CUIDADO É FUNDAMENTAL

CLINICAL-EPIDEMIOLOGICAL PROFILE OF HOSPITALIZED PATIENTS WITH THE NEW CORONAVIRUS THAT EVOLVED TO DEATH IN HOSPITAL OF INFECTIOUS DISEASES

Perfil clínico-epidemiológico de pacientes internados com o novo coronavírus que evoluíram para óbito em hospital de doenças infecciosas

Perfil clínico-epidemiológico de pacientes hospitalizados con el nuevo coronavirus que evolucionó hasta la muerte en hospital de enfermedades infecciosas

Regina Kelly Guimarães Gomes Campos[1] (iD)
Angélica Barreira Pinheiro[2] (iD)
Karleandro Pereira do Nascimento[3] (iD)
Samia Jardelle Costa de Freitas Maniva[1] (iD)
Consuelo Helena Aires de Freitas[1] (iD)
Patricia Neyva da Costa Pinheiro[1] (iD)

ABSTRACT

Objective: to describe the clinical-epidemiological profile of patients hospitalized with the new coronavirus, who died at a referral hospital for infectious diseases. **Method:** cross-sectional study, conducted in a public hospital in the State of Ceará, Brazil, from January to March 2021, through access to the 244 medical records of patients who were hospitalized with COVID-19, with confirmatory examination of RT-PCR, rapid test, serology or tomography, between March and December 2020, and who evolved to death during hospitalization. **Results:** public formed by men, aged 60 years or older, married/stable union, retired, residing in the capital, with associated hypertension and diabetes, who died in March and June, in the ward. The main signs and symptoms at admission, they were oxygen saturation in ambient air below 92%, dyspnea, severe acute respiratory syndrome and fever; the main clinical indication for admission was respiratory failure; and the main therapeutic regimen used was a combination of other antibiotics, anticoagulants, azithromycin, corticosteroids and chloroquine/hydroxychloroquine. **Conclusion:** the study reveals a population of men, over 60 years of age, with a double burden of chronic non-communicable disease.

DESCRIPTORS: Epidemiology; COVID-19; Communicable diseases; Nursing care.

[1] Universidade Federal do Ceará, Ceará, Fortaleza, Brazil

[2] Hospital São José, Ceará, Fortaleza, Brazil

[3] Hospital Distrital Dr Carlos Alberto Studart, Ceará, Fortaleza, Brazil

Corresponding Author: Regina Kelly Guimarães Gomes Campos, E-mail: reginakellyguimaraesgomes@gmail.com

2

Clinical-epidemiological profile of hospitalized patients with the new coronavirus that evolved to death in hospital of infectious diseases

RESUMO

Objetivo: descrever o perfil clínico-epidemiológico de pacientes internados com o novo coronavírus, que evoluíram para óbito, em hospital de referência em doenças infecciosas. **Método:** estudo transversal, realizado em um hospital público do Estado do Ceará, Brasil, no período de janeiro a março de 2021, por meio de acesso aos 244 prontuários dos pacientes que foram internados com a COVID-19, com exame confirmatório de RT-PCR, teste rápido, sorologia ou tomografia, entre os meses de março a dezembro de 2020, e que evoluíram para óbito durante a internação hospitalar. **Resultados:** público formado por homens, com idade igual ou maior a 60 anos, casado/união estável, aposentado, residente na capital, com hipertensão e diabetes associadas, que foi a óbito em março e junho, em enfermaria. Os principais sinais e sintomas na internação foram saturação de oxigênio em ar ambiente menor que 92%, dispneia, síndrome respiratória aguda grave e febre; a principal indicação clínica para internação foi a insuficiência respiratória; e o principal esquema terapêutico utilizado foi uma combinação de outros antibióticos, anticoagulantes, azitromicina, corticoide e cloroquina/hidroxicloroquina. **Conclusão:** o estudo revela um público de homens, com mais de 60 anos de idade com dupla carga de doença crônica não transmissível.

DESCRITORES: Epidemiologia; COVID-19; Doenças transmissíveis; Assistência de enfermagem.

