Demographic and clinical characteristics of patients infected with COVID-19 at the General Hospital of Macas

Características demográficas y clínicas de pacientes contagiados de COVID-19 en el Hospital General de Macas

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Abstract

COVID-19 is a disease caused by the SARS-CoV-2 virus. The World Health Organization declared it a global pandemic on March 11, 2020. In the General Hospital of Macas, 24 patients of Shuar ethnicity were admitted to the ICU service, 14 of whom died. Eastern Ecuador is home to indigenous Shuar communities where their beliefs, culture, socio-demographic and economic situation could hinder early diagnosis and spread of the virus. **Objective:** To determine the demographic and clinical characteristics of patients infected with COVID-19 in the ICU of the General Hospital of Macas. **Methodology:** Quantitative research with a population of 110 people (N=110) admitted to the ICU of the General Hospital of Macas. A non-probabilistic convenience sampling was carried out according to hospital admissions, which consisted of young people, adults and older adults diagnosed with SAARS COVID-19 at admission to the service. The patients' medical records and databases were reviewed. The information was reviewed, analyzed, transcribed into Word, INFOSTAT software was used, and Microsoft Excel software was used to generate tables and graphs.

Key words: Disease, indigenous peoples, pandemic.

Resumen

El COVID-19 es una enfermedad provocada por el virus SARS-CoV-2. La Organización Mundial de la Salud la declaró pandemia mundial el 11 de marzo de 2020. En el Hospital General de Macas ingresaron al servicio de UCIM 24 pacientes de etnia shuar de los cuales 14 fallecieron. El oriente ecuatoriano alberga comunidades indígenas shuar en donde sus creencias, cultura, situación sociodemográfica y económica podría dificultar el diagnóstico temprano y la propagación del virus. **Objetivo:** Determinar las características demográficas y clínicas de pacientes contagiados de COVID-19 en el servicio de UCIM del Hospital General de Macas. **Metodología** Investigación cuantitativa cuya población fue de 110 personas (N=110) que ingresaron al servicio de UCIM del Hospital General de Macas. Se realizó un muestreo no probabilístico por conveniencia de acuerdo con los ingresos hospitalarios, misma que estuvo integrada por jóvenes, adultos y adultos mayores diagnosticados y con clínica de SAARS COVID-19 al ingreso al servicio. Se revisó la historia clínica de los pacientes y bases de datos. La información fue revisada, analizada, transcrita en Word, se usó el software INFOSTAT y para la generación de tablas y gráficos se usó el software Microsoft Excel.

Palabras clave: Enfermedad, pueblos indígenas, pandemia

Introduction

COVID-19 (Coronavirus Disease) is a disease caused by the SARS-CoV-2 virus[1,2]. The World Health Organization (WHO) declared it a global pandemic on March 11, 2020[1]. There are several signs and symptoms that an infected person may present, according to related studies carried out in Argentina, which indicated that the most frequent symptoms in patients were: fever, cough, dyspnea[3]. Meanwhile, The most prevalent comorbidities were: hypertension, obesity, cardiovascular disease and chronic respiratory disease[1]. In the imaging tests, bilateral pulmonary involvement predominates[4]. Dermatological Authors report different cutaneous manifestations such as erythematous rash, vesicles, urticaria and necrosis[2].

It has been shown that the majority of patients infected by Covid-19 are adults, and a very low percentage are young or under 20 years of age[5]. However, due to the increase in the

infected population, this population group (which group? The young or the shuar?) is likely to contract the virus and be a source of spread[6]. According to Covid-19 situation reports issued in Ecuador, the elderly have been the most affected by the pandemic[5]. It should be emphasized that the Ecuadorian state lacks specific public policies to prevent and neutralize the risk of disappearance of these population groups, (which group? The young or the shuar?) as well as tools to ensure the fulfillment of collective rights[7].

WHO reports that indigenous people, Afro-descendants and people belonging to other ethnic groups may be at higher risk of contracting COVID-19 due to a number of limitations in the use of basic hygiene measures, such as hand washing or social distancing due to their lifestyles and the socioeconomic conditions in which they live[7,8]. During the pandemic, community health in indigenous communities is seriously affected not only by the high prevalence of chronic non-communicable and infectious diseases and previous precarious socioeconomic conditions[8,9]; but also by the lack of information, which makes this population group prefer not to seek health assistance and to adopt non-pharmacological alternatives to overcome the virus, (¿disease?) without having the due certification of the benefits of these practices, due to the recent appearance of the virus and the unknown lethality[10].

