

Clinical-epidemiological characterization of adult women diagnosed with COVID-19 in a hospital in northern Peru

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Abstract

Objective: to describe the clinical-epidemiological characteristics of adult women with COVID-19 diagnosis in an EsSalud Cajamarca Hospital during 2020 - 2021. **Method:** the methodology is descriptive, retrospective, observational and cross-sectional. The population consisted of adult women, and the sample consisted of 216 women. A data collection form was applied to the NOTI COVID registry and the clinical history was used. **Results:** Of the 216 confirmed cases, 67.6% of the cases were women between 30 and 49 years of age. Ninety-seven percent were from the department of Cajamarca. Of these, 11.2% were pregnant women, 58.3% of whom were in the third trimester of pregnancy. More than half (81.1%) had a positive serologic test result, and 50.9% were IgG. Of the COVID-19 women, 41.7% had contact with a positive case and only 0.9% had contact with a suspected COVID-19 case. The most frequent comorbidities were arterial hypertension (21.2%), diabetes (15.4%) and obesity (13.5%). The degree of severity was mostly mild (57.9%), they presented general malaise (14.3%), and cough (13.3%). 63.5% presented interstitial ground-glass pattern and 34.9% presented hypertransaminasemia and 27.9% lymphopenia. **Conclusions:** adult women with a COVID-19 diagnosis had comorbidities such as hypertension, diabetes and obesity.

Keywords: characterization; clinical; epidemiological; women; characterization; COVID-19.

INTRODUCTION

The coronavirus, identified as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)(1), generates complications ranging from upper respiratory tract infection to patient recovery or death (2).

Due to its high infectivity and accelerated spread of COVID-19, more than 67.05 million confirmed cases have been reported in Latin America as of April 2022, with Brazil being one of the most affected countries, followed by Argentina, and Mexico, Colombia, Peru, Chile and Ecuador (3).

The results of different studies regarding COVID-19 comorbidities indicate that the conditions with the highest risk of infection are obesity, cancer and hypertension (4,5,6,7), critical points that have intensified morbimortality due to COVID-19.

All this has made clear the need to reorient health care and give priority to the prevention and timely detection of chronic diseases, which go hand in hand with the performance of the country's economic, social, political and educational system.

In this new public health scenario, COVID-19 has caused health systems in Peru to implement new strategies in the care, hospitalization and rehabilitation of patients complicated by this disease, due to its high lethality rate.

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In this context, one of the regions most affected by COVID-19 has been Cajamarca, along with gaps in access to health services, especially affecting the country's most vulnerable population.

The present study specifically addresses a population that has been little studied at the regional and national level, which has led to the main objective of describing the clinical and epidemiological characteristics of women between 20 and 59 years of age, with a diagnosis of COVID-19.

MATERIALS AND METHODS

Retrospective, observational study. According to Sanitary Directive N°122-MINSA/2020/CDC for the Epidemiological Surveillance of COVID-19 of the Peruvian Ministry of Health, the registration of suspected and confirmed cases of COVID-19 is regulated in all public or private Health Service Providers Institutions (IPRESS), with the Epidemiology Offices being in charge of confirming or ruling out COVID-19 and registering it in the NOTI COVID(8) application.

For the study, a data collection form was constructed and applied to the NOTI COVID registry and the electronic medical records of Hospital II - EsSalud, Cajamarca; making a detailed review of the epidemiological, clinical and laboratory characteristics, under the inclusion criteria of the study.

The population consisted of adult women, pregnant and non-pregnant, totaling 1904, and the sample consisted of 216 women.

The study variables were epidemiological characteristics (age, place of origin, area of residence, gestation, COVID-19 exposure factor, comorbidity) and clinical characteristics (laboratory diagnostic test, imaging diagnosis, time of disease, degree of disease severity, signs and symptoms, radiological findings, laboratory findings).

The collected data were entered into the Excel V. 2019 program. For the analysis of the study, use was made of the statistical software system SPSS V.22.

The research was approved by the Ethics Committee of the Regional Teaching Hospital of Cajamarca, the only one of its kind in the Region. In addition, authorization was obtained from the EsSalud Cajamarca Health Care Network and the data were recorded following the ethical principles of scientific research to protect the study participants.

RESULTS

Table 1 Epidemiological characteristics of adult women diagnosed with COVID-19, at Hospital II EsSalud Cajamarca 2020 -2021.