RESUMEN

Objetivo: describir el perfil clínico y epidemiológico de los pacientes hospitalizados con el nuevo coronavirus, que evolucionaron hasta la muerte, en un hospital de referencia en enfermedades infecciosas. **Método:** estudio transversal, realizado en un hospital público del Estado de Ceará, Brasil, de enero a marzo de 2021, a través del acceso a las 244 historias clínicas de pacientes que fueron hospitalizados con COVID-19, con examen confirmatorio de RT-PCR, prueba rápida, serología o tomografía, entre marzo y diciembre de 2020, y que evolucionaron hasta la muerte durante la hospitalización. **Resultados:** público formado por hombres, de 60 años o más, casados/estables, jubilados, residentes en la capital, con hipertensión y diabetes asociada, fallecidos en marzo y junio, en la sala. Los principales signos y síntomas al ingreso fueron saturación de oxígeno en el aire ambiente inferior al 92%, disnea, síndrome respiratorio agudo severo y fiebre; la principal indicación clínica para la hospitalización fue la insuficiencia respiratoria; y el principal régimen terapéutico utilizado fue una combinación de otros antibióticos, anticoagulantes, azitromicina, corticosteroides y cloroquina/hidroxicloroquina. **Conclusión:** o El estudio revela una audiencia de hombres mayores de 60 años con una doble carga de enfermedades crónicas no transmisibles.

DESCRIPTORES: Epidemiología; COVID-19; Enfermedades transmissibles; Cuidados de enfermería.

INTRODUCTION

COVID-19 is a disease caused by the coronavirus (2019-nCoV or Sars-Cov-2), discovered in the month of December 2019, in Wuhan, China, through samples collected from the respiratory tract of patients and which has direct airborne transmission and/or hand contact on contaminated surfaces that carry the viruses to oronasal mucosa and/or eyes.[1-2]

The spectrum of symptoms of COVID-19 can be described as mild or severe; the former is characterized by a person who presents with a flu-like syndrome, with symptoms of cough, sore throat, or runny nose, followed or not by anosmia (olfactory dysfunction), ageusia (taste dysfunction), diarrhea, abdominal pain, fever, chills, myalgia, fatigue, and headache. The severe case is characterized by an individual who presents severe acute respiratory syndrome (SARS), defined by flu-like syndrome associated with dyspnea and/or respiratory distress or persistent chest pressure or oxygen saturation below 92% in room air, or bluish lips and/or face.[3]

It is known that after the World Health Organization (WHO) declared the outbreak of COVID-19 a Emergência de Saúde Pública de Importância Internacional (ESPII), cases began to spread rapidly around the globe.[4]

Currently, the global numbers of confirmed cases and deaths are still of great concern. As of May 25, 2022, there have been 524,339,768 confirmed cases of COVID-19 worldwide and 6,281,260 deaths. Although 11,811,627,599 doses of the vaccine have been administered worldwide up to this date, in Brazil the number of confirmed cases already totals 30,803,995 and 665,666 deaths, with 12,775 new cases in the last 24 hours, which could bring problems to the public health system if new waves appear.[5]

Therefore, it is essential to know the clinical-epidemiological profile of patients diagnosed by COVID-19, which evolved to death, for clinical decision making, management of complications and systematization of care; besides optimizing the prevention of new cases, through the delivery of health information as an important parameter of prevention[6]; and, allow services and agencies responsible for health to trace indicators, improve therapeutic conducts and intra and extra hospital control measures.

Thus, this study aims to describe the clinical-epidemiological profile of patients hospitalized with the new coronavirus, who died in an infectious diseases hospital.

METHODS

This is a cross-sectional study, carried out in a public tertiary care hospital, reference in infectious diseases, located in the state of Ceará, Brazil.

The population was composed of medical records of patients diagnosed by COVID-19. In turn, the sample was made up of all medical records of patients diagnosed by COVID-19, which evolved to death in the reference hospital. As inclusion criteria: having a confirmatory examination of reverse transcriptase reaction followed by polymerase chain reaction (RT-PCR), rapid test, serology or tomography, between the months of March and December 2020; and having died during hospitalization for COVID-19, totaling 281 patients.