In the province of Morona Santiago, according to the provincial bulletin of extraction issued on May 28, 2020, of the 103 people with confirmed diagnosis in the province; 73 were between the ages of 15 to 49 years and until July, the number of Covid-19 cases increased significantly reaching 2,238 people infected since the first confirmed case[11]. Likewise, the Confederation of Indigenous Nationalities of the Ecuadorian Amazon, CONFENIAE, reported an exponential increase in infection, with 1,435 confirmed cases and 37 deaths, of which 25 were confirmed with Covid-19 and 12 with other symptomatologies. Of those infected, 48.7% were Kichwa, 23.41% were Shuar and 20.7% were Waorani[12,13].

In the city of Macas, belonging to the province of Morona Santiago, patients with clinical and symptomatology of Covid-19 are admitted daily. Many of them are of Shuar ethnicity, so the following question prevails: ¿What are the demographic and clinical characteristics of patients infected with COVID-19?

According to epidemiological models of transmission in Chile and Colombia, the behavior of the pandemic is analyzed with the evolution of the data provided by the countries and the increase in the number of tests performed, the number of people diagnosed positive, the population and the total number of deaths[14]. SIR or SEIR models have also been developed[15]. Control strategies have also been identified for Covid-19, which are mainly based on the concepts of social distancing and quarantine[15].

It is necessary to analyze the relationship between the clinical and demographic characteristics of patients infected with the new virus and leave research bases where traditional knowledge and wisdom are included in the health area to form a real intercultural health.

For the above mentioned, the following general objective has been established: To determine the demographic and clinical characteristics of patients infected with COVID-19 in the UCIM service of the General Hospital of Macas. To achieve this objective, the following specific objectives were necessary: To estimate the prevalence of patients with COVID-19 according to demographic and clinical characteristics. To analyze if there are differences in clinical characteristics according to age, sex and ethnicity and finally to identify demographic characteristics and mortality due to COVID-19 in the Shuar population.

Methodology

Type of research
Descriptive quantitative research

Population
The sample population was 110 people (n=110) admitted to the ICU service of the General Hospital of Macas- Morona Santiago during the period April 2020 to May 2021.

Sample
A non-probabilistic convenience sampling was performed according to hospital admissions and discharges. The medical records and databases managed in the service were reviewed and analyzed for information, which was reviewed, analyzed, transcribed into Word, Excel and Infostat software was used for the extraction of statistical data.

Variables
The prevalence of Covid-19 will be analyzed according to demographic characteristics and clinical characteristics at admission to the Intermediate Care Unit. At the end, the results of the condition at discharge of the Shuar ethnic group will be related to the demographic characteristics and the variables Age and Sex.

Inclusion Criteria
Within the inclusion criteria, the clinical history of all young people, adults and older adults diagnosed and with clinical SARS COVID-19 was reviewed.

Exclusion Criteria
Patients admitted to the service for other diseases, pregnant women, and medical records that could not be accessed due to errors in entering the ID number were excluded.

Procedure
For the following study, the corresponding permissions were requested from the General Manager of the institution to review the medical records, which was accepted. They were then downloaded from the HOSVITAL system, stored and finally downloaded for the creation of an Excel database. Variables describing demographic and clinical characteristics were created. In addition, a code was assigned to preserve the confidentiality and anonymity of each patient treated based on the HELSINKI ethical principles. Subsequently, the database was transferred to the INFOSTAT software where the statistical analysis was performed.

Statistical analysis

A descriptive univariate analysis was performed using absolute and relative frequencies for qualitative variables (nominal and ordinal) and for quantitative variables (discrete and continuous) summary measures such as central tendency, position and dispersion were presented, depending on the normality of the variables using the Shapiro Wilks or France test.

Subsequently, a bivariate analysis was performed, firstly, the normality and homoscedasticity (Levene) of the dependent variable was established by partitioning the independent variables; and in the second step, an analysis of differences of means was performed using Student's t-test for independent samples of two groups and the ANOVA test for groups of three or more. The aforementioned statistical analyses were carried out using the Infostat program.

Results

Table 1 shows that 48% and 46% of the patients admitted to the ICU service at the General Hospital of Macas were adults and older adults, respectively. Of this group, 56% were men and 44% were women.

The most frequent residence of 67% of the patients was the city of Macas, and Sucua with 12%, while the rest of the patients said they belonged to other cantons of the province. The highest number of infections according to ethnicity was: mestizo with 78% of those admitted, while in the Shuar ethnicity it was 22%. The percentages according to academic level were primary school with 61%, high school with 20%, followed by secondary school with 19%.

The review of the medical records showed that 100% of the patients who entered this study manifested asthenia, cough, respiratory distress and the X-ray examination showed alveolar-interstitial infiltrates characteristic of Covid-19.

Regarding the vital signs on admission to the service, most patients were afebrile with mean temperatures of 36.8°C, tachypneic, saturating over 90% with oxygen support. Blood pressure between 125/ 75 mmHg and with metabolic disorders given the values of capillary glycemia with maximum values of 545 mg/dl and minimum of 51 mg/dl at admission. The maximum weight recorded was 138 kg and the minimum weight was 42.20 kg.

