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PROFILE OF REPORTED CASES OF SEVERE ACUTE RESPIRATORY SYNDROME IN A HOSPITAL IN RIO DE JANEIRO

Perfil dos casos notificados de síndrome respiratória aguda grave em um hospital do Rio de Janeiro

Perfil de los casos notificados de síndrome respiratorio agudo severo en un hospital de Río de Janeiro

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ABSTRACT

Objective: to describe the clinical-epidemiological profile and analyze the death outcome variable among reported cases of Severe Acute Respiratory Syndrome (SARS) in a federal hospital in Rio de Janeiro. **Method**: a descriptive cross-sectional study, based on secondary data from the epidemiological surveillance of the Epidemiology Area of the Hospital Federal dos Servidores do Estado. **Results**: the Severe Acute Respiratory Syndrome notification carried out by the Hospital Federal dos Servidores do Estado presented a profile of elderly people, with a high prevalence of comorbidities. The related factors with hospital death were: age group 70 to 79 years, male gender, presence of dyspnea, respiratory distress, saturation <95%, heart disease, kidney disease, neurological disease, lung disease, neoplasms, use of invasive ventilatory support. **Conclusion**: epidemiological surveillance plays a fundamental role, not only in the notification, investigation and closure of cases, but also in the identification of the characteristics of the affected population and the related factors with the greater severity of the new disease.

DESCRIPTORS: Severe acute respiratory syndrome; Coronavirus infections; Hospitalization; Epidemiology.

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RESUMO

Objetivo: descrever o perfil clínico-epidemiológico e analisar a variável de desfecho óbito entre os casos notificados de Síndrome Respiratória Aguda Grave em um hospital federal do Rio de Janeiro. **Método:** estudo transversal descritivo, elaborado a partir de dados secundários da vigilância epidemiológica da Área de Epidemiologia do Hospital Federal dos Servidores do Estado. **Resultados:** os casos de síndrome respiratória aguda grave notificados pelo Hospital Federal dos Servidores do Estado apresentaram um perfil de idosos, com elevada prevalência de comorbidades. Os fatores relacionados ao óbito hospitalar foram: faixa etária 70 a 79 anos, sexo masculino, presença de dispneia, desconforto respiratório, saturação <95%, cardiopatias, doença renal, doença neurológica, pneumopatia, neoplasias, uso de suporte ventilatório invasivo. **Conclusão**: a vigilância epidemiológica assume um papel fundamental, não somente na notificação, investigação e encerramento dos casos, mas também na identificação das características da população acometida e dos fatores relacionados à maior gravidade da nova doença.

DESCRITORES: Síndrome respiratória aguda grave; Infecções por coronavírus; Hospitalização; Epidemiologia.

RESUMEN

Objetivo: describir el perfil clínico-epidemiológico y analizar la variable resultado muerte entre los casos notificados de Síndrome Respiratorio Agudo Severo en un hospital federal de Río de Janeiro. **Método:** estudio descriptivo transversal, basado en datos secundarios de la vigilancia epidemiológica del Área de Epidemiología del Hospital Federal dos Servidores do Estado. **Resultados:** la notificación del Síndrome Respiratorio Agudo Severo realizada por el Hospital Federal dos Servidores do Estado presentó un perfil de ancianos, con alta prevalencia de comorbilidades. Los factores relacionados a la muerte hospitalaria fueron: grupo de edad de 70 a 79 años, sexo masculino, presencia de disnea, dificultad respiratoria, saturación <95%, enfermedad cardíaca, enfermedad renal, enfermedad neurológica, enfermedad pulmonar, neoplasias, uso de soporte ventilatorio invasivo. **Conclusión:** la vigilancia epidemiológica juega un papel fundamental, no solo en la notificación, investigación y cierre de casos, sino también en la identificación de las características de la población afectada y los factores relacionados a la mayor gravedad de la nueva enfermedad.

DESCRIPTORES: Síndrome respiratorio agudo severo; Infecciones por coronavirus; Hospitalización; Epidemiología.

