

Sociodemographic and Clinical Characteristics of those Who Died from COVID-19 in the Artemisa Province

Research Article

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Summary

Introduction: Deaths from COVID-19 become a permanent study to discover the causes that generate high mortality rates in the population in hospital institutions, all of which has an impact on a greater demand for services in secondary care.

Objective: Identify sociodemographic and clinical characteristics of those who died from COVID-19 in the province of Artemisa treated in hospital institutions.

Methods: Cross-sectional descriptive study, with a stratified probabilistic sample, composed of 487 deaths in hospital centers, over 23 years of age, in the period between January 2020 to January 2022. Medical records and management database were used. provincial health report on those who died from COVID-19. The information is analyzed using descriptive statistics methods and the advanced operating system.

Results: Average age of the deceased was 70 years old; The age that is most common is 80 years and above 72 years there is 50% of the deceased population with representation of the male sex associated with comorbidities in 60%. Deaths that come from municipalities with high population density and with a higher incidence in the third quarter of 2021.

Conclusions: Predominance of the source of infection outside the home, in addition to the age groups over 70 years in the male sex, together with the presence of pathologies such as Arterial Hypertension and other comorbidities related to the clinical stages of the disease in the Older Adult, where the greatest morbidity and severity is associated.

Keywords: COVID-19; Disease; Age groups; Morbidity; Sex

Abbreviations: USA: United States of America; DM: Diabetes Mellitus; SPSS: Statistical Package for Social Sciences; SARS-CoV-2: Severe Acute Respiratory Syndrome Coronavirus 2; PPA: Personal Pathological History; COPD: Chronic Obstructive Pulmonary Disease

Introduction

Deaths from COVID-19 alert scientists around the world in the constant search for strategies to confront it, which becomes a permanent study to discover the causes that generate high mortality rates in the population, specifically, in hospital institutions, where risks related to



comorbidity are visualized early; everything that affects the evolution of the patient. At the end of 2019, Chinese health authorities reported the existence of an outbreak of patients with a respiratory syndrome in the city of Wuhan, Hubei province, with very high contagiousness and causing severe acute respiratory failure in a large number of patients. On January 7, 2020, they reported that a novel coronavirus (2019-nCoV) had been identified as its etiology [1]. Cases were quickly reported in other countries in Asia and progressively on all continents. It was classified by the World Health Organization, on January 30, 2020, as a global health emergency. In February 2020, the new virus was named SARS-CoV-2. On March 11, 2020, COVID-19 was considered a pandemic [2-4]. Coronavirus 2019 (COVID-19) has caused more than 70 thousand deaths; considered one of the deadliest pandemics of the 21st century. This disease, presumably developed in Asia, is associated with coronaviruses originating in China with a strong and evident spread [3,4]. The spread of SARS-CoV-2 is a global health problem of proportions never before reported.

The first case reported in America was in the United States of America (USA) on January 23, 2020, but only at the end of March did the number of cases increase abruptly, considering the epicenter of the pandemic. In South America, it was first presented in Argentina in February 2020, with the most affected countries in this part of the continent being Brazil, Chile and Ecuador. On March 6, 2020, the first infected person appears in Peru, the number of cases increasing rapidly, the first fatalities occur on March 19 [2]. According to records from the provincial statistics office, at the end of 2021, Cuba reports 8,322 deaths; 5.8% corresponds to the province of Artemisa. During the spread of the coronavirus, an alert is emerging in scientific publications, paying special attention to publications from the international context where there were more advanced studies of the disease; Various scientific publications warned that certain groups of patients were at greater risk of contracting COVID-19, of having a poor outcome, and of mortality, which is why they emphasized direct care with risk groups [3].