Data collection was performed in the period from January to March 2021. A form prepared based on the document "Guidelines for Management of Patients with COVID-19" from the Brazilian Ministry of Health (MH) was used.[7] The variables that comprised the instrument were: gender, age group, marital status, occupation, municipality of residence, types of chronic diseases, period and place of occurrence of death, types of signs and symptoms of the patient during hospitalization, clinical indication for hospitalization, drug treatment used by patients during hospitalization.

For data collection, we retrospectively evaluated the patients' physical records, imaging exams (tomography and X-ray) and vital parameters monitoring forms, only by the main researcher, through daily visits to the hospital's epidemiological surveillance service, from Monday to Friday, after the closing of the sector's working activities, without interfering in the unit's professionals' work routine.

The data obtained were tabulated in a spreadsheet built in Excel® 2020 program, based on the variables of the form. Later, the data were submitted to a statistical analysis by the EPI INFO 7.0 program, using descriptive statistics, discussed according to the literature that portrays the subject.

The research respected all ethical aspects, based on Resolution No. 466/12 of the National Health Council, linked to the Ministry of Health on research involving human beings.[8] The project was sent to the Comitê de Ética em Pesquisa (CEP) of the aforementioned hospital, being approved under opinion number 4,592,939.

RESULTS

The eligible study population consisted of 281 medical records. Of these, 244 participated in the analysis, i.e., 86.8% of the intended sample, since 37 medical charts did not contain a confirmatory examination for COVID-19, and the cause of death was left open by epidemiological surveillance.

Table 1 presents the sociodemographic characterization of the participants.

Table 2 shows the characterization of the symptoms presented by the patients at hospital admission.

The clinical indications for hospitalization of the patient are shown in table 3.

Table 4 shows the drug treatment used by the patients.

Table 1 – Sociodemographic characterization of patients. Fortaleza, CE, Brazil, 2021

Variables	n	%
Gender		
Male	145	59,4%
Female	99	40,5%
Age Group		
18-30 years old	06	2,5%
31-59 years old	68	27,8%
≥ 60 years old	170	69,6%
Marital status		
Single	16	6,5%
Married/Stable Union	87	36,6%
Divorced	02	0,8%
Widower	13	5,3%
Ignored Information	126	51,6%
Occupation		
Signed Wallet	19	7,7%
Autonomous	44	18,0%
Unemployed	03	1,2%
Retired	123	50,4%
Overlooked Information in the Medical Record	55	22,5%
Municipality of Residence		
Fortaleza	174	71,3%
Other	70	28,6%
Chronic Diseases		
Associated Systemic Arterial Hypertension and Diabetes Mellitus	18	7,3%
Chronic Respiratory Disease	16	6,5%
Infectious Disease	16	6,5%
Cardiovascular Disease	07	2,8%
Ignored Information	32	13,1%
No chronic disease	53	21,7%

4

Clinical-epidemiological profile of hospitalized patients with the new coronavirus that evolved to death in hospital of infectious diseases

Table 1 – Cont.

Period of occurrence of the death		
March to June	196	80,3%
July to September	17	6,9%
October to December	31	12,7%
Place of occurrence of death		
Emergency	29	11,8%
Ward	191	78,2%
Intensive Care Unit	24	9,8%

Source: Research data (2021).

Table 2 – Signs and symptoms presented by patients at hospital admission. Fortaleza, CE, Brazil, 2021

Variables	n	%
Oxygen saturation in ambient air less than 92%.		
Yes	239	97,9%
No	05	2,0%
Dyspnea		
Yes	236	96,7%
No	08	3,2%
Worsening of a pre-existing medical condition		
Yes	12	4,9%
No	232	95,0%
Severe Acute Respiratory Syndrome		
Yes	236	96,7%
No	08	3,2%
Fever		
Yes	220	90,1%
No	24	9,8%

Source: Research data (2021).