INTRODUCTION

At the end of 2019, the world learned about a new betacoronavirus (SARS-CoV-2), which emerged in China and would cause a major global health and socioeconomic impact. The World Health Organization (WHO), as of March 14, 2022, reported that globally 6,043,094 deaths caused by the virus and 456,797,217 confirmed cases have been reported.[1–2]

The pandemic known as Coronavirus Disease (COVID-19) broke out as a community-transmitted disease in Brazil on March 20, 2020, reaching alarming levels of confirmed cases and deaths. Social isolation measures and mandatory use of masks took time to be implemented and disseminated, corroborating for the country to be considered the epicenter of the pandemic in the following year.[1,3]

As a strategy adopted to monitor hospitalized cases of COVID-19, the Ministry of Health added testing for SARS-CoV-2 to the surveillance of severe acute respiratory syndrome (SARS). The monitoring system was created in 2009 in the context of the H1N1 pandemic and to this day has its relevance in controlling infections by influenza A and B viruses and respiratory syncytial virus (RSV). The notification of cases is compulsory and the data are stored in the Influenza Epidemiological Surveillance Information System (SIVEP-Gripe).[4–5]

In Brazil, by March 14, 2022,655,249 cumulative deaths and 29,380,063 confirmed cases were reported, with an overall lethality of 2.2%, with the South and Southeast regions being the most affected in absolute numbers of cases. In the same period, Rio de Janeiro state exceeded 72,000 deaths and more than 1.9 million confirmed cases of COVID-19, with overall lethality of 3.5%.[6–7]

Concomitantly, the record of hospitalized SARS case notifications in SIVEP-Gripe, from 2020 until SE 9 of 2022, accumulates more than 3 million throughout Brazil. In 2021, until SE 48, of the total 1,635,448 hospitalized SARS cases, 71.9% were confirmed for COVID-19 and 19.3% were classified as SARS unspecified. Among the country's regions, the Southeast accounts for the largest number of reported SARS cases, with 803,322 (49.1%).8

Considering the epidemiological profile of SARS cases until SE 48 of 2021,898,681 (55.0%) cases occurred in males and the age group with the highest number of cases was 50 to 59 years old, with 311,056 (19.0%). Regarding the cases of SARS due to COVID-19,657,561 (55.9%) occurred in males and the most affected age group was 50 to 59 years old, with 254,4525 (21.6%).[8]

With the advent of the pandemic, there was an increase in the number of patients hospitalized for SARS who died, with pneumonia, respiratory failure, and sepsis being the causes of death among severe cases of COVID-19. It is worth noting that the underreporting of deaths can be justified by the inaccuracy in the final classification of the case, generated by the untimely collection of material for etiologic diagnosis, lack of material for collection of RT-PCR test (reverse transcriptase reaction followed by polymerase chain reaction) or death before receiving the result. The poor quality with which the tests are packaged and transported also contributes to the occurrence of false negative results.[9–10]

Among the factors associated with disease severity and death, the elderly and patients with chronic diseases have the most

unfavorable prognoses. Studies point to patients with heart disease, diabetes mellitus, chronic kidney disease, and neoplasms as the most susceptible to the worst prognosis.[1,4,11]

Therefore, the investigation of SARS notifications emerges as a tool to improve decision making and focus actions that are geared towards fighting the pandemic. Considering the importance of evaluating the health surveillance actions implemented to control the pandemic, the present study aims to describe the clinical and epidemiological profile and analyze the outcome variable of death among the cases of Severe Acute Respiratory Syndrome reported in a federal hospital in Rio de Janeiro.

METHOD

This was a descriptive cross-sectional study, based on cases of SARS reported by the epidemiological surveillance nucleus of the Epidemiology Area of the Hospital Federal dos Servidores do Estado (HFSE), located in the city of Rio de Janeiro. The research was developed in the in-service training unit of nursing residents, located in the HFSE.

The epidemiological surveillance work process includes compulsory notification and investigation and closure of SARS cases, which then feed the SIVEP-Gripe database. The SIVEP-Gripe system is used by the Epidemiological Surveillance of state and municipal levels to enter information from notification forms and investigation of SARS cases from hospitals and emergency care units (UPAs).