Epidemiological characteristics	Category	n	%
Age	20 – 29	26	12.0
	30 – 39	84	38.9
	40 – 49	62	28.7
	50 – 59	44	20.4
Place of Origin	Cajamarca	211	97.7
	La Libertad	2	0.9
	Callao	1	0.5
	Lambayeque	1	0.5
	Lima	1	0.5
Area of residence	Urbana	202	93.5
	Rural	14	6.5
Gestant	Yes	24	11.1
	No	192	88.9
Trimester of gestation (n=24)	I Quarter	3	12.5
	II Quarter	7	29.2
	III Quarter	14	58.3
Contact with case positive for COVID-19	Yes	90	41.7
	No	126	58.3
Contact with suspected suspect to COVID-19	Yes	2	0.9
	No	214	99.1

Table 1 shows that 26 women (12%) were aged between 20 and 29 years, 84 (38.9%) between 30 and 39 years, 62 (28.7%) between 40 and 49 years and 44 (20.4%) between 50 and 59 years; 211 (97.7%) were from Cajamarca and 5 (2.3%) from other cities; 202 (93.5%) lived in urban areas and 14 (6.5%) in rural areas; only 24 (11.1%) were pregnant. Of these, 3 (12.5%) were in the first trimester of gestation, 7 (29.2%) in the second trimester and 14 (58.3%) in the third trimester; 90 (41.7%) had contact with a positive case of COVID-19; only 2 (0.9%) had contact with a suspected case of COVID-19 in adult women diagnosed with COVID-19 at the Hospital II EsSalud Cajamarca 2020-2021.

Table 2 Comorbidities of adult women with COVID-19 diagnosis, in Hospital II EsSalud Cajamarca 2020 -2021.

Epidemiological characteristics	Category	n	%
Comorbidities	Another	19	8.8
	Arterial Hypertension	11	5.1
	Diabetes	8	3.7
	Obesity	7	3.2
	Cancer	2	0.9
	Chronic Respiratory Diseases	2	0.9
	Chronic Kidney Diseases	1	0.5
	Immunosuppression states	1	0.5
Number of Comorbidities	None	181	83.8
	1	23	10.6
	2	9	4.2
	3	2	0.9
	4	1	0.5
	Total	216	100.0

Table 2 shows the most common comorbidities: 11 women (5.1%) with hypertension, 8 (3.7%) with diabetes, 7 (3.2%) with obesity, 2 (0.9%) with cancer, 2 (0.9%) with chronic respiratory diseases, 1 (0.5%) with chronic kidney disease, 1 (0.5%) with immunosuppression, and 19 (8.8%) with other comorbidities. 8% with other comorbidities; 23 (10.6%) with only one comorbidity, 9 (4.2%) with two comorbidities, 2 (0.9%) with three comorbidities, 1 (0.5%) with 4 comorbidities and 181 (83.8%) adult women with COVID-19 diagnosis with no comorbidity, in the Hospital II EsSalud Cajamarca 2020 -2021.

Table 3 Diagnostic tests in adult women diagnosed with COVID-19, in Hospital II EsSalud Cajamarca 2020- 2021.

Characteristics	Category	N	%
Diagnostic Laboratory Test (n=216 women COVID-19)	Serological	167	77.3
	Antigen	24	11.1
	PCR	15	6.9
	None	10	4.6
Antibody test (n=167 serological tests)	IgG	85	50.9
	IgG - IgM	64	38.3
	IgM	18	10.8
Diagnostic Imaging (n=52 diagnostic imaging)	Tomography	51	98.1
	Ultrasound	1	0.5

Table 3 shows 167 (77.3%) diagnosed by serological test, 24 (11.1%) by antigen test, 15 (6.9%) by PCR-RT and only 10 (4.6%) have no laboratory diagnostic test; likewise, among

the antibody tests, 85 (50.9%) were found with IgG antibodies, 64 (38.3%) with IgG - IgM antibodies and 18 (10.8%) with IgM antibodies. On the other hand, imaging diagnoses showed 51 (98.1%) diagnoses by tomography and 1 (0.5%) by ultrasound; 128 (59.3%) were found with signs and symptoms, while 88 (40.7%) adult women with diagnosis COVID-19, in Hospital II EsSalud Cajamarca 2020- 2021, did not present signs and symptoms.

Table 4 Clinical characteristics in adult women diagnosed with COVID-19, in Hospital II EsSalud Cajamarca 2020- 2021.

