Sociodemographic Characterization of Domestic Deaths due to COVID19, Tegucigalpa, Honduras. 2020

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Abstract

Background: The current Covid-19 pandemic, produced by a mutant strain of coronavirus, SARS-CoV-2, has generated a global economic, social and health crisis.

Objective: To descriptively analyze the surveys in deaths from COVID19, Tegucigalpa, January-December 2020.

Methodological Design: Type of cross-sectional descriptive study in which an analysis of the database of the field work of 523 surveys, sampling non-probabilistic at convenience, covering people over 18 years of age, with the execution of a positive or suspicious test; excluding those patients who generated an uprising with causes other than COVID19. The database that was executed using the Excel software was analyzed, however, the data was tabulated again in EpiInfoV.7.2. and with the Microsoft Office package.

Results: Men are the most affected with almost 50% (250). The age group most affected was those older than 72 years with 54% (282) and the mean age of the deceased was 49 years; mostly from urban areas with 95% (498). 45% (235) had no underlying disease, Ischemic Heart Disease was the predominant in 17% (89), followed by Diabetes Mellitus with almost 13% (66), in third place Arterial Hypertension was found with a 9% (49). At the level of diagnostic tests, it is known that 223 (43%) underwent rapid COVID19 tests, on the other hand, only 20 (4%) were performed postmortem. Attention actions and other types of procedures accumulate a total of 275 (53%) frequencies.

Conclusion: Men and people of advanced age were the most affected, chronic underlying diseases were present in almost 50% of the lifts studied.

Keywords: Coronavirus Infection; Pandemics; Honduras; Forensic

Introduction

The current Covid-19 pandemic, caused by a mutant strain of coronavirus SARS-CoV-2, has generated a global economic, social and health crisis. It began in China at the end of 2019, where a group of 27 cases of pneumonia of unknown etiology were reported, with seven serious patients. The first case was described on December 8, 2019. By January 24, 835 cases had been reported in China (534 from Hubei). On January 13, the first case was reported in Thailand, on January 19 in South Korea and then in many countries around the world, due to which the World Health Organization (WHO), declared since March 2020 as a new global pandemic [1-4].

Until March 9, 2021, 116,736,437 confirmed cumulative cases of COVID-19 were reported globally, including 2,593,285 deaths, of which 45% of cases and 48% of deaths were contributed by the region of the Americas. In the Americas, between December 2020 and February 2021, the subregions of North America (68.9%) and South America (28.5%) contributed the highest proportion of cases [5].

To date in Honduras, a total of 227 thousand cases have been reported, 82,602 people recovered and 5,960 deaths, according to the official national site dedicated to monitoring the pandemic at a statistical level, there is the notion that the number of cases is greater due to lack of evidence, good public administration and isolated deaths that do not reach the state lines of analysis at the national level [6].

The SARS-CoV-2 infection mechanism is associated with the Angiotensin Converting Enzyme Receptor (ACE2). This receptor gives the pathogen great infectivity. The ECA2 receptor is located in the epithelial cells of different organs including: lung, spleen, liver, kidney, brain, lymph nodes, thymus and bone marrow. The most common manifestations of this disease include: fever, asthenia, dry cough, dyspnea, myalgia, confusion, headache, sore throat, rhinorrhea, loss of smell and taste, nausea, diarrhea and vomiting [7].

It can progress to atypical interstitial pneumonia with highly fatal acute respiratory syndrome, characterized by severe respiratory dysfunction secondary to diffuse alveolar damage (DAD) in the lung. In the most severe cases, the disease is accompanied by acute kidney failure and death. The various risk factors that can lead to fatal outcome are being studied in depth. So far, the following are postulated: age (over 60 years), sex (men) and suffering from a previous disease such as chronic obstructive pulmonary disease (COPD), diabetes, obesity and overweight, heart failure and high blood pressure [8].

Methodological Approach

With a type of cross-sectional descriptive study in which an analysis of the database of the field work of 523 surveys was carried out, with a type of non-probabilistic convenience sampling, in order to achieve a representative sample or universe and for thematic novelty and improvement of the analysis of the surveys, with inclusion criteria that covered people over 18 years of age, regardless of their geographical area or location of the survey, with the execution of a positive or suspicious test; excluding those patients who generated an uprising with causes other than COVID19.

The database that was executed using the Excel software was analyzed, however, the data was tabulated again in EpiInfoV.7.2. and then charts and graphs were made with the Microsoft Office package. At the ethical level, no data is mentioned that could identify the deceased and no tests were carried out that are beyond the medical scope or that go against human dignity and respect.

Results

It was evident to note that men are the most affected in the data collected in the field with approximately 50% (250). Something very notorious is that within the forensic reports in the area there were many data not recorded. The age group most affected was those older than 72 years with 54% (282) of the total lift and the mean age of the deceased was 49 years; 95% of the majority of urban areas (498), this is closely related to the geographical area of action of the forensic team (See table 1).