Complications and mortality in patients with the presence of SARS-CoV-2 infection, previously sick, generate a greater risk when different comorbidities are present such as High Blood Pressure (HTN), cardiovascular diseases, Diabetes Mellitus (DM), the elderly, among others. Initial reports on the evolution of patients in China showed that COVID-19 patients with the aforementioned clinical conditions had 3 or 4 times more respiratory symptoms, hospitalizations and mortality than those who did not have it [5-7]. In Cuba, the comprehensive approach from the perspective of primary prevention has allowed satisfactory results to be obtained, however, identifying the characteristics of those who died from COVID-19 in secondary care, the relationship with comorbidities and their influence on mortality, provides greater knowledge about the criticality of the patient with chronic pathologies that make the patient more vulnerable; It is also convenient taking into account the availability of human and material resources to face an increase in the disease in health services. The topic presented shows, by itself, the most vulnerable ages, the pathologies most prone to urgency, and among other aspects; alerts about the planning of services to face it. Taking into account the above, the research aims to: identify sociodemographic and clinical characteristics of those who died from COVID-19 in the province of Artemisa treated in hospital institutions.

Methods

A cross-sectional descriptive study was carried out, with a stratified probabilistic sample that includes a population composed of 487 adults, over 23 years of age, who died from COVID-19 in the province of Artemisa in secondary care, in the period between January 2020 to January 2022 (25 month interval); Those who died of legal age due to another cause of death unrelated to COVID-19 are excluded from the study; minor deaths from any cause of death and adult deaths from

COVID-19 outside hospital institutions, in months outside the study range.

The following variables are studied:

- A. Sociodemographic, such as: Sex, age; distributed in age groups.
- B. Month of occurrence of death.
- C. Municipalities of residence.
- D. Source of infection.
- E. Personal pathological history.
- F. Confirmation period for laboratory tests.

The source of information used was the medical records: Death Records of the provincial health directorate and Discussion Minutes of the Deceased, information derived from the data provided by the 11 municipalities of the province of Artemisa; which made possible the formation of the provincial health directorate's database on those who died from COVID-19. With the information collected, a database was created in Excel format of Microsoft Office version XP, which was subsequently exported to the Statistical Package for Social Sciences (SPSS) version 23.0 system, for analysis. The research was carried out in accordance with the ethical principles for medical research with human subjects, in the state regulations in force in the Republic of Cuba, with the commitment to use the data for scientific purposes, taking into account the protection of patient data to preserve anonymity.

Results

The analysis includes 487 adult deaths from COVID-19 in the province of Artemisa in Hospitals, which constitutes 100% of the adult deaths in the province. Of them, 197 (59.5%) are men, and 290 (40.5%) are women, providing the following characteristics (Figure 1): From the use of descriptive statistics it results that the average age of the total number of deaths (487) is 70 years, the age that is most repeated in deaths is 80 years, observing that 50% are above 72 years. of the deceased population. It is detected that the largest proportion of the population is over 53 years of age (86.8%) with an incidence in males of 53.2%. However, it is detected that at ages younger than 52 years there is an incidence in females of 7% (Figure 2). In the province of Artemisa there were months that marked the incidence of deaths from COVID-19, this is related to the sex of the deceased. In 2021, 98.3% of the universe of the deceased population is identified. The months of August and September are identified with 43.2% of the total deaths (Figure 3).

The increase in mortality in the province marked alarming figures (III quarter) with a total representation of 80% of deaths from COVID-19 in hospital centers. The municipality of San Cristóbal contributes the highest figure in the province with 26%. The prevailing sources of contagion were those outside the home with 78.4%, followed by undetermined sources 20.8% and those inside the home (20.3%). The accelerated increase in cases and the need to increase surveillance and search for positive individuals made it necessary to assess early and rapid diagnosis to optimize the clinical management and treatment of the patient. 68.8% of in-hospital deaths obtain PCR confirmation in the first 3 days, however, 31.2% took between 4 to 12 days to obtain it, and 8% of them die without the presence of PCR. This (Table 1) delimits only one diagnosis per patient, however, (Table 2) A shows the diseases associated with patients with Arterial Hypertension. A population of deceased with comorbidities is observed in 60% with a representation of the male sex (37.4%) with associated pathologies where ischemic heart disease, diabetes mellitus, chronic renal failure and obesity prevail.



