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Clinical and epidemiological characteristics of COVID-19 cases in Florianópolis, Brazil

Clinical and epidemiological characteristics of covid-19 cases in Florianópolis, Brazil

Características clínicas e epidemiológicos dos casos de covid-19 em Florianópolis, Brasil

Características clínico-epidemiológicas de los casos de COVID-19 en Florianópolis, Brasil

RESUMO

Objetivo: Descrever as características clínicas e epidemiológicas dos casos com confirmação laboratorial de COVID-19 em Florianópolis. Método: Estudo de base populacional com adultos confirmados laboratorialmente com COVID-19 entre a primeira e a 20ª semana epidemiológica de 2020. As variáveis estudadas foram: demográficas, sinais e sintomas, exames laboratoriais, comorbidades, hospitalização e mortalidade. Resultado: No período estudado, 567 adultos formam diagnosticados com COVID-19. Destes, 37 (6,5%) foram hospitalizados e sete faleceram (1,2%). A maioria era do sexo masculino (51,5%) com média de idade de 45,2 anos. Os sintomas mais comuns foram febre (62,8%) e tosse (62,6%). As comorbidades mais frequentes foram doença cardiovascular crônica (12,9%) e diabetes mellitus (7,1%). Conclusão: No início da pandemia, em Florianópolis, os casos de COVID-19 diagnosticados laboratorialmente ocorreram mais frequentemente em homens, idosos, brancos e que apresentavam comorbidades como doença cardiovascular crônica e diabetes mellitus.
DESCRITORES: Covid-19; Epidemiologia; Brasil; Prevalência

ABSTRACT

Objective: To describe the clinical and epidemiological characteristics of laboratory-confirmed COVID-19 cases in Florianopolis. Methods: Population-based study with laboratory-confirmed adults with COVID-19 between the first and 20th epidemiological week of 2020. The variables studied were: demographic, signs and symptoms, laboratory tests, comorbidities, hospitalization and mortality. Results: During the study period, 567 adults were diagnosed with COVID-19. Of these, 37 (6.5%) were hospitalized and seven died (1.2%). Most were male (51.5%) with a mean age of 45.2 years. The most common symptoms were fever (62.8%) and cough (62.6%). The most frequent comorbidities were chronic cardiovascular disease (12.9%) and diabetes mellitus (7.1%). Conclusion: At the beginning of the pandemic, in Florianópolis, cases of COVID-19 diagnosed in the laboratory were more frequent in men, elderly, Caucasians and those with comorbidities such as chronic cardiovascular disease and diabetes mellitus.
DESCRIPTORS: COVID-19; Epidemiology; Brazil; Prevalence

RESUMEN

Objetivo: Describir las características clínicas y epidemiológicas de los casos de COVID-19 confirmados por laboratorio en Florianópolis. Métodos: Estudio poblacional con adultos confirmados por laboratorio con COVID-19 entre la primera y la vigésima semana epidemiológica de 2020. Las variables estudiadas fueron: demográficas, signos y síntomas, pruebas de laboratorio, comorbilidades, hospitalización y mortalidad. Resultados: Durante el período de estudio, 567 adultos fueron diagnosticados con COVID-19. De estos, 37 (6,5%) fueron hospitalizados y siete fallecieron (1,2%). La mayoría eran hombres (51,5%) con una edad media de 45,2 años. Los síntomas más frecuentes fueron fiebre (62,8%) y tos (62,6%). Las comorbilidades más frecuentes fueron la enfermedad cardiovascular crónica (12,9%) y la diabetes mellitus (7,1%). Conclusión: Al inicio de la pandemia, en Florianópolis, los casos de COVID-19 confirmados por laboratorio fueron más frecuentes en hombres, ancianos, caucásicos y con comorbilidades como enfermedad cardiovascular crónica y diabetes mellitus.
DESCRIPTORES: COVID-19; Epidemiologia; Brasil; Prevalência

Caroline Andrade Machado
Nurse, Specialist in Family Health, Epidemiological Surveillance Santa Catarina.
ORCID: 0000-0002-0136-8814

Leandro Pereira Garcia
Physician, PhD, Epidemiological Surveillance Santa Catarina

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ORCID: 0000-0002-8601-7166;

Patrícia Pauletto,
Dentist MSc.
ORCID: 0000-0002-1762-7059;

Lia Rosana Honnef
Undergraduate in Dentistry.
ORCID: 0000-0003-1357-0072;

Taina Barbie do Espírito Santo
Nurse, PhD, Epidemiological Surveillance Santa Catarina.
ORCID: 0000-0001-5142-483X;

Graziela De Luca Canto,
Dentist, PhD, Associate Professor UFSC.
ORCID: 0000-0002-7986-8317;

Vanessa Garcia-Larsen
Nutritionist, PhD, Professor at Johns Hopkins Bloomberg School of Public Health, USA.
ORCID: 0000-0002-0003-1988

INTRODUCTION

The first individuals affected by CO-VID-19 were confirmed in December 2019 in Wuhan, China. [1,2] Within ten weeks, SARS-CoV-2 reached pandemic proportions in several countries in Europe and the United States. As of September 2020, there were more than 30 million people infected worldwide and the initial trend of affecting high-income countries has spread to include low-income countries. [1,3]

