

Critical healthcare for the elderly against COVID-19 : a multidisciplinary approach

Abstract

Objective: Describe critical health care for the elderly against COVID-19 in a multidisciplinary approach.

Method: This is a qualitative study, with an exploratory documentary and detailed descriptive approach, with a bibliometric emphasis. Where several studies will be gathered for the characterization of each element present in their results.

Results and discussion: Several studies were analyzed and discussed about the topics related to this study, they are: critical health care, health of the elderly, Covid-19 and multi disciplinary care. Scientific articles of national and international origin contributed effectively to the discussion of these results.

Conclusion: This study achieved its objective, as it described critical health care for the elderly against COVID-19 in a multi disciplinary approach, it contributed satisfactorily to the entire academic community world wide, enabling the creation of new studies on this topic.

Keywords: critical care, health of the elderly, Sars-Cov-2, patient care team

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Introduction

Emerging and reemerging infectious diseases represent a challenge for global public health. In recent years, several viral epidemics have been recorded, such as the Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) in 2002 to 2003, the H1N1 Influenza in 2009, the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in 2012. At the end of 2019, cases of SARS by the new Coronavirus (CoV-2) were detected in Wuhan, China, with subsequent world wide spread. The World Health Organization (WHO) on February 11, 2020 named the Coronavirus disease 2019 as COVID-19, and on March 11, it declared the SARS-CoV-2 infection as a pandemic.¹

COVID-19, recognized by the WHO as an international public health emergency, has revealed many facets of health, pathogenesis, epidemiology and care. According to information generated in the treatment of the epidemic in China, where the disease began, or in Italy, a country with alarming data in view of the incipient and massive number of deaths, it became evident that some people have an increased risk of contagion and develop the severe form of the disease, thus requiring hospitalization and critical care.²

Among the most susceptible are the elderly, who are more threatened and challenged in the face of the reality we are experiencing, since

their physiological changes resulting from the aging process directly impact their immune function, and due to possible underlying health conditions such as COVID -19.³

The elderly population, due to the chronological factor and typical pathologies such as dementia, stroke, fractures, added to the susceptibility to infections and embolic phenomena, associated with the current infection by COVID-19, conspire to make this age group a potentially critical patient. Data released by the Ministry of Health (MS) reveal that about seven out of ten elderly people in Brazil have at least one chronic disease.^{2,3}

Research reports have shown that eight out of ten deaths from COVID-19 occur in individuals with at least one comorbidity. The data presented by the MS until May indicate that in our country 74% of deaths attributed to COVID-19 are in the age group above 61 years, while in Italy these results reach 96%. The evidence linked to the need for hospitalization and occupancy of ICU beds is in line with the predominant occupation by the elderly, even before the current situation of the pandemic, in which the admissions of these people to the ICU had an average frequency of 43 to 53% (in some cases reaching up to 91%), consuming about 61% of available beds.^{4,5} (Figure 1)



Figure 1 ICU had an average frequency of 43 to 53% consuming about 61% of available beds.



Figure 2 Results and the increase in mortality in intensive care.

In this sense, corroborating the construct that this population is at greater risk and has particular protection needs, clinical, theoretical and reflective insights that can positively impact this reality become essential. In the health care of the elderly in the critical care setting, the multidisciplinary team may face different gaps, often related to the knowledge and skills of “intensive care and geronto geriatrics”, fundamental to good practices in the care process as a centrality.⁴⁻⁷

With the increase in hospitalization of elderly people in critical care due to COVID-19, it is necessary for the multidisciplinary team to understand the physiological changes associated with senescence and the particularities of care related to the elderly. Since physiological processes are altered as a result of aging, and although these changes are progressive, they are usually not apparent or pathological.^{6,7}

Thus, the seriously ill elderly person requires more intense observation. With a view to contributing to the expansion of care for the elderly with COVID-19, in critical or potentially critical care situations, the present study reflects on the unique approach to these individuals and the particularities evidenced by SARS-CoV-2 infections in elderly people. Describing critical healthcare for older adults against COVID-19 in a multidisciplinary approach in focus.⁴⁻⁷

Methods

This is a qualitative study, with an exploratory and descriptive documentary approach, with a bibliometric emphasis. Where several studies will be gathered for the characterization of each element present in their results, there search is of the integrative literature review type. This method aims to group and synthesize research results on a given topic, in an organized ways that it contributes to a deepening of knowledge about the issue addressed.⁸

This method has been used in the production of articles, dissertations and these in the health area in recent decades. An integrative literature review of the bibliometric type was carried out, on scientific productions based on multidisciplinary care for the critical care of the elderly with COVID-19, in the national and international context.⁸

This method allows “[...] the search, critical evaluation and synthesis of available evidence on the investigated topic. The use of

this method allows as a result the current situation of knowledge on the topic addressed, the implementation of interventions in health care and the identification of gaps that require further study on the subject. It is important to clarify that for the elaboration of this study, the six stages of the integrative bibliometric review cited by Souza MC (2016) were used, in order to organize the information collected.^{8,9}

1st stage: elaboration of the guiding question. Its definition is the most important phase, as it determines the identification of what must be addressed to contemplate the proposed theme.