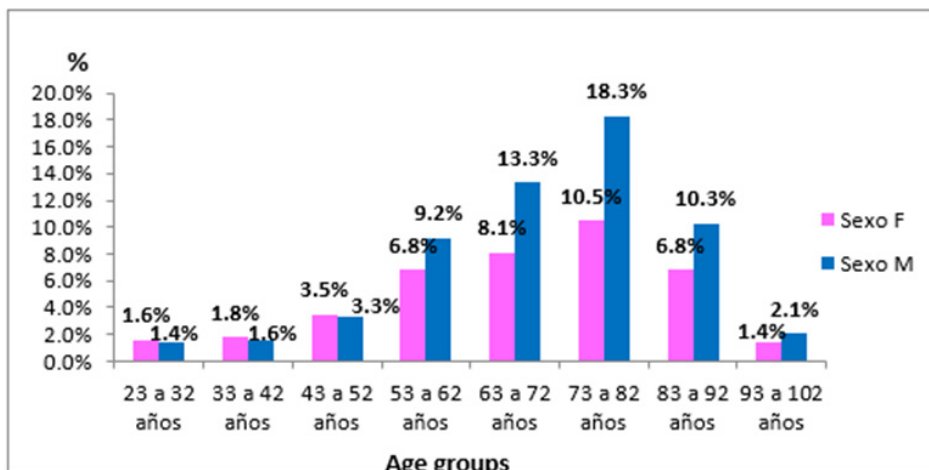


Figure 1: Deaths hospitalized due to COVID-19 according to age group and sex.

Source: Database of deaths at the hospital level of the province of Artemisa.

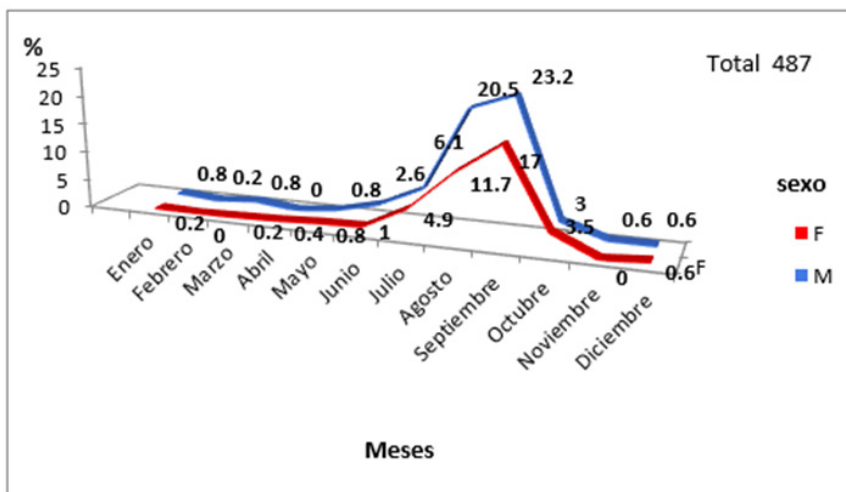


Figure 2: Deaths hospitalized due to COVID-19 according to sex and month of death.

Source: Database of deaths at the hospital level of the province of Artemisa.

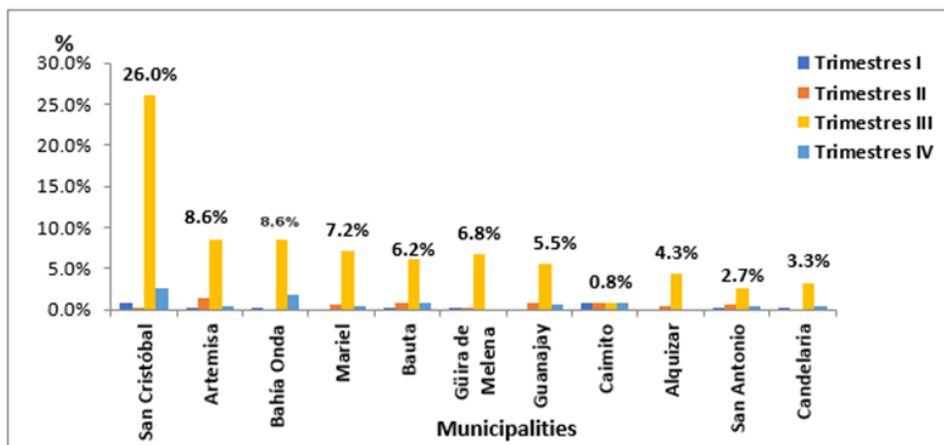


Figure 3: Occurrence of in-hospital deaths by quarter and municipality of origin.