Table 3 – Clinical indication for patient admission. Fortaleza, CE, Brazil, 2021

Variáveis	n	%
Respiratory Insufficiency		
Yes	235	96,3%
No	09	3,6%
Vital Organ Dysfunction		
Yes	10	4,0%
No	234	96,0%
Hemodynamic Instability		
Yes	13	5,3%
No	231	94,7%
Septic Shock		
Yes	01	0,4%
No	243	99,5%

Source: Research data (2021).

Table 4 – Drug treatment used by the patients. Fortaleza, CE, Brazil, 2021

Variables	n	%
Oseltamivir		
Yes	56	22,9%
No	188	77,1%
Corticoids		
Yes	137	56,1%
No	107	43,9%
Anticoagulants		
Yes	199	81,5%
No	45	18,5%
Chloroquine/Hydroxychloroquine		
Yes	100	40,9%
No	144	59,1%
Ivermectin		
Yes	54	22,1%
No	190	77,9%

Table 4 – Cont.

Azithromycin		
Yes	186	76,2%
No	58	23,7%
Other antibiotics		
Yes	226	92,6%
No	18	7,3%
No use of medication	11	4,5%

Source: Research data (2021).

DISCUSSION

The sociodemographic characterization showed a population formed by men, aged 60 years or older, retired, living in the capital, with associated hypertension and diabetes, who died in March and June, in a ward, showing agreement with national research results.[8-9]

It is noteworthy that, in this investigation, some information related to marital status, type of occupation, and presence of chronic non-communicable diseases were absent in the medical records, impacting on a quality assessment of these variables through the Sistema de Informações sobre Mortalidade (SIM). A factor that can be attributed to this absence of information is due to the fact that the social workers were unable to perform social admissions, an institutional strategy that aimed to save personal protective equipment in the initial months of the pandemic.

It is known that a complete record of the patients' information during hospital admission is fundamental, making it possible to build a quality epidemiological drawing of this pandemic moment. However, despite the incomplete data in the physical records, it was possible to verify that 27.0% of the individuals in this study had a double burden of non-communicable chronic disease, i.e., common comorbidities such as hypertension and diabetes, as evidenced in the literature.[9]

It was found that the period with the highest number of deaths, according to the time frame of this study, comprised the period from March to June 2020. A research on mortality by COVID-19, in the first semester of 2020 and carried out in Brazil, revealed that among the selected Federal Units, Rio de Janeiro was in first place in the ranking and the State of Ceará was in third place.[10] Moreover, the ratio between the deaths observed in the months when the pandemic by COVID-19 arrived in the country compared to the number of expected deaths reveals that the estimated excess mortality rate was between the months of March and May 2020.[11]

The clinical characterization presented by patients at hospital admission reveals, among the findings, the main signs and symptoms of the patient at the time of admission, especially oxygen saturation on room air below 92%, dyspnea, SARS, and fever. It is recommended that patients with SARS be hospitalized and cases identified according to the severity symptoms listed in a protocol (7). In addition, a study revealed that hyperthermia was present in only 15.6% of the admitted patients; however, in their past history, the patients reported fever at home, followed by nasal congestion, cough, myalgia, or arthralgia.[12]

In the study by Goulart and collaborators(9) the most common clinical manifestations of patients hospitalized for COVID-19 were dyspnea, cough, myalgia, and fever. It is noteworthy that the identification of the most frequent signs and symptoms of the new coronavirus may contribute to the clinical management of the disease, with daily updates of protocols that may better conduct the disease, and in the early detection of new cases.[7] Furthermore, the activities of epidemiological surveillance have assumed a key role in providing timely information based on scientific evidence, enabling health managers to make better decisions in optimizing the clinical management of patients in the ICU or ward.[13]

The clinical indication for admission of patients corroborates the data presented in the study by Saueressig and collaborators,[14] where 17% to 35% of adult patients admitted for COVID-19 had hypoxemia and respiratory failure as clinical indications for ICU admission, and up to 91% required invasive mechanical ventilation. However, despite the research showing ICU as the main site of admission, in this investigation the ward corresponded to the site with the highest number of admissions, given the scenario experienced, where many hospitalization sites had to be readapted to assist a large number of critically ill patients.