2nd stage: search or sampling in the literature. The search was carried out in a broad and diversified way in there liabled at a bases, taking into account that the determination of the inclusion and exclusion criteria for material selection should be carried out in accordance with the guiding question.⁸⁻¹⁰

3rd stage: data collection. At this stage, it was defined what would be extracted from the selected studies through the use of a previously prepared instrument, with the purpose of organizing the key information in a concise way for the construction of the study.^{8,9}

4th stage: critical analysis of the included studies. At this stage, detailed data analysis was performed to ensure the validity of the review. Always taking into account the guiding question as the basis for any analysis.^{8,9}

5th stage: discussion of the results. In this phase, the results obtained in there search were discussed and a critical analysis was carried out about what was evidenced.⁸⁻¹⁰

6th stage: presentation of the bibliometric integrative review. This is the phase where the study was properly prepared. Containing enough information for the reader to make an analysis is of the study carried out. To guide this research, the following question was elaborated: How to accurately develop critical care for the elderly person affected by COVID-19 in a multidisciplinary approach?

The articles were selected from the Virtual Health Library (VHL) database: LILACS (Latin American and Caribbean Literature on Health Sciences), BDENF – Enfermagem (Nursing Database) and MEDLINE (Medical Literature Analysis and Retrieval System). Online. The descriptors used were: Critical Care. Health of the Elderly. SARS-CoV-2. Patient Care Team, through boolean operators “AND” e “THE”, which aims to facilitate searches for materials indexed in databases.

The research universe consisted of online articles in the field of health, related to the proposed theme, through access to the VHL database. The sample was determined considering the following inclusion criteria: being available in the selected databases, covering the proposed theme, being available in full text, being publications of the type article, books and manuals, without a pre-established period, since it is of a pandemic. The exclusion criteria were: dissertations and theses, being in Spanish, as well as unavailable full texts and not covering the proposed topic.⁸⁻¹⁰

Data collection was performed using an intellectual instrument and took place between February 2022 (Updated). The information contained in the afore mentioned instrument aimed at the characterization and contributions of the selected publications, in order to meet the proposed objectives for the investigation.

A total of 167 articles were found, of which 100 did not answer the guiding question, 31 were repeated in there searched databases, which resulted in the selection of 36 articles to compose the sample of this integrative bibliometric review.

Results and discussion

The increase in the frailty of the elderly is a determining factor for the severe presentation of COVID-19, related to the worsening of results and the increase in mortality in intensive care. This requires planning multidisciplinary care for those most at risk, as well as making decisions, together with the elderly, about treatment expectations and end-of-life care. Data already shows us that the coronavirus disproportionately affects those who are frail and/or with chronic health conditions.¹¹

A worrying fact, seen around the world in the face of this pandemic, however, not all elderly people will be able to access the level of care they need. COVID-19 is a disease of the respiratory tract that usually causes fever, cough, fatigue, dyspnea, myalgias, sore throat, head ache, and chills. Rarely, nasal congestion and diarrhea have been identified. Complaints of dyspnea or anorexia were more common among patients admitted requiring critical care through the multidisciplinary team, with shortness of breath being the most common complaint among the elderly (15% for patients > 61 years and 4% for patients < 61 years). Years old).¹²

In some patients, especially elderly people, the new coronavirus, SARS-CoV-2, and the associated disease COVID-19, can trigger a symptomatic presentation of severe bilateral viral pneumonia, which gives rise to the need for critical care, such as the use of mechanical ventilation. World statistics have revealed that 6% of all affected patients develop the severe presentation of the disease and are indicated for multidisciplinary treatment in critical care, due to Acute Respiratory Distress Syndrome (ARDS), sepsis and septic shock, resulting in high rates of mortality. Symptomatic older people are more likely to require ICU admission (9.6% vs 1.5%, $P < 0.002$) and ARDS (17.9% vs 5.6%, $P < 0.002$) compared with patients with less than 61 years old.¹³