Source: Database of deaths at the hospital level of the province of Artemisa.



Table 1: Personal Pathological History (PPA) according to sex.

APP	Sex		Total
	F	M	
Arterial hypertension	18.20%	31.60%	49.80%
Mellitus diabetes	1%	0.80%	1.80%
Ischemic heart disease	0.20%	1.40%	1.60%
Obesity	0.60%	0.60%	1.20%
Bronchial asthma	0.20%	0.80%	1%
Chronic obstructive pulmonary disease	0.20%	0.60%	0.80%
Chronic renal failure	0.20%	0.40%	0.60%
Hepatitis B	0%	0.60%	0.60%
Epilepsy	0.40%	0%	0.40%
Lung Neoplasia	0.40%	0%	0.40%
Immunosuppression	0.20%	0%	0.20%
Psychiatric Disorder	0.20%	0.20%	0.40%
Brain Vascular Disease	0.20%	0%	0.20%
Crohn's disease	0%	0.20%	0.20%
No associated pathologies	18.20%	22.10%	40.30%
Total	40.50%	59.50%	100%

Source: Database of deaths at the hospital level of the province of Artemisa.

Table 2: Hypertensive COVID-19 deaths according to other comorbidities and sex.

Associated Diseases of the Deceased with Arterial Hypertension	Sex		Total
	F	M	
Ischemic heart disease	11.10%	30.40%	41.50%
Mellitus diabetes	16.40%	17.70%	34.10%
Chronic renal failure	3.30%	4.10%	7.40%
Obesity	3.70%	3.30%	7%
Chronic obstructive pulmonary disease	2.40%	4.10%	6.50%
Bronchial asthma	2.40%	2.90%	5.30%
Arthritis	0%	1.20%	1.20%
Prostate Neoplasia	0%	0.80%	0.80%
Brain Vascular Disease	1.20%	0.40%	1.60%
Psychiatric Disorders	0.40%	0.40%	0.80%
Hyperlipoproteinemia	0%	0.40%	0.40%
Neoplasia of uterus	0.40%	0%	0.40%
Malnutrition	0%	0.40%	0.40%
Hypothyroidism	0%	0.40%	0.40%
Disability	0%	0.40%	0.40%
Myasthenia	0%	0.40%	0.40%

Source: Database of deaths at the hospital level of the province of Artemisa.



Discussion

The information derived from epidemiological studies published on COVID-19 infection in 2020 notifies the most vulnerable populations for contagion, especially older ages, in the population aged 60 and over [8]. In this work, older adults contribute the highest number of deaths in secondary care related to the male sex. These findings correspond to national and international bibliographies consulted, one of them referring to research carried out in a hospital center in Peru [2], which identifies a variation in the average age of the deceased, with the older adults being male. greatest impact among those who died from COVID. In the investigation, the male sex predominated among the deceased; It is detected that the group that contributes the highest mortality is between 73 and 82 years old, along with the male sex. It is striking that in those under 52 years of age the female sex is more frequent, although in a lower proportion related to older ages. In all the large series reviewed we found that male sex had a significant relationship with mortality from COVID [9-14]. Article from a Spanish magazine related to characteristics of those who died from Covid-19 [13], detects that the median age was 80, however it differs from the present study in terms of sex, since in the Spanish context the female sex affects.

Between the months of June and November the increase in deaths from COVID was notable. Since the beginning of the epidemic, in Cuba, three outbreaks of the disease have been detected; The highest number of deaths is part of the 3rd outbreak of the pandemic, which lasts from June to October 2021, being more specific in the third quarter of that same year; according to epidemiological analyzes carried out by different authors [13-17]; The third outbreak of COVID-19 is the longest, it dates back to November 1, 2020 and has accumulated until October 2021 a total of 952,634 diagnosed patients and 8,240 deaths for a fatality rate of 0.86% vs 2.03. % in the world and 2,455 in the Americas. The trend shows Cuba from the seventh place it occupied in August, and after more than nine weeks of decline, in 50th place in this third outbreak. These indicators guarantee the quality of the work carried out in Cuba in the face of the pandemic and in caring for the sick [14]. These features of efficiency show the importance of intersectoral actions in the study province in the face of the growth of the disease and the joint work of institutions.

