

Clinical Characteristics of Patients with COVID-19 in Brazil

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ABSTRACT

Objective: This research aims to describe the clinical and sociodemographic characteristics of patients with COVID-19 in a University Hospital of excellence in Rio de Janeiro, Brazil.

Materials and Methods: This is a descriptive, retrospective and documentary study, based on a quantitative approach, carried out in a University Hospital in the state of Rio de Janeiro. This institution is a reference for treating patients with COVID-19. The sample was non-probabilistic, intentional, consisted of 243 electronic health records of hospitalized patients with COVID-19 in clinical wards from April to June 2020. The data were analyzed using simple descriptive statistics.

Results: The sample consisted of 243 patients diagnosed with COVID-19, of which 127 (52.3%) were male, aged between 52 and 72 years. The most prevalent comorbidities were arterial hypertension (51%), and diabetes mellitus (28%). As for length of hospitalization, 86 patients (35.4%) remained hospitalized between 7 and 14 days. The main signs and symptoms at admission were fever in 145 (59.7%), cough in 137 (56.4%) and mild dyspnea in 135 (55.6%). From 243 patients, 26 (10.7%) were intubated and 13 (5.3%) died, and 230 (94.7%) were discharged for cure. Most patients (94.7%) with COVID-19 presented a positive evolution of the clinical profile, with effective recovery of the disease.

Conclusion: The 243 patients with COVID-19 hospitalized in three clinical wards of a University Hospital of excellence in the state of Rio de Janeiro, Brazil, had the following predominant characteristics: male, age between 52 and 72 years old, length of hospitalization between 7 and 14 days, fever, cough, dyspnoea and, as complications, O₂ saturation less than 94%, severe dyspnea and high D-dimer.

INTRODUCTION

COVID-19 began in China in 2019, in Wuhan, with the index case, characterised as pneumonia of unknown origin. The pathogen was identified as belonging to the betacoronavirus family (Huang et al, 2020; Lu et al, 2020). In Brazil, the first case identified occurred on February 26th, 2020 and, at the beginning of July, the country recorded more than 1,496,000 cases ^[1].

COVID-19 usually manifests itself with flu-like symptoms such as fever, body pain, headache, loss of smell and taste, as well as dyspnea, and may get worse and develop into Severe Acute Respiratory Syndrome (SARS). This syndrome, in turn, presents symptoms of dyspnea or the following signs of severity: saturation of SpO₂ less than 95% on room air; signs of respiratory distress or increased respiratory rate according to age, worsening of the base disease condition; and blood pressure hypotension of the patients ^[1].

As for the clinical symptomatology, it is observed that most patients present mild clinical profile, but in the elderly and immunosuppressed population the disease may manifest signs of worsening (ISER, et al, 2020), leading to hospitalization. The World Health Organization has declared that COVID-19 is an international public health emergency since the number of cases in the world exceeds 13 million and more than 500 thousand people died ^[2].

Brazil, especially the Southeast region, where the state of Rio de Janeiro is located, presented an incidence of 613.6 cases/100 thousand inhabitants and a mortality of 33.5 cases/100 thousand inhabitants in the epidemiological week from 28/06/2020 to 04/07/2020. At that period, Rio de Janeiro was the state with the highest mortality coefficient (61.5 deaths/100 thousand inhabitants) ^[3]

Given the complexity of COVID-19, it is necessary to know the clinical and sociodemographic characteristics of the disease so that strategic actions in the field of health care are planned and implemented at the hospital level as well as other levels of the care network, including non-pharmacological prevention measures aimed at the general population, especially for risk groups.

In this perspective, the study aimed to describe the clinical and sociodemographic characteristics of patients affected by COVID-19 in a University Hospital of excellence in Rio de Janeiro, Brazil.

MATERIALS AND METHODS

This is a descriptive, retrospective and documentary study based on quantitative approach. This research was approved by the Research Ethics Committee under the opinion number 3.443.800. All the ethical principles contained in the Helsinki Declaration have been respected. Data collection occurred between April and June 2020, a period in which there was a significant increase in the number of cases in the country, especially in the Southeast region of Brazil.