ARDS is a type of respiratory failure, present in COVID-19 cases, that should be treated as evidenced by your specific guidelines. In cases of limited access to invasive ventilation, high-flow nasal oxygen or non-invasive ventilation may be used. However, in these two modalities, the high flow of gas is less contained than in a closed circuit typical of ventilators, which represents a risk of spreading the virus in the health environment. A potential problem is also present in simpler situations, such as setting up an ill-fitting face mask. In the mean time, determining the magnitude of these risks is a challenge and a crucial knowledge gap.¹⁴

However, invasive air way access procedures and Aerosol Generating Procedures (AGPs), commonly performed in intensive care, must have specific care when performed in patients with COVID-19, especially in the elderly, given the anatomical changes arising with aging. As it is considered an AGP, for orotracheal intubation the minimum number of professionals required for the procedure must be available, reserving the others in another environment if it is necessary to assist in the performance. Also, the use of Personal Protective Equipment (PPE) recommended by the Aerosol Precaution and Contact Precaution is recommended, such as an N95 mask, shoe covers, face shield and appropriate gloves (more extensive).¹⁵⁻¹⁷

The routine in critical care of a multiprofessional nature given to elderly people who enter this scenario has evidenced singularities linked to changes in senescence, senility and other specificities linked to the elderly population. The fact that these people have a typical presentations of some pathologies is indisputable in the field of gerontogeriatrics, and such evidence presents itself and has

repercussions in the face of prevention, clinical manifestations, treatment and care in the face of the new coronavirus pandemic.¹⁸⁻²⁰

The differentiated presentation of the disease in elderly people is a constant challenge for the multidisciplinary team, especially for nursing, considering that it is the responsibility of these professionals to ensure constant observation and monitoring, control of changes in the clinical picture and the repercussions of COVID-19. 19, as well as reporting them to the other members to provide appropriate interventions.²¹⁻²⁴

In the critical care environment, these changes expose the elderly person in a critical and potentially critical situation to a greater risk of complications, so that care needs to be focused on three important points, namely: the prevention of potential problems, based on the expected weaknesses in elderly people; the differentiation between what can be considered physiological aging and what is already pathological, caused by COVID-19 and needs to be recognized and treated early; and the provision of care focused on results focused on the elderly with COVID-19, considering the singularities presented by this population in the course of the disease.²⁵⁻²⁸

In the care routine, elderly people affected by respiratory viruses have some particularities, which sometimes make screening and diagnosis difficult. In this sense, the symptoms of elderly people affected by COVID-19 require some considerations. With aging, the respiratory system undergoes structural and functional changes. As a result of costal cartilage calcification, there is an increase in energy expenditures for breathing, with consequent use of accessory muscles. The reduction in lung compliance and alveolar surface area leads to an increase in residual lung volume and physiological dead space, decreasing the efficiency of gas exchange.²⁹⁻³²

Faced with these changes, the respiratory center has reduced sensitivity, oxygen consumption decreases and carbon dioxide production increases. Therefore, symptoms of respiratory fatigue can appear abruptly in the elderly, due to poor adaptation to progressive loss, and the examination should focus on the use of accessory respiratory muscles. In this perspective, in the elderly, hypoxemia presents changes in the respiratory system caused by senescence, implying a greater frequency of endotracheal intubation. Furthermore, elderly people are more susceptible than young individuals to laryngeal lesions and vocal alterations resulting from this in invasive procedure. This is because the mucosa, muscles and laryngeal cartilages become fragile and susceptible to injury with advanced age, which requires attention in cases that require prolonged intubation.^{33,34}

The new coronavirus mainly causes lung infections. These, in turn, increase cardiovascular load which, at the same time, can lead to high blood sugar, which makes infection control difficult. In this sense, it can be said that the infection by COVID-19 presents characteristics of a multi-systemic disease, which coexist in the elderly and lead them to complicated and complex clinical conditions. Age is not considered an isolated risk factor for mortality for the elderly person undergoing a critical care phase of the multi-disciplinary team.^{35,36}

Other important factors are mentioned, such as the functional status prior to admission, presence of comorbidities, degree of disease severity, non-surgical admissions, use of mechanical ventilation and longer length of stay until weaning from ventilation. All these factors simply high mortality rates for the elderly group, both during intensive care admission and up to one year after discharge. Thus, it is important that the evaluation of the elderly person is judicious and that admission to intensive care be discussed among the multidisciplinary team, patient and family, considering the impact of underlying

pathologies, comorbidities and severity of the acuted is ease on the probability of intensive treatment achieving the result. wanted. The risks and benefits of any intensive and invasive treatment must be weighed against the likely possible outcomes.³⁶