The description of the chronology of deaths by municipality due to SARS-CoV-2 infection is an attractive epidemiological result. Within a limited time, Artemisa is involved in new cases that affected all the municipalities of the province, even so, its development was not homogeneous given the characteristics of each territory, fundamentally related to sociodemographic aspects, comorbidities, high population density, among others. others. In the province, all municipalities were represented in the graph by deaths; There was a high incidence in the municipality of San Cristóbal, which is distinguished from the rest by the high number of deaths, followed by Artemisa and Bahía Onda, the latter with less population density, which is why it marks a relevant figure since it contributes the same number of deaths than the municipality, the capital of the province, which could have its explanation based on the lack of hospital centers, the difficult access to other municipalities with secondary care, added to the high morbidities in advanced ages of the population. A study published from the province of Havana [15], exhibits very similar characteristics to this research, where the average age was 74.1 years represented by the male sex. In addition, in the 15 municipalities, deaths in the pandemic were taxed and they were the most disadvantaged are those with high population density.

The source of infection of the deceased is an indicator to take into account; In the province, the extra-domestic source is detected, typical of a highly contagious disease, so social determinants, together with cultural habits, influenced the contagion. The high spread of the virus and late presentation to a medical center negatively impacts the health

of the population, everything that could limit the effectiveness of early actions to prevent complications and increase the risk of mortality. The COVID-19 virus can be spread through direct contact with an infected person and, indirectly, the presence of the virus in the environment or on objects that have been used is now strongly raised [14-22]. PCR/TR is the gold test in the diagnosis of SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2), but its wide use has led to a shortage of reagents and supplies, which, together with its relatively high cost and the need for a longer processing time, has led to the recommendation of the evaluation and use of rapid antigen detection tests as complementary diagnostic methods in specific settings [14-17]. In the analysis carried out by the temporary working group, chaired by the government of the Republic of Cuba, the deaths due to the virus are assessed; Specialists specify that in all cases there must be an opportunity in the diagnosis [18], however, the study shows that, even with political and institutional will to speed up the confirmation of COVID-19, there were failures in the accurate diagnosis, since a lower number of patients did not have PCR confirmation at the hospital level.

Different authors [2-7,9,12-16,19-23] recognize that the presence of comorbidities such as High Blood Pressure (HTN), Diabetes Mellitus (DM), Heart Disease, Chronic Obstructive Pulmonary Disease (COPD), Obesity, among others, are of interest from a practical point of view, since they allow stratification of patients who may develop severe forms of the disease or have a fatal outcome, hence the importance of the prevention and control of non-communicable diseases during this pandemic. It has been suggested that SARS-Cov-2 infection is more severe in patients with comorbidities, mainly COPD, HBP, DM, cardiovascular disease, obesity, the presence of cancer, among others [2,4-7,9,12-21]. Without a doubt, comorbidities constitute a risk and make the patient more vulnerable. The number of deaths coincides with published reports that reflect that the majority of those who die, in large part, suffer from other diseases (heart, stroke, diabetes and others) that could have made them more vulnerable to the virus, in addition, as it evolves pandemic, there is increasing evidence of the involvement of the cardiovascular system in the course of the disease. The impact and influence of obesity on the contagion, development, severity and mortality of COVID-19 is described. It is important to recognize how obesity can affect the evolution of this disease; Having this information allows us to have another solid argument for the relevance of maintaining healthy lifestyles, in which regular physical activity and a healthy diet are protagonists, especially if we consider the high figures of obesity and a sedentary lifestyle worldwide [2,5,6,9,12-16,19-23].

It is concluded that in all the municipalities of the province of Artemisa, deaths from COVID-19 were detected in Hospital care, where there was an increase in deaths in the third quarter of 2021, in ages over 70 years, mainly in gender. male, with the presence of comorbidities associated with Arterial Hypertension. The sources of extra-home infections and the delay in the accurate diagnosis, for the confirmation of COVID-19, in the deceased treated in hospital care, were aspects to highlight in the investigation. It is of interest to encourage research on the topic that includes the study of those who died from COVID at the different levels of health care in Cuba, this would facilitate a more holistic analysis of the topic.

Conflict of Interests

The authors declare that they have no conflict of interest.

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