The drug treatment received by the patients in this study followed the recommendations established by the MH, and the most used therapeutic scheme was an empirical combination of other antibiotics, anticoagulants, azithromycin, corticoids, and chloroquine/hydroxychloroquine. In 2020, the MS prepared a protocol that indicated for all types of cases the use of the drugs chloroquine/hydroxychloroquine, disregarding the precaution recommended by several national and international health organizations.[15] However, the best scientific evidence available until April 2020 failed to demonstrate or exclude a beneficial effect of chloroquine/hydroxychloroquine on coronavirus infections in humans or viral negativation by RT-PCR(2), a worrisome finding since such drugs could cause, for example, prolongation of the QT interval. Furthermore, double-blind clinical researches and randomized studies later affirm that the administration of these drugs does not promote improvement in the clinical evolution of patients.[15]

It is worth mentioning that a portion of the sample in this research did not use medications (4.5%), because these individuals arrived at the health service in frank respiratory failure, evolving directly to death, and it was not possible to start a specific drug therapy. This leads us to wonder whether this public had access to the service in a timely manner, i.e., at the beginning of the presentation of signs and symptoms, which may have contributed

6

Clinical-epidemiological profile of hospitalized patients with the new coronavirus that evolved to death in hospital of infectious diseases

to this unfavorable prognosis. Therefore, the patients who died may have been admitted in unstable clinical conditions, and a multivariate analysis of risk factors that can be avoided and prevented is fundamental.

Finally, the study was limited by the lack of registration of some fundamental and important information to draw a precise clinical-epidemiological profile in epidemiological studies.

CONCLUSION

The clinical-epidemiological profile of patients hospitalized with the new coronavirus, which evolved to death, in a reference hospital in infectious diseases, shows the need to intensify actions aimed at the adherence and implementation of prevention and control measures of infectious diseases, such as the COVID-19, among others of common clinical nature; the main signs and symptoms presented reveal the severity of the patients' prognosis besides the knowledge and proactivity of quick interventions by professionals; and the main drug therapy scheme used by patients during hospitalization brings more and more the need to search for continuous evidence in the innovation of clinical health care focused on infectious diseases.

The results of this research are expected to impact strategic improvements by health services in pandemic scenarios, and to raise the awareness of health professionals and managers regarding the filling of important information in medical records.

It is noteworthy that further research can be conducted in order to highlight associated factors that can be better worked on by managers and health professionals with a focus on preventing diseases and promoting the health of the population.

ACKNOWLEDGMENT

REFERENCES

1. Ministério da Saúde (BR). Guia de Vigilância Epidemiológica: emergência de Saúde Pública de Importância Nacional pela Doença pelo Coronavírus 2019 [Internet]. 4.ed. 2020. Brasília: Ministério da Saúde; 2020 [acesso em 10 de junho 2022]. Disponível em: https://www.gov.br/saude/pt-br/coronavirus/publicacoes-tecnicas/guias-e-planos/guia-de-vigilancia-epidemiologica-covid-19/view.

2. Andrade KRC, Carvalho VRS, Farinasso CM, Lima AA, Silva RB, Wachira VK, et al. Pharmacological therapies for patients with human coronavirus infections: a rapid systematic review. Ciênc. Saúde Colet. [Internet]. 2020 [cited 2021 aug 20];25(9). Available from: https://orcid.org/0000-0002-8882-6856.

3. Ministério da Saúde (BR). Orientações para o Registro do Atendimento dos Cidadãos com Síndrome Gripal no Prontuário Eletrônico do Cidadão (PEC) do e-SUS APS [Internet]. 1.ed Brasília: Ministério da Saúde; 2020 [acesso em 05 de junho 2022]. Disponível em: https://www.gov.br/saude/pt-br/coronavirus/publicacoes-tecnicas/recomendacoes/orientacoes-para-o-registro-do-atendimento-dos-cidadaos-com-sindrome-gripal-no-prontuario-eletronico-do-cidadao-pec-do-e-sus-aps/view.

