



## MORTALITY PROFILE OF YOUNG ELDERLY PEOPLE HOSPITALIZED IN AN INTENSIVE CARE UNIT

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### ABSTRACT

**Objective:** to analyze the mortality profile of young elderly people hospitalized in the intensive care unit of a hospital in southwestern Bahia. **Method:** cross-sectional, census, retrospective, descriptive study, with the participation of 128 young elderly people. Data were collected from the unit's record book, among those hospitalized from November 2018 to November 2019. IBM Statistical Package for the Social Sciences SPSS, version 22, was used for the analysis. The study was submitted to the Research Ethics Committee and approved under opinion number 3.233.411 and CAEE 73792317.3.0000.0057. **Results:** mortality was higher among the elderly of the black race/color, with hospitalization time greater than or equal to six days and in the presence of less prevalent diseases. On the other hand, having emergency regulation for the intensive care unit reduced the outcome of death by approximately 50%. **Conclusion:** the group of black elderly, with longer hospitalization and affected by infrequent diseases, die more when hospitalized in intensive care units.

**Keywords:** Geriatric Nursing. Hospitalization. Health of the Elderly. Intensive Care Units. Mortality.

### INTRODUCTION

The Brazilian elderly population has increased considerably, mainly due to the increase in life expectancy and decreased fertility rate. Although longevity is a milestone of improvement and progress in public health, population aging is a concern, as senescence causes morphological, physiological and psychological changes that contribute to the progressive loss of adaptation of the elderly to the environment, making them more susceptible to events that compromise their health<sup>(1)</sup>.

In addition, authors point out an increase in complications inherent to the exacerbation of chronic non-communicable diseases<sup>(2)</sup>, severe infectious conditions, surgical demands<sup>(3)</sup>, among others, with consequent hospitalizations, sometimes in specialized units, such as the Intensive Care Units (ICU).

People between 60 and 79 years old are classified as young elderly people<sup>(4,5)</sup>, responsible

for most occupations of ICU beds in 2014, according to a study carried out in South Korea<sup>(6)</sup>. In Brazil, young elderly people were the main users of ICUs, representing not only the largest occupation, but also permanence in these units<sup>(4)</sup>.

The period of hospitalization in the ICU, in addition to representing an increase in public and private costs, can contribute to negative physical and psychological repercussions, especially in the elderly<sup>(7)</sup>. The fact that these units are known as a place of imminent risk of death, raises feelings of fear and stress for the elderly and their caregivers, and contribute to a traumatic stay, which can cause weaknesses resulting from the pathology, due to low immunity, contributing to high morbidity and mortality rates<sup>(8)</sup>.

Regarding mortality, a study carried out in the ICU of a public reference hospital in the Northeast found 39% of deaths in elderly people aged between 60 and 79 years, with acquired infections as the main cause. It is noteworthy that females were the most affected and respiratory tract

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infection prevailed among the causes of death<sup>(9)</sup>.

The outcome of death in these units is influenced by factors such as reason for admission, length of hospital stay, chronic and acute diseases that, when added to the physiological limitations related to aging, increase the risk of complications and death<sup>(3)</sup>. Thus, it is important to know the epidemiological profile of young elderly people in these units, as they are the majority of hospitalized, in order to establish care strategies aimed at hospitalization with less risk and discharge with better autonomy, independence and fewer sequelae.

In regions far from large urban centers, such units may experience realities marked by structural limitations related to the availability of beds, adequately trained personnel and access to new technologies, among other issues.

Thus, giving visibility to this profile can enable specific training and improve care strategies, consolidating care models based on education, prevention of preventable diseases, early care and rehabilitation of diseases<sup>(10)</sup>. Because, it is about young elderly people, usually with the possibility of active life after hospitalization. Given this context, the objective is to analyze the mortality profile of young elderly people hospitalized in the intensive care unit of a hospital in southwestern Bahia.

## METHODOLOGY

This is an epidemiological study with quantitative analytical cross-sectional design. The place of data collection was the intensive care unit of a Public Hospital located in Guanambi, municipality of southwestern Bahia, a general institution of medium size, secondary level, with 140 beds of care to high-risk management, reference of the Unified Health System (SUS) for the health microregion that covers 37 municipalities with an estimated population of 586 thousand inhabitants. The *locus* ICU has 10 beds for the intensive care of adults and the elderly people.