For this study, we considered all reported cases of SARS entered into SIVEP-Gripe by the HFSE reporting unit, from epidemiological week (SE) 10 of 2020 (March 5, 2020) to SE 35 of 2021 (September 04, 2021), totaling 1366 cases. This number represents 93.8% of the total number of SARS cases that were hospitalized at the HFSE in the period (n=1455), and we excluded from this study 28 cases whose notification in SIVEP was performed by another unit of origin (patients later regulated to the HFSE) and 61 cases that, although notified, were not considered in the SIVEP-Gripe for presenting a notification date very close to the previous one (it was considered as the same SARS episode).

For all cases considered, the sociodemographic and clinical-epidemiological profile was described, comparing SARS by COVID-19 with other types of SARS (SARS by other agents and unspecified SARS), by means of bivariate analysis. All individuals who presented two or more signs and symptoms of influenza syndrome and evolved with dyspnea, respiratory distress, and decreased saturation ($SpO2 < 95\%$) were classified as SARS cases. Relationships were also investigated between the sociodemographic and clinical-epidemiological covariates of SARS cases by COVID-19 and the outcome death.

The outcome of interest was the occurrence of death in cases of SARS due to COVID-19 (yes/no). The variables considered for the analysis were: sociodemographic data (age, sex, race/color); signs and symptoms; presence of risk factors/comorbidities; vaccination history for COVID-19; hospitalization; antiviral use; intensive care unit use; use of invasive or noninvasive ventilatory support; imaging tests (chest X-ray and/or CT scan); laboratory test result (RT-PCR, PCR by rapid molecular test, IgM, IgG or IgA serological test, rapid serological test or rapid antigenic test); final case classification: closure criteria; evolution (discharge, death or death from other causes).

Data were exported from the SIVEP-Gripe database, linked to the database created by the service, tabulated using Microsoft Excel software, and analyzed using the Statistical Package for the Social Science (SPSS) software, version 25. Data presentation was by absolute and relative frequencies and summary measures (mean, standard deviation, and median). For the bivariate analyses, Pearson's chi-square test was used to test the dependence between the covariates and the outcome death, considering a 5% significance level.

This study is part of the research study 'Epidemiological surveillance and clinical-epidemiological profile of compulsorily notifiable diseases treated at the Hospital Federal dos Servidores do Estado since the implementation of the Epidemiology Service', approved by the Research Ethics Committee (CEP) of the Hospital Federal dos Servidores do Estado on July 13, 2021, under CAAE: 48749021.3.0000.5252 and detailed opinion no.4,843,208.

RESULTS

During the study period, between SE 10 of 2020 and SE 35 of 2021, the Federal Hospital of State Servants notified 1455 cases of Severe Acute Respiratory Syndrome. For this study, 89 cases were excluded due to duplicate reporting (because it was very close to a previous reporting date) and because they were first reported by another reporting source. Therefore, 1366 cases were considered.

Table 1 presents the profile of SARS cases reported in the HFSE in the context of the pandemic of COVID-19. There was a predominance of females n=735 (53.8%). Among women, n=88 (12%) were pregnant women and n=20 (2.7%) were puerperal women. The distribution of cases by age groups was heterogeneous, predominating in the group from 60 to 79 years of age n=518 (37.9%).

Among the signs and symptoms, cough, fever, dyspnea, respiratory distress and saturation <95% were the most frequent. The presence of risk factors or comorbidities was high n=1215 (88.9%), mainly due to cardiovascular or metabolic diseases, such as diabetes mellitus.

Hospitalization occurred in all cases, with n=539 (39.5%) requiring intensive care unit. The use of ventilatory support represented n=889 (65.1%) of the cases, being n=256 (18.8%) as invasive and n=633 (46.3%) as non-invasive.

For the imaging exams (chest X-ray or CT scan), the amount of exams not performed or with ignored information during the study period stands out. However, n=314 (23.0%) of the CT scans showed a typical image for COVID-19 and n= 142 (10.4%) of the chest X-rays showed a suspicious image for COVID-19 (interstitial infiltrate).