Characteristics	Category	n	%
Time of illness (Days)	[1 - 7]	76	59.4
	[8 - 15]	37	28.9
	[16 - 21]	8	6.3
	[22 - 27]	1	0.8
	[28 a +>]	6	4.7
Severity Grade	Mild	75	58.6
	Moderate	14	10.9
	Severe	32	25.0
	Critical	7	5.5
Presence of Signs and Symptoms	Yes	128	59.3
	No	88	40.7
Signs and Symptoms	General malaise	74	57.8
	Cough	69	53.9
	Sore Throat	59	46.1
	Respiratory Difficulty	50	39.1
	Muscle Pain	44	34.4
	Fever	39	30.5
	Headache	39	30.5
	Nasal Congestion	28	21.9
	Other	24	18.8
	Diarrhea	23	18.0
	Chest Pain	19	14.8
Loss of Smell	17	13.3	
Nausea	15	11.7	
Chills	9	7.0	
Vomiting	5	3.9	
Abdominal Pain	4	3.1	

Table 4 shows that 76 (59.4%) had from 1 to 7 days, 37 (28.9%) had 8 to 15 days, 8 (6.3%) from 16 to 21 days, 1 (0.8%) from 22 to 27 days and 6 (4.7%) from 28 days or more of illness; where 75 (58.6%) presented a mild degree of severity, 14 (10.9%) moderate, 32 (25%) severe and 7 (5.5%) a critical degree of severity; among the signs and symptoms were observed 74 (57.8%) with general malaise, 69 (53.9%) with cough, 59 (46.1%) with sore throat, 50 (39.1%) with respiratory distress, 44 (34.4%) with muscle pain, 39 (30.5%)

with fever and as many with headache, 28 (21.9%) with nasal congestion, 24 (18.8%) with other symptoms, 23 (18%) with diarrhea, 19 (14.8%) with chest pain, 17 (13.3%) with loss of smell, 15 (11.7%) with nausea, 9 (7%) with chills, 5 (3.9%) with vomiting, 4 (3.1%) with abdominal pain in adult women diagnosed with COVID-19, in Hospital II EsSalud Cajamarca 2020- 2021.

Table 5 Radiological and Laboratory Findings in adult women diagnosed with COVID-19, in Hospital II EsSalud Cajamarca 2020- 2021.

Characteristics	Category	n	%
Radiological Findings (n=52 radiological tests)	Interstitial pattern in ground glass	3	63.
	Mixed pattern	1	36.
		9	5
Laboratory Findings (n=53 laboratory tests)	Transaminases >2vn	1	28.
	Lymphopenia< 800 cells/uL	5	3
		1	22.
	Hyperglycemia > 140mg/dL	2	6
		6	11.
	Leukocytosis > 12000 mm ³	6	11.
		3	3
	Ferritin >700ng/dL	3	5.7
CRP>100mg/dL	1	1.9	
None	1	18.	
	0	9	

Table 5 shows that among the radiological findings in 52 symptomatic women, 33 (25.8%) presented an interstitial ground-glass pattern, 19 (14.8%) presented a mixed pattern and 76 (59.4%) did not present any radiological finding; finally, among the laboratory findings in 53 cases, which are considered moderate, severe and critical, it was found Transaminases>2vn in 15 (11.7%), Lymphopenia<800 cells/uL in 12 (9.4%), Hyperglycemia > 140mg/dL in 6 (4.7%), Leukocytosis >12000 mm³ in 6 (4.7%), Ferritin >700ng/dL in 3 (2.3%), CRP>100mg/dL in 1 (0.8%) and no laboratory findings in 106 (82.8%) adult women with COVID-19 diagnosis, in Hospital II EsSalud Cajamarca 2020- 2021.

Discussion

The consequences of crises are generally not gender-neutral, and this pandemic is no exception. According to data reported by the Pan American Health Organization (PAHO) in the Americas, SARS-CoV-2 hit all countries in 2020, affecting more than 35 million people and causing more than 850,000 deaths. The Americas has been the most affected continent, not only because of social or political inequalities but also because of the negative impact on health services (9). These figures have increased considerably with similar behavior for developing countries.

Based on this health crisis, the phenomenon of epidemic behavior of COVID-19 among men and women has become evident. In Spain, for example, there have been more cases of COVID-19 in women than in men (10); however, there is a lower percentage of lethality in women (11). In Latin American countries such as Argentina, Mexico, Colombia and Peru, the highest number of confirmed cases corresponds to males (12, 13, 14, 15).