The participants were young elderly people admitted in the period from November 2018 to November 2019, aged between 60 and 79 years, of both sexes. Inclusion criteria were: elderly admitted to the ICU who remained for a period  $\geq$  24 hours, excluding those whose data in the unit's

record book presented three incomplete variables. These variables were: age, admission diagnosis and length of stay.

The data collection took place through consultation with the unit's record book. In this book, nurses make notes regarding hospitalized people, which includes age; sex; race; admission diagnosis; origin; residence space; admission diagnosis; date of admission and hospital discharge; length of stay and death. To search for this information, an instrument formulated by the authors containing sociodemographic and clinical data was used. Prior to the data collection, carried out between October and November 2019, the sector was visited to get to know the record book and, if necessary, adjust the instrument.

The variables recorded were: biological sex (female and male); age/full years (60-79 years); race/color (white and black – black representing the union of brown and black); residence space (rural and urban); origin/regulation for the ICU (surgical center; emergency, wards; other origins - consisting of Emergency Care Units and surrounding hospitals); admission diagnosis (diseases, post-surgical, accidents); comorbidities; length of stay (short  $\leq$  5 days long  $\geq$  6); outcome (death or discharge).

The data collected through the form were organized for analysis in the IBM Statistical Package for the Social Sciences SPSS, version 22.0. The analysis consisted of Poisson statistical tests to verify associations between variables, and Student's tests for independent samples, in order to compare means. For statistical significance,  $p$ -value  $< 0.05$  was accepted. The magnitude of the associations was estimated by the 95% confidence interval.

The research was submitted to the Ethics and Research Committee (ERC) of the State University of Bahia (UNEB), according to resolution 466/2012 of the National Health Council (NHC), obtaining approval on March 29, 2019, according to opinion number 3,233,411 and CAEE 73792317.3.0000.0057. A visit was carried out in the hospital and in the ICU to present the project, prior to the collection. In the case of a research with secondary data, the application of the Informed Consent Form was waived.

Between November 2018 and November 2019, a total of 319 people were hospitalized in the Intensive Care Unit of the hospital in question. Of

these, 191 did not compose the sample because they were adults ( $\geq 18$  years to 59 years). Thus, 128 young elderly people (60 to 79 years) were totaled.

## RESULTS

One hundred and twenty-eight (128) young elderly people hospitalized in the ICU during the collection period were identified. Of these, 65.6% were men, with a mean age of  $69.2 \pm 5.8$  years. The predominant self-declared race/color was black (70.3%). As for the residence space, the urban area predominated (61.7%). With regard to origin, most were from the emergency unit (52.3%), followed

by the surgical center (18.0%), wards (6.3%) and without registration (5.5%), still counting (18.0%) from other origins, considering here as regulation of Emergency Care Units and surrounding hospitals. The variable named "System/Diseases" presents the relative and absolute frequencies of the predominant diseases in each system of the human body. The variable "Low prevalent diseases" presents a set of diseases that appeared only once in each person investigated, except for cancer and sepsis that occurred in three cases respectively and, therefore, are mentioned. (Table 1).

**Table 1.** Sociodemographic and clinical profile of the young elderly people admitted to the ICU of a Guanambi hospital. (n=128) Guanambi, Bahia, Brazil, 2020.

Variable	N	%
<b>Death</b>		
No	80	62.5
Yes	47	36.7
No record	1	0.8
<b>Length of stay</b>		
Short $\leq 5$ days	76	59.4
Long $\geq 6$ days	50	39.1
No record	2	1.6
<b>Origin</b>		
Emergency	67	52.3
Surgical center	23	18
Other Proceedings	23	18
Wards	8	6.3
No record	7	5.5
<b>System/Diseases</b>		
<b>Cardiovascular system (n=47)</b>		
AMI	16	34
AMI + comorbidities	7	14.9
ICC	4	8.5
CHF + comorbidities	4	8.5
<b>Neurological system (n=23)</b>		
Stroke	6	26
Stroke + comorbidities	4	17.3
<b>Gastrointestinal system (n=21)</b>		
Acute abdomen.	3	14.3
Upper gastrointestinal haemorrhage	3	14.3
<b>Poorly prevalent diseases (n=21)</b>		
Cancer	3	14.3
Sepsis	3	14.3
<b>Respiratory system (n=13)</b>		
Respiratory failure	3	23.1
Acute pulmonary edema	2	15.3
Pneumonia	2	15.3
<b>No record (n=3)</b>		
<b>Race/skin color</b>		
Black	90	70.3
White	36	28.1
No record	2	1.6
<b>Biological sex</b>		
Male	84	65.6
Female	44	34.4

**Place of residence**

Urban area	79	61.7
Rural zone	46	35.9
No record	3	2.3

AMI \*: Acute Myocardial Infarction; CHF\*\*: Congestive Heart Failure; Stroke\*\* \*: Stroke.