4. World Health Organization (WHO). Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV) .[Internet]. 2020. Disponível em: https://www.who.int/news/item/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov).

5. Organização Pan-Americana da Saúde (OPAS). Folha informativa – COVID-19 (doença causada pelo novo coronavírus). [Internet]. 2021 [acesso em 22 de maio de 2022]. Disponível em: https://covid19.who.int/.

6. Santos PSA, Mateus SRM, Silva MFO, Figueiredo PTS, Campolino RG. Perfil epidemiológico da mortalidade de pacientes internados por COVID-19 na unidade de terapia intensiva de um hospital universitário. Brazilian Journal of Development. [Internet]. 2021 [acesso em 25 de agosto 2021];7(5). Disponível em: https://doi.org/10.34117/bjdv7n5-155.

7. Ministério da Saúde (BR). Orientações para o manejo de Pacientes com COVID-19 [Internet]. Brasília: Ministério da Saúde; 2020 [acesso em 10 de setembro de 2021]. Disponível em: https://www.gov.br/saude/pt-br/coronavirus/publicacoes-tecnicas/recomendacoes/orientacoes-para-manejo-de-pacientes-com-covid-19/view.

8. Ministério da Saúde (BR). Conselho Nacional de Saúde (Brasil). Resolução n o 466, de 12 de dezembro de 2012. Brasília, 2012.

9. Escobar AL, Rodriguez TDM, Monteiro JC. Lethality and characteristics of deaths due to COVID-19 in Rondônia: an observational study. Epidemiol. Serv. Saúde (Online). [Internet]. 2021[cited 2022 jan 13];30(1):e2020763. Available from: https://doi.org/10.1590/s1679-49742021000100019 .

10. Goulart LS, Santos KCF, Santos DAS, Mattos M. Características Clínicas e Laboratoriais da COVID-19: uma análise na internação hospitalar. Rev. Enferm. Atual In Derme. [Internet]. 2021 [acesso em 13 de novembro 2021];95(36):e-021169. Disponível em: https://doi.org/10.31011/reaid-2021-v.95-n.36-art.1074.

11. Heuveline P, Tzen M. Beyond deaths per capita: comparative COVID-19 mortality indicators. BMJ Open. [Internet]. 2021 [cited 2021 nov 15];11:e042934. Available from: http://dx.doi.org/10.1136/bmjopen-2020-042934.

12. Silva GA, Jardim BC, Santos CVB. Excess mortality in Brazil in times of Covid-19. Ciênc. Saúde Colet. [Internet]. 2020 [cited 2022 jan 12];25(9). Available from: https://doi.org/10.1590/1413-81232020259.23642020.

13. Teich VD, Klajner S, Almeida FAS, Dantas ACB, Laselva CR, Torritesi MG, et al. Epidemiologic and clinical features of patients with COVID-19 in Brazil. Einstein. [Internet]. 2020 [cited 2021 aug 21];18. Available from: https://doi.org/10.31744/einstein_journal/2020AO6022.

14. Corrêa PRL, Ishitani LH, Abreu DMX, Teixeira RA, Marinho F, França EB. The importance of surveillance in cases of and mortality from the COVID19 epidemic in Belo Horizonte, Brazil, 2020. Rev. bras. epidemiol. [Internet]. 2020 [cited 2022 feb 10];23:e200061. Available from: https://doi.org/10.1590/1980-549720200061.

15. Saueressig MG, Hackmann CL, Silva CES, Ferreira J. Estimation of patients hospitalized for COVID-19 in an intensive care unit at the peak of the pandemic in Porto Alegre: Study with epidemiological model SEIHDR. Scielo Preprints. 2020. Available from: https://doi.org/10.1590/SciELOPreprints.1080.

16. Wu TC, Sacilotto L, Darrieux FCC, Pisani CF, Melo SL, Hachul DT, et al. QT Interval Control to Prevent Torsades de Pointes during Use of Hydroxychloroquine and/or Azithromycin in Patients with COVID-19. Arq. bras. cardiol. [Internet]. 2020 [cited 2022 mar 10];114(6). Available from: https://doi.org/10.36660/abc.20200389.