The collection field was a University Hospital in the state of Rio de Janeiro, Brazil. This institution is a reference for treating patients with COVID-19 within the framework of the Health Care Network (RAS - acronym in Portuguese) of the Brazilian Unified Health System (SUS - acronym in Portuguese). In order to be a reference for COVID-19, the hospital had its operation restructured in order to receive suspected or confirmed patients who needed hospitalization in clinical wards or intensive care units.

The study sample consisted of 243 electronic health records of patients hospitalized in clinical wards of the aforementioned hospital and patients with laboratory confirmed diagnosis of COVID-19. The selection of participants was made by intentional non-probabilistic sampling and the following inclusion criterion was established: electronic health records of patients with laboratory diagnosis of COVID-19, while the exclusion criterion was that of electronic health records with inconsistent and/or incomplete information.

It is noteworthy that in the period of the study the sample represented 100% of the health records of patients hospitalized with COVID-19 in three clinical wards and there was no exclusion due to information inconsistency or because they were incomplete.

For data collection, an online form was structured with clinical and sociodemographic variables of the patients: age, sex, comorbidities, length of hospitalization, signs and symptoms presented at admission, signs and symptoms of worsening of the disease, use of oxygen by nasal catheter or reservoir mask, CT result, intubation and death or discharge.

Then the data were organised in Microsoft Excel spread sheets, constituting a database, and were analysed according to descriptive statistics with relative and absolute frequencies, as well as presentation in graphs.

RESULTS

243 patients diagnosed with COVID-19 were evaluated, where 127 (52.3%) were male and 116 (47.7%) were female (**Figure 1**).

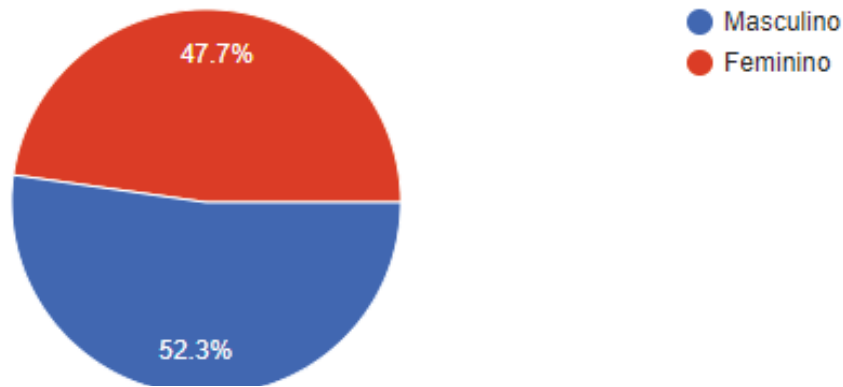


Figure 1. Gender of patients hospitalized with COVID-19 in clinical wards at a University Hospital of excellence in Rio de Janeiro, Brazil, 2020. (n=243).

Regarding the age, the majority of patients belonged to the age group from 52 to 72 years as illustrated in **(Figure 2)**.