Regarding the main reason for hospitalization, cardiovascular causes emerge (37.6%); neurological (18.4%); gastrointestinal (16.8%); respiratory (10.4%) and less prevalent diseases (16.8% - Cancer and sepsis).

**Table 2.** Analysis of the association between length of stay and the outcome of death in young elderly people hospitalized in the ICU. Guanambi, Bahia, Brazil, 2020.

	Death		p-value
	Yes (n=46)	No (n=80)	
Mean length of hospital stay	7.1957	6.1500	0.045**
Age	69.2340	69.2875	0.909

Regarding the period of hospitalization, 59.4% of the elderly were in the ICU for less time while 39.1% remained for a longer period and 1.6% had this data ignored. The length of hospitalization ranged from 1 to 46 days, with a mean of 6.53 and a median of 5 days. 36.7% of the young elderly people had death as an outcome.

**Table 3.** Analysis of the association between the death outcome of young elderly people hospitalized in the ICU and the variables origin, main diagnosis, race/color and place of residence. Guanambi, Bahia, Brazil, 2020.

		% (n)	p-value
<b>Origin</b>	Emergency	55.4 (67)	0.17 **
	Surgical center	19.0 (23)	0.152
	Other Proceedings	19.0 (23)	
	Wards	6.6 (8)	0,758
<b>Systems/Diseases</b>	Cardiovascular	37.1% (47)	0.280
	Neurological	18.5% (23)	0.105
	Gastrointestinal	16.9% (21)	-
	Less prevalent diseases	16.9% (21)	0.041**
	Respiratory	10.5% (13)	0,102
<b>Race/skin color</b>	Black	71.2% (89)	0.042 **
	White	28.8% (36)	
<b>Residence space</b>	Urban	62.9% (78)	
	Rural	37.1% (46)	0.054

\*\* Variables that were associated with the outcome of death.

## DISCUSSION

The study indicates that four out of 10 young elderly people admitted to the studied ICU died, significantly associated with longer hospital stay, less prevalent diseases and belonging to the black race, although this association with race/color still needs further investigation, since it constituted 70.3% of hospitalized patients. On the other hand, being regulated from the emergency unit reduced the possibility of this outcome by half.

The proportion of deaths in young

elderly people in this study was lower than in another study conducted in Piauí, with a percentage of 38.9%<sup>(9)</sup>. This difference may be explained by the discrepancy between the clinical admission profile of the samples that in the Piauí study mostly come from the postoperative period of major surgeries, which requires longer hospitalization, exposing users to a higher risk of infections<sup>(11)</sup>.

In this context, it was pointed out that the elderly population has a worse health prognosis when hospitalized in intensive care units, possibly

associated with the physiological reserves inherent to the aging process that, added to the disease(s) causing admission to the ICU, the length of stay, among other factors, increase the risk of death<sup>(12)</sup>.

Regarding the length of ICU stay and deaths, a study<sup>(13)</sup> conducted in Rio Grande do Sul identified mean survival of eight days in a group composed predominantly of young elderly people, therefore, a longer interval than the analysis in question. This greater survival presented by the southern study may be related to the presence of two large hospitals in the municipality, which possibly facilitates access and agility in the admission of this population in cases that represent a risk of death, in contrast to this study, developed in a medium-sized hospital and ICU meeting the great demand of the entire region.

Although the ICU is a place that has specific technologies and care for the benefit of the users, longer hospitalization in these units can contribute to severe dysfunctions in the musculoskeletal, cardiorespiratory, metabolic, gastrointestinal, genitourinary, and cutaneous systems, among others<sup>(14)</sup>. Such dysfunctions cause worsening of the health situation of the elderly, especially when, by necessity, they undergo invasive procedures such as mechanical ventilation, access to drugs, among others, increasing the risk of adverse events, infections and death<sup>(15)</sup>.