Table 1 – Profile of SARS cases reported at the HFSE, March 05, 2020 to September 04, 2021

Variable	All SRAG (n=1366)	
	n	%
Age group		
00-09 years old	143	10,5
10-19 years old	68	5,0
20-29 years old	78	5,7
30-39 years old	119	8,7
40-49 years old	120	8,8
50-59 years old	190	13,9
60-69 years old	302	22,1
70-79 years old	216	15,8
80 years old or more	130	9,5
Gender		
Female	735	53,8
Male	631	46,2
Ignored		
Race		
White	378	27,7
Non White	497	36,4
Ignored	491	35,9
Signs and Symptoms		
Fever	651	47,7
Cough	711	52,0
Odynophagia	83	6,1
Dyspnea	999	73,1
Respiratory discomfort	841	61,6
Saturation less than 95%.	899	65,8
Diarrhea	134	9,8
Vomiting	139	10,2
Headache	60	4,4
Coryza	60	4,4
Myalgia	78	5,7
Abdominal pain	110	8,1
Fatigue	306	22,4
Anosmia	68	5,0
Ageusia	52	3,8
Presence of risk factor/comorbidity	1215	88,9
Pregnant	88	6,4
Puerperae	20	1,5
Cardiovascular disease	626	45,8
Diabetes mellitus	350	25,6
Chronic renal disease	139	10,2
Chronic neurological disease	110	8,1
Chronic lung disease	116	8,5
Obesity	113	8,3
Asthma	39	2,9
Imunodepression	99	7,2
Hematological disease	73	5,3
Chronic liver disease	62	4,5

Table 1 – Cont.

Variable	All SRAG (n=1366)	
	n	%
Down's syndrome	7	0,5
Neoplasia	208	15,2
Use of antiviral	127	9,3
Hospitalization	1366	100,0
ICU use	539	39,5
Use of ventilatory support		
Invasive	256	18,8
Non invasive	633	46,3
Unsupported	374	27,4
Ignored	103	7,5
Tomography Examination		
Typical COVID-19	314	23,0
Atypical COVID-19	165	12,1
Undetermined COVID-19	43	3,1
Not performed/ignored	834	61,8
X-ray Examination Suspect		
Suspected	142	10,4
Not suspected	292	21,4
Not performed/ignored	932	68,2
Termination Criteria		
SARS not COVID-19	575	42,1
SRAG COVID-19	791	57,9
Closing Criteria		
Laboratorial	848	62,1
Clinical/clinical epidemiological	420	30,8
Clinical/Imaging	62	4,5
Ignored	36	2,6
Status Vacinal COVID-19		
Complete	103	7,5
Incomplete	76	5,6
Not immunized	1187	86,9
Evolution		
Death	486	35,6
No death	815	59,7
Unknown/under investigation	65	4,7

As for the final classification of cases, n= 791 (57.9%) were closed as SARS by COVID-19; as for the closure criterion, in n= 848 (62.1%) it was laboratory-based. A small percentage of the population had the complete vaccination scheme against COVID-19, and the death outcome occurred in n= 486 (35.6%) of the reported cases.

Table 2 presents the profile of reported cases according to the classification as SARS by COVID-19 and non-COVID-19 SARS (SARS by other agents and unspecified SARS). Regarding age group, the proportion of individuals from 0 to 9 years old was much lower in COVID-19 cases n=26 (18.2%) compared to non-COVID-19 cases n=117(81.8%). It is also noted that from the age group of 20 to 29 years, the proportion of COVID-19 cases was always higher than that of non-COVID-19. The difference in the distribution of cases between genders was not significant. The proportion of non-white and white skin race/color was higher among COVID-19 cases, although there is more than one-third of information on race/color ignored in both groups.