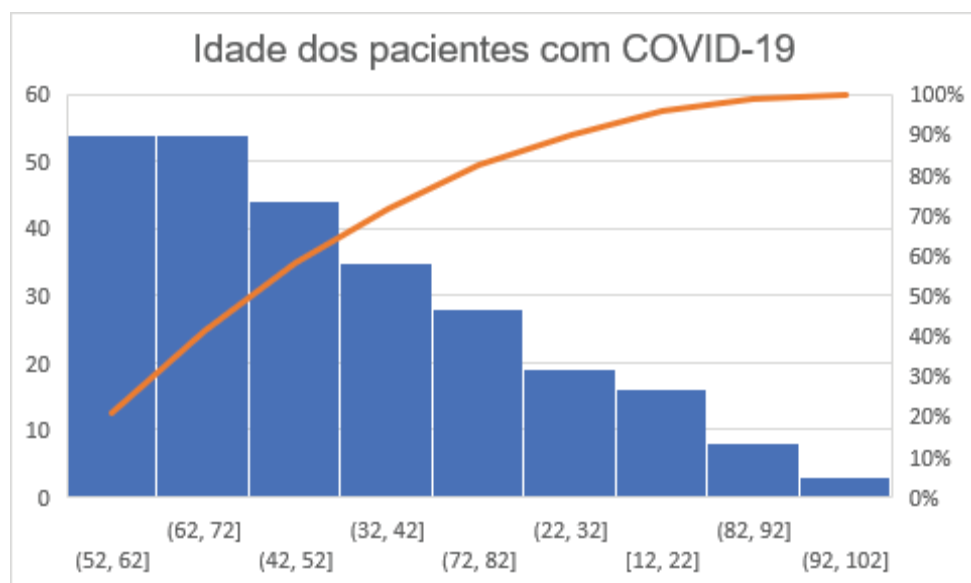


Figure 2. Age of patients hospitalized with COVID-19 in clinical wards at a University Hospital of excellence in Rio de Janeiro, Brazil, 2020. (n=243).

Regarding the variable comorbidities, the most prevalent were arterial hypertension (51%) and diabetes mellitus (28%), totaling more than 70% of the analysed data. However, other comorbidities were evidenced such as cancer, chronic renal insufficiency, obesity, asthma and heart disease, among others.

Regarding the length of hospitalization, 35.4% (86 patients) remained from 7 to 14 days hospitalized, followed by 34.6% (84 patients) who stayed up to 7 days and, 30% (73 patients) that the hospitalization lasted for more than 14 days **(Figure 3)**.

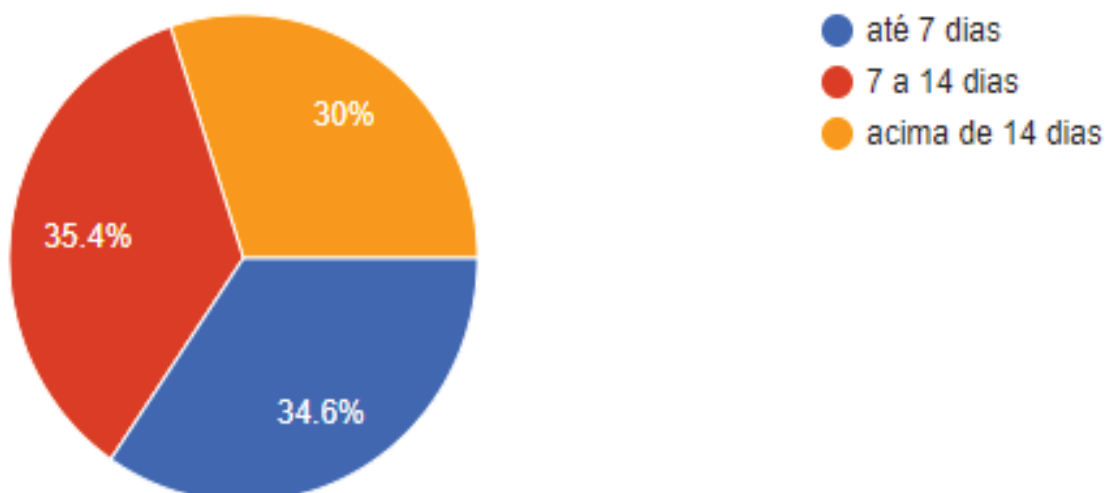


Figure 3. Hospitalization time of patients hospitalized with COVID-19 in clinical wards at a University Hospital of excellence in Rio de Janeiro, Brazil, 2020. (n=243).

Regarding signs and symptoms during admission, the main ones were the following: fever, present in 145 patients (59.7%); cough, in 137 patients (56.4%); and mild dyspnoea in 135 patients (55.6%). Other signs and symptoms were also present, such as altered saturation, headache, loss of taste and appetite, loss of smell, fatigue, myalgia and unwell.