In this analysis, the origin/regulation of the emergency for admission to the ICU, despite a higher number of notifications, represented a group with a lower probability of death. This result is different from a study carried out in an ICU in the city of Teresina, in which 55.6% of the young elderly people came from the Surgical Center, with a mortality of 38.3%<sup>(2)</sup>.

The lower mortality observed in the ICU of emergency-regulated elderly can be explained by the fact that in this environment treatments are instituted with greater agility and precocity, especially for people who are victims of acute situations, providing favorable outcomes<sup>(16)</sup>.

In this sense, for the emergency sector to continue providing quality assistance, influencing the reduction of deaths in this age group, when regulated for intensive care units, it is important to provide vacancies, material and human resources and promote professional training through continuing education. It is also noteworthy the importance of intersectorality between the ICU and

emergency teams, with a view to adopting internal protocols that allow the prioritization of conducts, which can enhance immediate interventions contributing to the survival of users.

Cardiovascular diseases prevailed among the causes of ICU admission in this study, especially acute myocardial infarction and congestive heart failure, as reported by other authors<sup>(17)</sup>. In people with these pathologies, there are usually associated chronic diseases such as systemic arterial hypertension (SAH), diabetes mellitus (DM), dyslipidemias, among others<sup>(18)</sup>. Such diseases are also more expressive in the black ethnic group, which represented 70.3% in the present study.

Although the infrequent diseases affect fewer elderly people and occupy the fourth cause of hospitalization in the intensive care beds of this study, the diseases contained in this group (sepsis and cancer) proved to be more lethal, representing a 2.75 -fold higher probability of death among the young elderly people. The diseases that predominated in this variable were: ovarian carcinoma, prostate cancer, sepsis and septic shock. In agreement with these findings, a study carried out in the ICU of three hospitals in Anápolis observed that the neoplasm caused a higher number of deaths (74%)<sup>(19)</sup>. In the northeast region, research in ICUs of the general hospital of Fortaleza reported sepsis (80.7%) as the main cause of death in young elderly people, in the following proportions: sepsis (19.40%), severe sepsis (25.80%) and septic shock (35.50%)<sup>(20)</sup>.

Regarding the variable race/color, the group of young elderly people self-declared black/brown occupied a greater number of beds, with 1.97 times greater probability of presenting the outcome of death when hospitalized in the unit. These results may be reflections of the constant economic, demographic and social changes in Brazil, which impact inequalities in the conditions of access to health between racial groups<sup>(21)</sup>.

This situation suggests that black elderly people predominate among those with lower levels of education, income, and community health indicators, when compared to white elderly people. These discrepancies may be a consequence of social rights denied to the black ethnic-racial group, with repercussions on the decrease in their quality of life during senescence, increasing their risk of health impairment and death<sup>(22,21)</sup>.

In addition to the issue of inequalities in health

conditions, authors<sup>(23)</sup> state that the difficulties of access faced by the black populations, with regard to mobility, prejudice, discrimination and socioeconomic conditions, constitute structuring axes that affect the guarantee of universal and equitable access to health services throughout their lives.

The significant number of hospitalizations of black elderly people at the tertiary level of health care networks elucidate, albeit empirically, the accessibility barriers that exist in Primary Health Care (PHC), as identified in another study<sup>(21)</sup>.

Although there is no statistical association between hospitalizations and deaths according to biological sex in the present study, a study developed in Rio Grande do Sul<sup>(24)</sup> identified high percentages of hospitalization of young male elderly in the ICU. This epidemiological picture can be explained by the lower adherence of the male public to health services, as well as greater exposure to risk factors and negative lifestyle<sup>(25)</sup>.

There was no association between the location of the residence and the outcome of death. However, it is a point that deserves attention, since the p-value (0.054) obtained for the rural residence space was very close to the statistical significance. In this sense, a closer look at this specificity is necessary, since the literature points out that the difficulties of access to health services are higher among elderly people living in rural areas<sup>(26)</sup>, due to dealing with geographical distance as a barrier to access to health services<sup>(27)</sup>, especially among people with walking limitations<sup>(28)</sup>.

In addition, there is a tendency for rural populations to seek health services mostly in more severe cases, neglecting the prevention of diseases. This contributes to the lack of knowledge of their health status and exacerbation of chronic pathologies that lead to the outcome of death even before they are admitted to specialized units<sup>(29)</sup>. Therefore, this data deserves a more detailed analysis in other investigations, with a broader population.