According to the results found in the study, the age range of women with the highest number of COVID-19 cases was 30 to 49 years. Other studies show that people over 65 years of age are more vulnerable to COVID-19 mortality (16); however, there is a high lethality rate in men as opposed to women (17).

The place of origin of the patients in the study was mostly the department of Cajamarca (97.7%), with a majority in the urban area (93.5%). This is because the population that belongs to the EsSalud system comes mostly from the urban area.

In the study, of the 216 women diagnosed with COVID-19, 24 pregnant women were found, 58.3% of whom were in the third trimester of pregnancy at the time of diagnosis. Other studies have shown that in the third trimester of pregnancy there are more cases of infected pregnant women (18), with a higher risk of prematurity (19). On the other hand, other studies show that most pregnant women are asymptomatic (20).

Regarding contact with confirmed cases of COVID-19, 47.7% of the study participants indicated having had contact with confirmed cases, and only 0.9% with suspected cases. This may be explained by accelerated person-to-person transmissibility by contact routes and cough droplets (21, 22).

Among the comorbidities found, hypertension (5.1%), diabetes (3.7%), obesity (3.2%), cancer (0.9%) and chronic respiratory diseases are the most common, coinciding with other studies whose comorbidities are similar (23,24,25). Among the conditions of greater risk for complications due to COVID-19 are the presence of cardiovascular diseases, and the triggering of the disease can be fatal when associated with myocardial injury (9).

Among other characteristics found in the study was the presence of obesity (3.2%), considered a risk factor for COVID-19. In other studies, more than 15% of women diagnosed with COVID-19 presented obesity (26). On the other hand, obesity is considered an individual characteristic that complicates the clinical management of COVID-19, and this characteristic of the patients not only leads to hospitalization, but also admission to the Intensive Care Unit, or finally to death (5,6). To make it clear, other studies consider that the presence of a body mass index greater than 40 kg/m² promotes severe complications in patients diagnosed with COVID-19(8).

At the EsSalud Hospital, viral tests such as the antibody detection test, antigen tests and the real-time reverse

transcription-polymerase chain reaction (RT-PCR) test were used. Of this group, the most widely used was antibody detection (serological: 77.3%) and only 6.9% of patients were confirmed with RT-PCR tests due to the limited number of tests at the beginning of the pandemic. It should be added that, concerning viral tests for the diagnosis of COVID-19, the combination of real-time RT-PCR results with epidemiological data and the clinical characteristics of each of the patients are useful (25).

Studies estimate an incubation period of COVID-19 ranging from 5 to 5.5 days (27,28), and the onset of symptoms before 13 days post-exposure (28). In the study, it can be seen that most of the study participants presented a range between 1 to 7 days of symptoms of the disease, with a mild degree of severity.

In the study, the most common symptoms were general malaise, sore throat and cough, data that coincide with the studies of Narro C, Vásquez (24) and Becerra U et al. (30), while for Hu et al., fatigue, fever and cough were more frequent (1). However, most of the patients were diagnosed during the first week of infection and therefore presented only mild symptoms.

Of the patients who presented symptoms, 75% developed mild symptoms, 25% were severe cases requiring hospital admission for ventilatory support and 5.5% of the patients admitted to the Intensive Care Unit (ICU) presented critical symptoms (patients presenting respiratory failure, septic shock and/or multiorgan failure) (31). On admission, ground glass opacity was the most frequent radiological finding in chest tomography, a test requested in non-pregnant patients; in pregnant women, chest ultrasound was requested; the data coincide with the findings found in China (1).

Regarding the non-specific clinical laboratory tests to which the patients admitted to the hospital (severe and critical cases) were submitted, it was found that the increase in liver enzymes alanine aminotransferase (ALT) and aspartate aminotransferase (AST) is a frequent finding in almost one-third of the patients. Approximately one-quarter of the patients also show a considerable decrease in the lymphocyte count (lymphopenia). High values of ferritin, C-reactive protein, D money, and lactate dehydrogenase enzyme (LDH) were found in a small number of patients. In other studies, these markers of systemic inflammation are also found to be elevated (32).

Conclusions

Regarding the clinical-epidemiological characterization of adult women diagnosed with COVID-19, the average age was 30 to 39 years, and the most frequent place of origin was Cajamarca.

The main comorbidities were arterial hypertension, diabetes and obesity. The main signs and symptoms were general malaise, cough and sore throat.

Among the radiological and laboratory findings, ground-glass opacity was more frequent in COVID-19 patients, and one of the predominant markers of systemic inflammation was lymphopenia.

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