Fever (62.5%), saturation less than 95% (62.6%), headache (78.3%), myalgia (80.8%), fatigue (66.3%), anosmia (86.8%), and aging (96.2%) occurred more frequently among COVID-19 cases compared to non-COVID-19 SARS cases. Vomiting was more

Table 2 – Profile of cases: COVID-19 and non-COVID-19 SARS, reported at HFSE, March 05, 2020 to September 04, 2021 (n=1366)

Variable	SRAG for COVID-19 (n=791)		SRAG not COVID-19 (n=575)		p-value
	n	%	n	%	
Age group					0,000
00-09 years old	26	18,2	117	81,8	
10-19 years old	28	41,2	40	58,8	
20-29 years old	51	65,4	27	34,6	
30-39 years old	82	68,9	37	31,1	
40-49 years old	80	66,7	40	33,3	
50-59 years old	135	71,1	55	28,9	
60-69 years old	178	58,9	124	41,1	
70-79 years old	127	58,8	89	41,2	
80 years old or more	84	64,6	46	35,4	
Gender					0,966
Female	426	58,0	309	42,0	
Male	365	57,8	266	42,2	
Race					0,000
White	245	64,8	133	35,2	
Non white	297	59,8	200	40,2	
Ignored	249	50,7	242	49,3	
Signs and Symptoms					
Fever	407	62,5	244	37,5	0,001
Cough	412	57,9	299	42,1	0,975
Odynophagia	50	60,2	33	39,8	0,657
Dyspnea	578	57,9	421	42,1	0,952
Respiratory discomfort	486	57,8	355	42,2	0,911
Saturation less than 95%.	563	62,6	366	37,4	0,000
Diarrhea	80	59,7	54	40,3	0,658
Vomiting	61	43,9	78	56,1	0,000
Headache	47	78,3	13	21,7	0,001
Coryza	36	60,0	24	40,0	0,737
Myalgia	63	80,8	15	19,2	0,000
Abdominal pain	66	60,0	44	40,0	0,643
Fadigue	203	66,3	103	33,7	0,001
Anosmia	59	86,8	9	13,2	0,000
Ageusia	50	96,2	2	3,8	0,000
Presence of risk factor/comorbidity	695	57,2	520	42,8	0,135
Pregnant	68	77,3	20	22,7	0,002
Puerperae	14	70,0	6	30,0	0,270
Cardiovascular disease	409	65,3	217	34,7	0,000
Diabetes mellitus	228	65,1	122	34,9	0,001
Chronic renal disease	86	61,9	53	38,1	0,318
Chronic neurological disease	55	50,0	55	50,0	0,080
Chronic lung disease	46	39,7	70	60,3	0,000
Obesity	84	74,3	29	25,7	0,000
Asthma	14	35,9	25	64,1	0,005
Imunodepression	44	44,4	55	55,6	0,005
Hematological disease	42	57,5	31	42,5	0,947

Table 2 – Cont.

Variable	SRAG for COVID-19 (n=791)		SRAG not COVID-19 (n=575)		p-value
	n	%	n	%	
Chronic liver disease	25	40,3	37	59,7	0,004
Down's syndrome	2	28,6	5	71,4	0,115
Neoplasia	103	49,5	105	50,5	0,008
Use of antiviral	65	51,2	62	48,8	0,088
Hospitalization	788	57,8	575	42,2	0,139
ICU use	383	71,1	156	28,9	0,000
Use of ventilatory support					0,000
Invasive	179	69,9	77	30,1	
Non invasive	375	59,2	258	40,8	
Unsupported	183	48,9	191	51,1	
Ignored	54	52,4	49	47,6	
Tomography Examination					
Atypical COVID-19	39	23,6	126	76,4	
Undetermined COVID-19	22	51,2	21	48,8	
Typical COVID-19	297	94,6	17	5,4	
Not performed/ignored	433	51,3	411	48,7	
X-ray Examination					0,000
Suspect	81	57,0	61	43,0	
Not suspect	138	47,3	154	52,7	
Not performed/ignored	572	61,4	360	38,6	
Closing Criteria					
Laboratorial	695	82,0	153	18,0	
Clinical/clinical epidemiological	32	7,6	388	92,4	
Clinical/Imaging	59	95,2	3	4,8	
Didn´t finished	5	13,9	31	86,1	
Evolution					0,000
Death	323	66,5	163	33,5	
No death	436	53,5	379	46,5	

frequent in non-COVID-19 SARS cases (56.1%). The presence of comorbidities was high between the two categories of analysis, with cardiovascular diseases and diabetes mellitus being the most prevalent, and more frequent in cases of COVID-19.