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| Sex	F	%
Male	250	47.8
Female	165	31.5
No Consigned	108	20.7
Total	523	100
Years Old Group	**F**	**%**
18-35	73	13.9
36-53	83	15.9
54-71	78	14.9
Mayor a 72	282	53.9
No Consigned	7	1.4
Total	523	100
Residence	**F**	**%**
Urban	498	95.2
Rural	25	4.8
Total	523	100

Table 1: *Distribution of sociodemographic variables of the subjects under study (n = 523).*

An extremely important variable in this study was the underlying diseases in which it was observed that the majority, that is, 45% (235) did not have an underlying disease or had not yet been diagnosed, which gives entry to another line of Analysis, on the other hand, of those that were reported with diseases, Ischemic Heart Disease was the predominant in 17% (89), followed by Diabetes Mellitus with almost 13% (66), in third place was Arterial Hypertension with 9% (49) (See table 2).

Pathology	F	%
Cancer	39	7.5
Liver Disease and Alcoholism	12	2.3
Bronchopneumonia	17	3.3
Ischemic heart disease	89	17
COPD	8	1.5
Arterial Hypertension	49	9.4
Diabetes	66	12.7
Pulmonary Fibrosis	2	0.3
Anaemia	1	0.2
HIV	4	0.7
Others	1	0.2
None	235	44.9
Total	523	100

Table 2: *Distribution of baseline diseases identified in the affected people (n = 523).*

At the level of diagnostic tests, it is known that 223 (43%) underwent rapid COVID19 tests, on the other hand, only 20 (4%) were performed postmortem. Attention actions and other types of procedures accumulate a total of 275 (53%) frequencies (See graph 1).
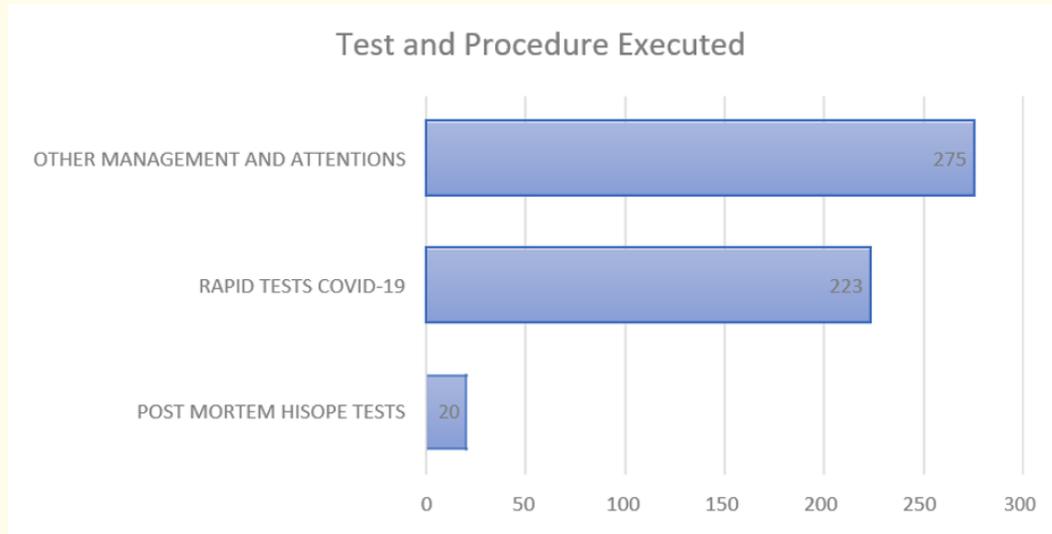
Graph 1: *Distribution of tests performed in life and postmortem and in life to the analyzed patients (n = 518).*

Discussion

In the results presented by Zhen and Zhu, it was found that the deceased were mostly men with a ratio of 54 compared to 16 women. Likewise, it was observed that the mean age of the subjects who underwent an autopsy was 60.91 years of age, in accordance with studies that affirm that from the age of 60 is when there is a greater risk of contagion and death [9-11]. Data that coincide with what was found in the field work, where the majority were men and of advanced age.

Cardiac pathologies were among the most incidents in this manuscript, these data coincide with those presented by the Spanish Ministry of Health, where it was indicated that myocardial damage has been described in five of 41 patients diagnosed in Wuhan with elevated levels of troponin I. Four of them had to be treated in the ICU, with hypertensive patients presenting the worst evolution [12].

In another series, 36 critically ill patients had a higher elevation of biomarkers of myocardial damage. These data suggest that the cardiovascular system and especially the heart may be targets for SARS-Cov-2. A possible complication of this infection could be myocarditis, more characteristic of other viral infections, and which would fit within the framework of a systemic inflammatory response. These myocarditis processes could explain cases of sudden cardiac death during this pandemic period, but they may not be definitively diagnosed due to the lack of autopsy and PCR studies to confirm it [12].