From the 243 patients, 162 (66.7%) had complications of the initial condition, where 104 (64.2%) had saturation lower than 94%, followed by 70 (43.2%) with severe dyspnea and 64 (39.5%) with high D-dimer. Symptoms such as altered PaCO₂, tachycardia and tachypnea were also identified, in addition to others that could be mentioned. Regarding O₂ supplementation, 173 patients (71.2%) did not use it, while 70 (28.8%) needed supplementary oxygen therapy (**Figure 4**).

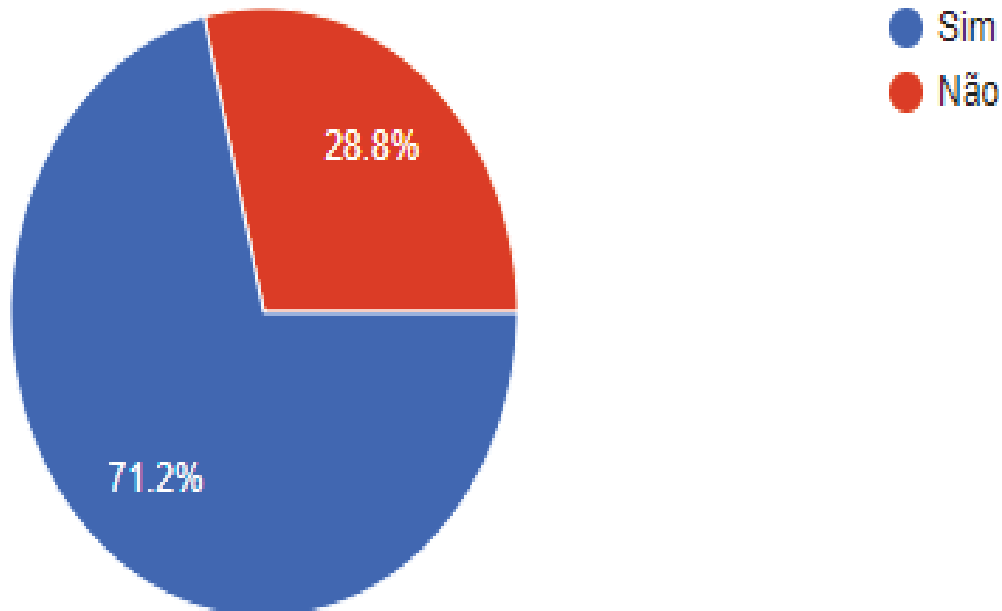


Figure 4. Use of supplementary oxygen therapy in patients hospitalized with COVID-19 at a University Hospital of excellence in Rio de Janeiro, Brazil, 2020. (n=243).

Regarding the evaluation of CT imaging, 185 patients were submitted to the exam. Of these 185, 182 (98.4%) presented bilateral ground glass and 3 (1.6%) unilateral ground glass.

From the 243 patients, only 26 (10.7%) needed intubation, of which 13 (5.3%) died, while 230 (94.7%) received hospital discharge for cure.

DISCUSSION

The data showed a predominance of males (52.3%) with a slight difference in relation to females, which corroborates a Chinese study that had 58.1% of male patients affected by the disease. Studies conducted in the United States of America and Italy showed that most patients were male, even with slightly higher percentages, 60.6% and 63.5%, respectively. These data demonstrate prevalence of COVID-19 in males, despite the discrete difference presented in Brazil and China ^[4-6].

Regarding age it is noteworthy that this variable constitutes a risk factor for COVID-19 since the elderly tend to develop symptoms of complication of the disease ^[1]. In this study, the majority of patients are in the age group from 52 to 72 years, while a study in China showed a predominance of patients affected by Coronavirus aged between 15 and 49 years. In contrast, a study in Italy and the United States, in accordance with the results of Brazilian studies, showed that most of the patients affected by COVID-19 were elderly, a characteristic that may be related to the age pyramid of these countries, consisted predominantly of elderly ^[4-6].