Of the total SARS that required admission to the intensive care unit, more than 70% were due to COVID-19. The demand for ventilatory support, invasive or non-invasive, was also higher among cases of COVID-19. We noticed a high proportion of imaging exams not performed/ignored in both groups.

Laboratory confirmation criteria was more frequent among COVID-19 cases (82%). The lethality among COVID-19 cases (66.5%) was significantly higher than among non-COVID-19 SARS cases.

Table 3 represents the analysis of the death outcome (yes/no), considering only the cases of SARS due to SARS due to SARS due to COVID-19. From the total of 791 cases of SARS caused by SARS-COVID-19, 32 cases that presented an unknown death outcome were excluded from the analysis; thus, Table 3 represents a total of 759 cases.

The age group with the highest frequency of deaths from SARS due to COVID-19 is represented by the 60 to 69 year-old group, mostly males, with race/color referred as non-white. The most frequent signs and symptoms in the death cases were dyspnea, respiratory distress, and saturation <95%.

Cardiovascular disease, chronic kidney disease, chronic neurological disease, chronic lung disease, and neoplasm were more frequent comorbidities among cases that progressed to death than in cases that progressed to cure. The use of invasive ventilatory support was also more frequent among cases that progressed to death. The vaccination status for COVID-19 did not show statistical significance as a protective factor, which is justified by the limited sample size of individuals who had SARS and had been immunized at the time of the analysis.

Table 3 – Death outcome among cases of SARS due to COVID-19 reported at the HFSE, March 05, 2020 to September 04, 2021 (n=759)

Variable	Not death (n=436)		Death (n=323)		p-value
	n	%	N	%	
Age group					0,000
00-09 years old	21	91,3	2	8,7	
10-19 years old	20	80,0	5	20,0	
20-29 years old	36	75,0	12	25,0	
30-39 years old	67	83,8	13	16,3	
40-49 years old	58	75,3	19	24,7	
50-59 years old	77	58,3	55	41,7	
60-69 years old	87	50,3	86	49,7	
70-79 years old	47	38,8	74	61,2	
80 years old or more	23	28,8	57	71,3	
Gender					0,010
Female	253	61,7	157	38,3	
Male	183	52,4	166	47,6	
Race					0,002
White	116	49,6	118	50,4	
Non white	161	56,9	122	43,1	
Ignored	159	65,7	83	34,3	
Signs and Symptoms					
Fever	240	60,9	154	39,1	0,045
Cough	253	63,4	146	36,6	0,000
Odynophagia	35	70,0	15	30,0	0,063
Dyspnea	301	54,3	253	45,7	0,004
Respiratory discomfort	251	54,0	214	46,0	0,015
Saturation less than 95%	290	53,3	254	46,7	0,000
Diarrhea	51	67,1	25	32,9	0,073
Vomiting	36	62,1	22	37,9	0,459
Headache	33	76,7	10	23,3	0,008
Coryza	30	88,2	4	11,8	0,000
Myalgia	46	75,4	15	24,6	0,003
Abdominal pain	34	53,1	30	46,9	0,465
Fatigue	128	65,6	67	34,4	0,007
Anosmia	37	62,7	22	37,3	0,394
Ageusia	32	64,0	18	36,0	0,332
Presence of risk factor/comorbidity	357	53,4	312	46,6	0,000
Cardiovascular disease	194	49,4	199	50,6	0,000
Diabetes mellitus	112	50,5	110	49,5	0,012
Chronic renal disease	35	42,2	48	57,8	0,003
Chronic neurological disease	19	40,4	28	59,6	0,015
Chronic lung disease	16	36,4	28	63,6	0,004
Obesity	44	54,3	37	45,7	0,548
Asthma	10	71,4	4	28,6	0,285
Immunodepression	22	52,4	20	47,6	0,495
Hematological disease	20	47,6	22	52,4	0,185
Chronic liver disease	10	40,0	15	60,0	0,073
Down syndrome	1	50,0	1	50,0	0,831

Table 3 – Cont.

