an intensive care unit. Texto Contexto Enferm. 2018; 27(4):e0390017.doi: https://doi.org/10.1590/0104-07072018000390017
6. Lentsck MH, Sato APS, Mathias TAF. Epidemiological overwiew – 18 yearsof ICU hospitalization due to trauma in Brazil. Rev Saúde Pública. 2019; 53:83. doi: https://doi.org/10.11606/s1518-8787.2019053001178
7. Lopes D, Schran LS, Oliveira JLC, Oliveira RMSR, Fernandes LM. Fatores de risco/causais para insuficiência renal aguda em adultos internados em terapia intensiva. Rev Enfer Brasil. 2018; 17(4):336-345. doi: http://dx.doi.org/10.33233/eb.v17i4.1232
8. Siqueira EMP, Ribeiro MD, Souza RCS, Machado FS, Diccini S. Correlation between workload of nursing and severity of critical general, neurological and cardiac patients. Esc Anna Nery. 2015; 19(2):233-8. doi: https://dx.doi.org/10.5935/1414-8145.20150030

9. Vargas MHM, Scherf MF, Souza BS. Principais critérios relacionados ao sucesso e insucesso do desmame da ventilação mecânica invasiva. Rev Saúde Integrada [Internet]. 2019 [cited Feb 13, 2020]; 12(23):162-77. Available from: http://local.cnecsan.edu.br/revista/index.php/saude/article/view/717/565

10. Souza LC, Lugon JR. The rapids hallow breathing index as a predictor of successful mechanical ventilation weaning: clinical utility when calculated from ventilator data. J Bras Pneumol. 2015; 41(6):530-5.doi: https://doi.org/10.1590/s1806-37562016000000099

11. Dias LB,Gritti CC, Lobo SM,Lamari NM,Bianchin MA. Funcionalidade e complicações em paciente gravemente enfermos reinternados no hospital. Arq Cienc Saúde. 2017; 24(2):60-4. doi: https://doi.org/10.17696/2318-3691.24.2.2017.633

12. Olino L, Gonçalves AC, Strada JKR, Vieira LB, Machado MLP, Molina KL, et al. Effective communication for patient safety: transfer note and Modified Early Warning Score. Rev Gaúcha Enferm. 2019; 40(esp):e20180341. doi: https://doi.org/10.1590/1983-1447.2019.20180341

13. Silva RR, Pinheiro FA, Carvalho ACM, Oliveira CAB, Lima EKV, Cavalcante ABL, et al. Prevalência de readmissões após alta em uma Unidade de Terapia Intensiva de um hospital do interior de Rondônia. Rev Eletr Acer Saúde. 2020; (42):e2871. doi: https://doi.org/10.25248/reas.e2871.2020

14. Morgan M, Vernon T, Bradburn EH, Miller JÁ, Jammula S, Rogers FB. A comprehensive review of the outcome for patients readmitted to the ICU following trauma and strategies to decrease readmission rates. J Intens Care Med. 2020; 9:1-7. doi: https://doi.org/10.1177/0885066619899639

15. Goldwasser RS, Lobo MSC, Arruda EF, Angelo SA, Ribeiro ECO, Silva JRL. Planning and understanding the intensive care network in the State of Rio de Janeiro (RJ), Brazil: a complex societal problem. Rev Bras Ter Intensiva. 2018; 30(3):347-57. doi: http://dx.doi.org/10.5935/0103-507x.20180053