Among the strengths of this analysis, the

sample design that allows the collection of demographic and clinical information of all people in a given group stands out. In addition, this investigation was carried out in intensive care units with a geographical location far from large urban centers, allowing the reflection of the structural limitations faced in these sectors.

One of the limitations of this study was the short time frame, suggesting for future research the design of periods longer than one year, to expand the population and better investigate the association between mortality in the ICU and place of residence of young elderly people; mortality in the ICU and race/color. Another limiting factor was not accessing the patients' medical records, which could reveal clinical information for a better understanding of the outcome.

## CONCLUSION

It is concluded that the young male elderly, self-declared black, affected by less prevalent diseases and with longer hospital stay was the group that occupied the most intensive care beds and had the highest outcome of death.

On the other hand, having been regulated from the emergency unit to the ICU reduced the probability of death. It is suggested that managers of this sector invest in continuing education, in order to improve early conducts and interventions, which impact on better prognosis and survival of the young elderly people when transferred to the ICU.

The study enables the multidisciplinary team of the ICU to know the sociodemographic, clinical and mortality profile of the young elderly people admitted, enabling actions that improve their care and survival. Because they are young elderly people, who mostly survived hospitalization, it is recommended to implement discharge management to ensure continuity of care after discharge, higher quality of life with return to active life and lower probability of readmissions.

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## PERFIL DE MORTALIDADE DE IDOSOS JOVENS HOSPITALIZADOS EM UMA UNIDADE DE TERAPIA INTENSIVA

### RESUMO

**Objetivo:** analisar o perfil de mortalidade dos idosos jovens hospitalizados na unidade de terapia intensiva de um hospital do sudoeste da Bahia. **Método:** estudo transversal, censitário, retrospectivo, descritivo, com a participação de 128 idosos jovens. Os dados foram coletados do livro de registros da unidade, entre os

internados de novembro de 2018 e novembro de 2019. Para análise, utilizou-se o *IBM Statistical Package for the Social Sciences SPSS*, versão 22. O estudo foi submetido ao Comitê de Ética em Pesquisa, sendo aprovado sob o número de parecer 3.233.411 e CAEE 73792317.3.0000.0057. **Resultados:** a mortalidade foi maior entre os idosos da raça/cor negra, com tempo de internação maior ou igual a seis dias e na presença de doenças pouco prevalentes. Em contrapartida, ter regulação da emergência para unidade de terapia intensiva reduziu o desfecho de óbito em aproximadamente 50%. **Conclusão:** o grupo de idosos negros, com maior tempo de internação e acometido por enfermidades pouco prevalentes, morre mais quando hospitalizado em unidades de cuidados intensivos.

**Palavras-chave:** Enfermagem Geriátrica. Hospitalização. Saúde do Idoso. Unidades de Terapia Intensiva. Mortalidade.

## PERFIL DE MORTALIDAD DE PERSONAS MAYORES JÓVENES HOSPITALIZADOS EN UNA UNIDAD DE CUIDADOS INTENSIVOS

### RESUMEN

**Objetivo:** analizar el perfil de mortalidad de las personas mayores jóvenes hospitalizadas en la unidad de cuidados intensivos de un hospital del suroeste de Bahia/Brasil. **Método:** estudio transversal, censitario, retrospectivo, descriptivo, con la participación de 128 ancianos jóvenes. Los datos fueron recolectados del libro de registros de la unidad, entre los hospitalizados de noviembre de 2018 y noviembre de 2019. Para el análisis, se utilizó el *IBM Statistical Package for the Social Sciences SPSS*, versión 22. El estudio fue sometido al Comité de Ética en Investigación, siendo aprobado bajo el número de dictamen 3.233.411 y CAEE 73792317.3.0000.0057. **Resultados:** la mortalidad fue mayor entre los ancianos de la raza/color negro, con tiempo de hospitalización mayor o igual a seis días y en presencia de enfermedades poco prevalentes. En cambio, tener regulación de la urgencia para la unidad de cuidados intensivos redujo el óbito en aproximadamente un 50%. **Conclusión:** el grupo de personas mayores negras, con mayor tiempo de internación y con enfermedades poco prevalentes, muere más cuando hospitalizado en unidades de cuidados intensivos.

**Palabras clave:** Enfermería Geriátrica; Hospitalización; Salud del Anciano; Unidades de Cuidados Intensivos; Mortalidad.

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