Implications of covid-19 on elderly people and multiprofessional care

An important system of the human organism, which should be at the fore front in infections such as the one caused by the new coronavirus, is the immune system. However, in the elderly, there is a decrease in their capacity, as a result of the natural aging process. This phenomenon called immuno senescence is translated by a set of modifications, both in the innate and in the acquired response. Such modification scan occur in one or several steps of the cellular activation path way, which will result in a lower efficiency of the defense system, increasing the propensity and severity of infectious, autoimmune andneo plastic diseases, factors that may explain how COVID-19 makes is severe in these individuals and the multiprofessional care present.^{22,36,21}

Thus, elderly people, especially those with associated comorbidities, have greater deficits in the immune system, being more predisposed to mortality associated with viral infection. In the elderly population, some singularities should be considered for decision-making in the face of SARS-CoV-2 infection, such as the values of vital signs, including temperature. Bearing in mind that hyperthermia, as a common symptom in patients affected by any infectious condition, may not be a sufficiently sensitive sign in elderly people, since it is often blunted or absent, even in severe infections. Thus, the definition of hyperthermia has deserved some reflection in this context. It is noted that temperature changes may be even less sensitive among frail elderly people.^{23,25,30}

Considering that elderly people tend to have lower body temperatures than adults and young people, one can follow the warning recommendation, as indicated by the Infectious Disease Society of America, when two repeated temperatures above 37.3°C or when an increase of $\geq 1.4^\circ\text{C}$ above basal temperature occurs. Other specific criteria that may also indicate aggravation or the presence of an infectious condition commonly found in the elderly are syncope, mental confusion, excessive sleepiness, irritability and inappetence. In clinical practice, some assumptions and clinical protocols are already used that can also be useful in this context.³⁶

Regarding laboratory tests, the proportion of patients with an increased number of white blood cells and neutrophils in the elderly population was significantly higher than in the young and middle-aged group, suggesting that elderly people infected with COVID-19 are more likely of having a bacterial infection. In this perspective, it is reiterated that elderly people are prone to multi system organ dysfunction and even failure, so other systemic complications, which should be avoided, including gastrointestinal bleeding, renal failure, Disseminated Intravascular Coagulation (DIC) or deep vein thrombosis.^{24,25}

In this context, when secondary infections are present, a multidisciplinary approach is recommended and the intensive care environment is the most appropriate. Other relevant clinical aspects related to COVID-19 deserve to be highlighted, among which the manifestations in the imaging exams, particularly the Computed Tomography, which reveals ground-glass lung opacities. The incidence of multilobularlesionsis significantly higher in elderly people than in young and middle-aged patients. With regard to the average duration from the onset of symptoms to death, it was found that in people over 71 years of age this periodis 11.6 days and, in younger people, it is 15 days.^{32,34,36}

It is inferred that these results related to the severity of the disease are related to the immune responses, which in elderly people are slower, less coordinated and less efficient, making them more susceptible to emerging infections. Still, based on the assumption that immune function is inversely associated with frailty and comorbidities, it is evident that an 81-year-old elderly person who is healthy and not frail may be more resilient in fighting infection than a person of 81 years of age who is healthy and not frail. 61 years old with many chronic conditions, due to having a younger immune system.³⁶

Conclusion

Elderly people are part of risk groups to develop unfavorable outcomes during the COVID-19 pandemic, mainly due to the physiological characteristics of senescence, as well as their baseline state in the face of senility.

In view of the above, it is essential that the multi disciplinary critical care team is able to identify physiological changes from a physical point of view, as well as cognitive changes associated with aging, to ensure differentiated care for the elderly person with COVID-19 in critical conditions,with a focus on preventing complications.

It is important to clarify the scarcity of material on the related topic and the importance of researching this topic for the expansion of scientific knowledge for the health and nursing sciences, as well as to reinvigorate new ideas and construction of materials so that they can be implemented in the scientific academy.

This study achieved its objective, as it described critical health care for the elderly against COVID-19 in a multidisciplinary approach, transcribing in detail the current scenario of the pandemic in which we are experiencing, highlighting the increasingly discerning importance of care. multi-professional health.

“We would like to dedicate the elaboration of this scientific study to Anna Justina Ferreira Nery, better known as Anna Nery or Ana Néri who was a Brazilian Nurse, Pioneer of Nursing in Brazil”.

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None.

Conflict of interest

The authors declared no have conflict interest for the study.

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