In the Region of America, the United States leads the number of cases, followed by Brazil, Argentina, Colombia and Mexico. The United States and Brazil are among the countries with the highest mortality by COVID-19. [3]

On January 30th, 2020, the World Health Organization (WHO) declared CO-VID-19 a Public Health Emergency of International Importance. [4]

During this same period, Brazil published the National Contingency Plan for Human Infection by the new Coronavirus with the aim of guiding the Ministry of Health's role in the response and seeking coordinated action within the Unified Health System. The national plan is composed of three levels of response: Alert, Imminent Danger, and Public Health Emergency. [5]

> On January 30th, 2020, the World Health Organization (WHO) declared COVID-19 a Public Health Emergency of International Importance

Brazil declared COVID-19 a public health emergency on February 3, 2020. Soon after, on February 26, it became the first country in South America to confirm a COVID-19-related death: a 61-year-old man, born in São Paulo, who had traveled to Italy.[4] Community transmission was declared on March 13th, 2020. [4]

In response to the pandemic, the Ministry of Health of Brazil prepared an epidemiological surveillance guide, which defined the local criteria for suspected and confirmed cases of COVID-19 in the country, followed by the publication of the National Contingency Plan (PCN - Plano Nacional de Contingência) for COVID-19. [5] Among the measures adopted were the anticipation of the influenza vaccination campaign at the national level, offering free influenza vaccination for elderly people with chronic diseases and health professionals. [6]

Despite these initial containment and mitigation measures, and unlike other countries that experience a similar number of COVID-19 infections, the federal government has not implemented additional measures to reduce the spread of the virus at the national level. [8] In this descriptive study, we describe the clinical and epidemiological characteristics of laboratory-confirmed

COVID-19 cases in Florianópolis, Santa Catarina, southern Brazil.

METHODS

A descriptive, retrospective population--based study was carried out. All adults (18 years or older) residing in Florianópolis, laboratory-confirmed with COVID-19 between December 29th, 2019 and May 16th, 2020, beginning of the first week and end of the 20th week of the 2020 Epidemiological Calendar, were included in the study, respectively.

Laboratory confirmation was performed by molecular biology (real-time RT-P-CR) with a detectable result for the SARS--CoV-2 virus. Laboratory confirmation for SARS-CoV-2 was performed in public or private laboratories, following national guidelines.9 All cases included in the present study were confirmed according to national guidelines. [9]

Data collection was carried out according to the protocol of the city hall of Florianópolis, through telephone contact made by professionals from the Epidemiological Surveillance System of the Municipality of Florianópolis.

The present study used official and anonymized secondary data from the Municipality of Florianópolis. Demographic variables, signs, symptoms, comorbidities, hospitalization and death were analyzed.

Descriptive statistics were used for data analysis. The categorical variables were presented according to frequency and percentage, and the continuous variables with mean and standard deviation. Independent sample tests and the bilateral chi-square test were used to perform the hypothesis test. Values of $p < 0,05$ were considered statistically significant. The analysis was performed using the Stata 15.1 software (STATA Corp).

The study was approved by the Ethics Committee for Research with Human Beings of the Federal University of Santa Catarina (opinion number 4.034.990).

RESULTS

Data from 567 adults who had a laboratory-confirmed diagnosis of COVID-19 in the period were analyzed. Of these, 37 (6,5%) were hospitalized and seven died (1,2%) (Table 1). Most cases were male (51,5%), white (87,7%), with a mean age of 45,2 years (SD ± 16,0 years). Those aged ≥60 years were the most commonly diagnosed age group (12,9%). Health professionals represented 17,0% of all those infected. The most common symptoms were fever (62,8%) and cough (62,6%), while 8,3% were asymptomatic. The most frequent comorbidities were chronic car-

Table 1. Distribution of the number and percentage of residents in Florianópolis, laboratory confirmed with COVID-19, according to sex and outcome. Florianópolis, 1st to 20th epidemiological week of 2020.

OUTCOME	TOTAL	MEN		WOMEN		P VALUE
	N	N	%	N	%	
Confirmed cases	567	292	(51,5)	275	(48,5)	
Hospitalized cases	37	26	(70,3)	11	(29,7)	0,018
Confirmed deaths	7	4	(57,4)	3	(42,9)	0,764

Source: Florianópolis Municipal Health Department.

Table 2. Distribution of the number and percentage of residents in Florianópolis, laboratory confirmed with COVID-19, according to hospitalization and general characteristics. Florianópolis, 1st to 20th epidemiological week of 2020.