Variable	Not death (n=436)		Death (n=323)		p-value
	n	%	N	%	
Neoplasia	27	26,5	75	73,5	0,000
Antiviral use	39	63,9	22	36,1	0,562
Hospitalization	435	57,5	321	42,5	0,397
ICU use	184	49,9	185	50,1	0,000
Use of ventilatory support					0,000
Invasive	45	25,7	130	74,3	
Non invasive	222	62,4	134	37,6	
Unsupported	139	79,9	35	20,1	
Ignored	30	55,6	24	44,4	
Tomography Examination					0,091
Atypical COVID-19	26	66,7	13	33,3	
Indeterminate COVID-19	8	38,1	13	61,9	
Typical COVID-19	171	60,6	111	39,4	
Not performed/ignored	231	55,4	186	44,4	
X-ray Examination					0,368
Suspect	41	51,9	38	48,1	
Not suspect	73	54,5	61	45,5	
Not performed/ignored	322	59,0	224	41,0	
Criterion					0,109
Laboratory	387	57,5	286	42,5	
Clinical-epidemiological	13	40,6	19	59,4	
Clinical-imaging	35	66,0	18	34,0	
Ignored	1	100,0			
Vaccination Status COVID-19					0,526
Complete	25	53,2	22	46,8	
Incomplete	24	51,1	23	48,9	
Not immunized	387	58,2	278	41,8	

DISCUSSION

The HFSE, a federal hospital located in the city of Rio de Janeiro, was responsible for notifying 1366 cases of SARS in the period from March 2020 to September 2021. Notifications were based on the identification of SARS criteria, received by demand from sectors during RT-PCR test collection or by active search of the hospital's epidemiology service.

The general profile of the reported cases of SARS was composed mainly of individuals between 60 and 69 years of age, female, and of non-white ethnicity. The most frequent signs and symptoms were: fever, cough, dyspnea, respiratory distress, and saturation <95%. In a study conducted in central-western Brazil, the notified cases of SARS from 2013 to 2018 had a higher frequency among females, aged over 60 years and of brown ethnicity; in 99% of cases there was hospitalization, 34% of these in the intensive care unit.[12]

The presence of at least one risk factor and/or comorbidity among SARS cases was high, especially cardiovascular diseases, diabetes mellitus, chronic kidney disease, and neoplasms. The high prevalence of comorbidities present in the study reflects the national scenario; in Espírito Santo, a study investigating factors related to hospital death from COVID-19 in 2020 was developed, and it was observed that the same chronic diseases mentioned above were linked to the worst prognosis, noting that 71% of smokers died.[1,4,11,13]

Despite the low performance of imaging tests (CT scan and chest X-ray) among SARS cases, the literature points to the importance of the tool in evaluating the extent of the disease and possible complications, with the polymerase chain reaction (RT-PCR) being the main diagnostic confirmation criterion.[14]

The profile of cases of COVID-19 in relation to SARS due to other causes was composed predominantly of individuals between 60 to 69 years of age, female, and of non-white ethnicity. Although

females presented with higher frequency, the literature points to males as the main category for hospitalization for COVID-19, as evidenced by studies developed in China and the United States. The HFSE is a reference in high-risk pregnancy care and, with the advent of the pandemic, the hospital unit observed the increasing number of hospitalizations for SARS in pregnant women; these data justify the uniqueness found in this study.[1,4,15–16]

The most frequent signs and symptoms in cases of SARS due to COVID-19 were: fever, saturation <95%, headache, myalgia, fatigue, anosmia, and aging sickness. The findings are also described in a literature review that searched for the symptoms of COVID-19 in electronic databases and in publications of the Ministry of Health.[17]