There is great interest among the scientific community in achieving the distinction between deaths from or with COVID-19. Of the total number of articles analyzed in this review, only that of Barton., *et al*. It was determined that the cause of death was due to complications due to the cirrhosis of the liver that the patient suffered, that is, it was a death with COVID-19 but not a consequence of it [13]. Hepatic pathological processes were also indicated by researchers from field for this study.

In general, the lack of postmortem investigation does not allow an accurate determination of the cause of death from SARS-CoV-2 infection. Based on the few histopathological findings of the analyzed studies, it is concluded that this virus acts by causing great damage to the lungs and kidneys, avoiding damage to other organs. In addition, there appears to be an alteration of the coagulation system that would cause platelet-rich thrombi in small arterial vessels [14].

The macro and microscopic pathological results, to be the special case; were not allowed by state authorities due to the biological risk, other authors have also mentioned that because it is a novel pandemic disease and of recent appearance, high biological risk corpses must be handled and for this, special facilities and conditions are required that are not They are available at all autopsy centers. However, autopsy is essential in cases of emerging and novel infectious diseases, providing information on the progression of the disease and providing data that can help discover therapeutic targets to combat it [15,16].

It should be clarified that the performance of a forensic autopsy in cases of COVID-19 is infrequent. And this is so because despite the laws of the different countries, all of them agree that the forensic autopsy should only be carried out in cases of violent death or suspected of criminality [16].

Conclusion

It was evident that men and people of advanced age were the most affected, also that chronic underlying diseases were present in almost 50% of the surveys studied, also that rapid tests have played a fundamental role in the diagnosis of COVID19, even if their degree of confidence is not adequate. As a blunt limitation, it was found that there are no institutional capacities to perform autopsies of this type of corpses.

Conflicts of Interest

The research team declares that it has no conflicts of interest.

Bibliography

1. Ministerio de Sanidad. Actualización nº 13. Neumonía por nuevo coronavirus (2019-nCoV) en Wuhan, provincia de Hubei, (China). Madrid: Ministerio de Sanidad (2020).

2. Organización Panamericana de la Salud. Consideraciones de la Organización Panamericana de la Salud con respecto a la propagación del nuevo coronavirus emergente. Washington DC: Organización Panamericana de la Salud (2020).

3. Organización Mundial de la Salud. Nuevo coronavirus –Tailandia (procedente de China). Ginebra: Organización Mundial de la Salud (2020).

4. Organización Mundial de la Salud. Nuevo coronavirus - República de Corea (procedente de China) Ginebra: Organización Mundial de la Salud (2020).

5. Organización Panamericana de la Salud. Actualización Epidemiológica: Enfermedad por Coronavirus (COVID19) (2021).

6. Despacho de Comunicaciones y Estrategia Presencial, Honduras, COVID19 (2021).

7. Chen N., *et al.* "Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study". *Lancet* 395.10223 (2020): 507-513.

8. Orioli L., *et al.* "COVID-19 in diabetic patients: related risks and specifics of management". *The Annales d'Endocrinologie* 81.2-3 (2020): 101-109.

9. Tian S., *et al.* "Pulmonary pathology of early-phase 2019 novel coronavirus (COVID-19) pneumonia in two patients with lung cancer". *Journal of Thoracic Oncology* 15.5 (2020): 700-704.

10. Zhu N., *et al.* "A novel coronavirus from patients with peumonia in China, 2019". *The New England Journal of Medicine* 382.8 (2020): 727-733.

11. Shahid Z., *et al.* "COVID-19 and older adults: what we know". *Journal of the American Geriatrics Society* 68.5 (2020):926-929.

12. Ministerio de Sanidad (ES), Centro de Coordinación de Alertas y Emergencias Sanitarias. Enfermedad por COVID-19. España: Ministerio de Sanidad (2020).

13. Carsana L., *et al.* "Pulmonary postmortem findings in a large series of COVID-19 cases from Northern Italy: a two-centre descriptive study". *The Lancet Infectious Diseases* (2020).

14. Schwartz DA and Herman CJ. "The importance of the autopsy in emerging and reemerging infectious diseases". *Clinical Infectious Diseases* 23.2 (1996): 248-254.

15. Ng DL., *et al.* "Clinicopathologic, immunohistochemical, and ultrastructural findings of a fatal case of middle east respiratory syndrome coronavirus infection in the United Arab Emirates, April 2014". *The American Journal of Pathology* 186.3 (2016): 652-658.

16. Davis GG and Williamson AK. "Risk of COVID-19: transmission during autopsy". *Archives of Pathology and Laboratory Medicine* (2020).

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