General features	Total (N = 567)	Hospitalized (N=37)		Not Hospitalized (N=530)		p value
	N	N	%	N	%	
GENDER						
Men	292	26	(70,3)	266	(50,2)	0,018
Women	275	11	(29,7)	264	(49,8)	
RACE*						
White	490	26	(90,0)	464	(87,6)	0,737
Other	69	3	(10,0)	66	(12,4)	
COEXISTING CONDITIONS						
Being 60 y/o or older						
Yes	109	16	(43,2)	93	(17,6)	0,000
No	458	21	(56,8)	437	(82,4)	
DIABETES MELLITUS*						
Yes	39	9	(47,4)	30	(5,7)	0,000
No	510	10	(52,6)	500	(94,3)	
IMMUNODEPRESSION*						
Yes	20	5	(27,8)	(2,8)	(2,8)	0,000
No	528	13	(72,2)	(97,2)	(97,2)	

CHRONIC LUNG DISEASE*						
Sim	12	3	(18,8)	(1,7)	(1,7)	0,000
Não	534	13	(81,2)	(98,3)	(98,3)	
CHRONIC CARDIOVASCULAR DISEASE*						
Yes	71	12	(63,2)	(11,1)	(11,1)	0,000
No	478	7	(36,8)	(88,9)	(88,9)	
SYMPTOMS						
Fever						
Yes	356	34	(91,9)	(60,8)	(60,8)	0,000
No	211	3	(8,1)	(39,2)	(39,2)	
Shortness of breath						
Yes	158	35	(94,6)	(23,2)	(23,2)	0,000
No	409	2	(5,4)	(76,8)	(76,8)	
Cough						
Yes	355	33	(89,2)	(60,8)	(60,8)	0,001
No	212	4	(10,8)	(39,2)	(39,2)	
Sore throat*						
Yes	201	13	(40,6)	(35,5)	(35,5)	0,555
No	361	19	(59,4)	(64,5)	(64,5)	

* Variable with ignored values.
Source: Florianópolis Municipal Health Department.

diovascular disease (12,9%) and diabetes mellitus (7,1%).

Among individuals hospitalized with COVID-19, 70,3% were male (Table 2). A statistically significant difference was observed between the mean age of hospitalized and non-hospitalized individuals, being 59,4 years and 44,2 years, respectively.

Compared with those who did not require hospitalization, hospitalized patients had a higher prevalence of comorbidities (Table 2). The clinical symptoms of COVID-19, including fever, shortness of breath and cough, were more frequent in hospitalized patients compared to those who did not receive hospital treatment (Table 2).

Most deaths from COVID-19 were among men (57,1%). The average age of individuals who died was 81,6 years, a value significantly higher than those who survived (44,8 years). Being ≥60 years of age, having diabetes mellitus and having chronic obstructive pulmonary disease (COPD) were significantly associated (p=0,000) with a higher chance of death.

DISCUSSION

The recent study by Benitez et al. [7] compared the types of COVID-19 responses implemented by five South American countries and concluded that Brazil lacked measures to mitigate and contain the spread of the virus. Unlike other cities in Brazil, in Florianópolis, measures were introduced at an early stage to mitigate the spread of COVID-19. [8]

Before the pandemic, socioeconomic inequalities were already evident in Brazil, which were also reflected in the health sector, 10 high poverty rate of 26,5% 11 and a large informal employment sector (38% of total non-agricultural employment). 12 In addition to these factors, it is known that the severity of cases can worsen considerably depending on whether the affected person also has comorbidities, such as obesity and cardiovascular disease, and old age. [13]

Age-standardized data show that obesity affects 22,1% of Brazilians, 10 while mortality from cardiovascular disease is one of the highest in Latin America, at 225 per 100.000 population. 14 Likewise, smoking and excessive alcohol consumption are important public health issues in the country. [15] In line with this profile, we found that adults with pre-existing chronic cardiovascular disease or COPD were more likely to be hospitalized.

The findings of the present study indicate that, despite the first efforts introduced by the city of Florianópolis to prevent the dissemination of COVID-19, there were more than 550 cases in ten weeks. This highlights the need for additional combined efforts at the national and regional levels to support measures that protect the population. Recent projections suggest that spread is faster in areas with insufficient measures to maintain social distance and local blockade, and that are socially vulnerable. Current evidence shows that areas of high social vulnerability in the North and Northeast regions of the country were severely affected by the COVID-19 outbreak. [16]

Due to its sociodemographic structure, Florianópolis is relatively homogeneous in terms of socioeconomic and ethnic origin, which may explain, in part, why the disease was predominantly reported in white men. The demographic characteristics of the affected population are likely to differ from those of other larger and more urbanized cities in Brazil, with greater diversity and socioeconomic vulnerability. In São Paulo, for example, a recent study examining the prevalence of COVID-19 among health workers at a hospital in the main city showed that the disease affected young women (mean age 39 years). 17

CONCLUSION

This study has strengths and limitations, namely: information on comorbidities was self-reported or provided by family mem-

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bers and was not confirmed through clinical examinations or medical records. At the time of analysis, detailed information regarding hospitalization (eg, weight loss, medications, treatment for comorbidities) or follow-up after hospital discharge was not available, which precluded exploring these variables. However, the data from the present study allow an early assessment of the clinical and epidemiological characteristics of laboratory-confirmed COVID-19 cases in Florianópolis at the beginning of the pandemic.

Thus, it is concluded that at the beginning of the pandemic, in Florianópolis, cases of COVID-19 diagnosed in the laboratory occurred more frequently in men, elderly, whites and those with comorbidities such as chronic cardiovascular disease and Diabetes Mellitus.

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