Among the comorbidities, cardiovascular diseases, diabetes mellitus, neoplasms, and obesity stand out, findings consistent with numerous reports by other authors. In Pernambuco, a study described the prevalence of deaths from COVID-19 among patients with hypertension and diabetes mellitus, noting that 62% of cases among those with hypertension evolved to death and 64% of those with diabetes had the same outcome. In the same study, the epidemiological profile was characterized by male gender, age over 60 years and presence of symptoms such as dyspnea n=304 (74.1%), cough n= 296 (72.2%), fever n= 281 (68.5%) and O2 saturation <95% n= 271 (66.1%).[18]

The frequency of hospitalization in cases of SARS due to COVID-19 was higher compared to the other types of SARS. A study that compared the patterns of hospitalization for SARS from 2010 A 2020 showed that with the emergence of COVID-19, since the detection of the first case in the country, the number of hospitalization for SARS was higher than that observed in the last 10 years.[19]

When analyzing the findings regarding hospitalizations in intensive care units and use of invasive ventilatory support, the cases of COVID-19 overlap with SARS by other agents and unspecified. In Piauí, among deaths from COVID-19, 66.8% were admitted to the intensive care unit and 84% were submitted to invasive mechanical ventilation.[20]

Among SARS due to other causes, the younger public (0 to 19 years old) presented the highest frequencies; in their majority, notifications in this age group occur due to the RSV, influenza A or B viruses. Despite this finding, a Brazilian study conducted in 2020 showed that almost 7,000 hospitalizations of SARS by COVID-19 were recorded in individuals aged 0 to 19 years. In the distribution by region, the southeast and northeast represent the largest records in hospitalizations and deaths in this age group.[21]

The clinical and epidemiological profile of deaths among cases of SARS caused by COVID-19 was characterized by higher frequencies in individuals aged 70-79 years, male, and non-white ethnicity. Among the signs and symptoms and related comorbidities, dyspnea, respiratory distress, saturation <95%, cardiovascular, renal, neurological diseases, chronic lung diseases, and neoplasms had the highest frequencies. The high proportion of hospitalization in intensive care units and use of invasive ventilatory support is noteworthy.

These findings are in agreement with the national and international profile of mortality by COVID-19, when we observe the difference between the crude and age-standardized mortality rates in cases of COVID-19 in the capitals of the Brazilian states. Rio de Janeiro State had the second highest COVID-19 mortality rate for the 70-79 age group.[11, 15-16,22]

In the state of Bahia (2020), a study that aimed to describe the epidemiological profile of cases and deaths of SARS confirmed for COVID-19 reported that the symptom dyspnea was present in 74% of deaths, as well as respiratory distress and O2 saturation <95% represented frequencies above 60%.[23]

In Espírito Santo, intensive care admissions are represented in up to 65% among those with at least one comorbidity, and three times higher in individuals with multimorbidity; the presence of morbidity increased in 78% the probability of death.[24]

Among the limitations of the study, we highlight the impossibility of analyzing the impact of immunization on the population analyzed (vaccination coverage in the general population reached 42% during the development of the study) and the quality of the information from epidemiological surveillance. Underreporting and incomplete data were minimized by the active search of the epidemiology team and the review of the notification/investigation forms, aiming to record as much information as possible. Further studies in the area that analyze the variation of SARS notification during the pandemic and the impact of countermeasures are important.

CONCLUSION

The present study described the profile of reported cases of Severe Acute Respiratory Syndrome in a federal hospital unit in Rio de Janeiro, in the context of the pandemic of COVID-19. Facing the epidemiological scenario that affected the world, the set of SARS cases notified by the HFSE presented a profile of elderly (60 years or more), with a high prevalence of comorbidities. The factors related to in-hospital death were: age (70 to 79 years), male gender, presence of: dyspnea, respiratory distress, saturation <95%, heart disease, kidney disease, neurological disease, lung disease, cancer, and use of invasive ventilatory support.

Epidemiological surveillance plays a key role in this pandemic emergency with great impact on public health, not only in the notification, investigation, and closure of cases, but also in identifying the characteristics of the affected population and the factors related to the greater severity and lethality of the new disease, contributing to the planning of care and the fight against the pandemic.

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