Regarding comorbidities, the most prevalent risk factors for worsening the clinical profile of patients with COVID-19 (Brazil, 2020) in this study were arterial hypertension (51%) and diabetes mellitus (28%), corroborating the Italian and American study, which had arterial hypertension as the most prevalent factor ^[5,7].

A retrospective observational study with hospitalized patients in Wuhan, China, pointed out that those with arterial hypertension had a relative risk of mortality increased by two times when compared to patients who did not present hypertension ^[8].

Other studies have shown that hypertension is associated with increased risk of adverse events in patients with COVID-19, and, therefore, it is considered an independent risk factor to predict severity and mortality. Another study also points out that these patients require greater clinical attention ^[9].

Regarding the length of hospitalization, a systematic review study demonstrated a mean time from 5 to 13 days in China and 4 to 11 days in other countries, a time similar to that observed in the screen survey data, 7 to 14 days ^[10].

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The signs and symptoms present in patients at admission were predominantly fever in 145 (59.7%), cough in 137 (56.4%) and mild dyspnea in 135 (55.6%). As for signs and symptoms of complications, 104 (64.2%) had saturation lower than 94%, followed by 70 (43.2%) with severe dyspnea and 64 (39.5%) with high D-dimer. In addition, other changes such as PaCO₂, tachycardia and tachypnea were also identified ^[11].

A study in China supports the data found, showing that fever was present in 43.9% of patients. A study conducted in the United States highlights that the most predominant symptoms were, respectively, cough (79.4%), followed by fever (77.1%) and dyspnea (56.5%) (Guan, 2020; Goyal, 2020). Another important data highlighted in a study in China refer to the signs and symptoms of complication that resulted in death, namely: high D-dimer, lymphopenia, increased interleukin release and increased troponin release ^[12].

Regarding the evaluation of CT imaging, from the 185 patients who performed it, 182 (98.4%) had bilateral ground glass and only 3 (1.6%) presented unilateral ground glass. These data are consistent with a study in France, where 87% of patients who underwent CT had bilateral alterations ^[13].

Of the 243 patients, the majority, 230 (94.7%), received hospital discharge for cure. It is also noteworthy that 26 (10.7%) evolved with the need for intubation and, among these, 13 (5.3%) died. A study in China with 191 patients showed that the majority (71.7%), which corresponds to 137 patients, were discharged and 54 patients (28.2%) died (Zhou et al, 2020). A study conducted in the United States showed that 40 patients (10.2%) died, 60 (66.2%) were discharged and 130 (33.1%) were still hospitalized and intubated ^[6].

It is noteworthy that the knowledge about the sociodemographic and clinical characteristics of patients affected by COVID-19 allows managers to plan more assertive actions and protocols that health services shall offer to society in a pandemic context. This is important because the given context is characterised by uncertainty, especially in the case of a newly discovered disease in which not all the mechanisms involved are known ^[14,15].

CONCLUSION

The 243 patients with COVID-19 hospitalized in three clinical wards of a University Hospital of excellence in the state of Rio de Janeiro, Brazil, had the following predominant characteristics: male, age between 52 and 72 years old, length of hospitalization between 7 and 14 days, fever, cough, dyspnoea and, as complications, O₂ saturation less than 94%, severe dyspnea and high D-dimer.

With regard to imaging tests, CT scan, when performed, showed that most of the cases analysed presented bilateral ground glass. However, few patients, 26 (10.7%), required intubation and 13 (5.3%) died. The conclusion is that the majority of patients with COVID-19 presented a positive evolution of the clinical profile, with effective recovery of the disease.

Among the study limitations, the following can be pointed out: Unicentric profile and clinical and sociodemographic characteristics of hospitalized patients within a specific period. In order to observe the dynamics of COVID-19 prospectively, it is suggested to carry out cross-sectional studies in the context of the hospitalization process over time until there is vaccine and other drugs available to cope with the virus.

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