Table 1: Demographic Characteristics

		f	%
AGE	YOUNG	6	10
	ADULT	53	48
	OLDER ADULT	51	46
SEX	MALE	62	56
	WOMAN	48	44
	GUALAQUIZA	5	5
	LIMON	3	3
RESIDENCIA	MACAS	74	67
	MENDEZ	7	6
	SUCUA	13	12
	TAISHA	8	7
ETHNICITY	MESTIZO	86	78
	SHUAR	24	22
	SECONDARY	67	61
ACADEMIC LEVEL	HIGHER	21	19
	SUPERIOR	22	20

Table 2: Clinical Characteristics

	AVERAGE	MEDIAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	p
SPO2	89.67	93	9.46	43	98	0.00
HEART RATE	86.37	85	18.74	45	135	0.01
RESPIRATORY RATE	27.69	26	8.17	15	52	0.00
TEMPERATURE	36.87	37	0.73	36	40	0.00
SYSTOLIC BLOOD PRESSURE	123.95	125.50	24.57	60	202	0.01
DIASTOLIC BLOOD PRESSURE	74.67	73.50	14.45	30	118	0.13
WEIGHT	72.01	70	17.33	42.20	138	0.00
BLOOD GLUCOSE	165.38	136	84.16	51	545	0.00

Prepared by: The authors

Table 3: Clinical Difference according to Demographic Data						
EDAD	**Adolescente**	**Ad. Joven**	**Adulto**	**Adulto Mayor**	**F (Anova, Bf)**	**Kw**
SPO2	88.50	85	91	95		0.19
HEART RATE	92	90.50	87.68	84.47	0.76	
RESPIRATORY RATE	25	23.25	29	26	0.12	
TEMPERATURE	37	36,5	36.85	36.92	0.71	
SYSTOLIC BLOOD PRESSURE	112.50	112.50	123.53	125.75	0.66	
DIASTOLIC BLOOD PRESSURE	75.50	80.75	74.70	74.14	0.85	
WEIGHT	77.50	75.50	67.9	75.79	0.12	
BLOOD GLUCOSE	349	109	138	148		0.01

SEXO	**Hombre (Md)**	**Mujer (Md)**	**U**	**P**	
Heart Rate	85.48	83.65		25.28.50	0.41
Respiratory Rate	27.00	25.50		2673.00	0.95
Temperature	36.89	36.85		2627.50	0.81
Systolic Blood Pressure	130.00	123,00		2374.00	0.08
Diastolic Blood Pressure	76.71	72.04		2424.50	0.14
Weight	70.50	66.50		2422.00	0.14
Blood Glucose	131.50	149.50		2912.00	0.13
ETNIA	**Mestiza (md)**	**Shuar (md)**	**U**	**p**	
Heart Rate	85.91	86.00		1377.00	0.74
Respiratory Rate	25.00	26.50		1405.00	0.59
Temperature	36.88	36.83		1319.00	0.91
Systolic Blood Pressure	130.00	116.00		938.00	0.00
Diastolic Blood Pressure	77.00	70.42		1103.50	0.09
Weight	72.00	55.00		584.00	0.00
Blood Glucose	140.50	123.50		1116.00	0.20

Prepared by: The authors

According to the clinical differences according to age, all variables except for oxygen saturation and blood glucose are not normal and according to these data Bonferroni and kruskal Wallis were used. In the variables of sex and ethnicity, the medians were analyzed.

It can be seen that there are differences in the clinical characteristics according to the demographic data. According to age there are differences at respiratory level. The group of adolescents and young adults presented moderate to severe hypoxia, while, the group of adults and older adults presented mild hypoxia. It should be noted that all saturation values were taken with supplemental oxygen support. Regarding respiratory frequency, all age groups, sex and ethnicity presented some degree of tachypnea. However, the group of adults and older adults presented higher tachypnea. The highest mean weight recorded was in the group of adolescents, young adults and older adults. It was found that the mestizo ethnic group registered higher weights than the Shuar ethnic group. Capillary glycemia is elevated in women of mestizo ethnicity and in all age groups, but the group of adolescents and older adults is noteworthy because it shows a higher peak of capillary hyperglycemia.

Table 4: Demographic Characteristics and Mortality of the Shuar Ethnic Group		
		N=24
Age	***f***	**%**
Male	13	54.16
Women Female	11	45.8
Age		
Adolescent	1	4.10
Young	2	8.33
Adult	17	70.83
Adult Older	4	16.66
Residence		
Macas	14	58.33
Mendez	2	8.33
Sucua	2	8.33
Taisha	6	25
Academic Level		
Primary	19	79.16
Secondary	1	4.16
Higher	4	16.66
Condition Of Exit		
Ucim Discharge	9	37,50
Deceased	12	50
Reference	1	4.16
Discharge Requested	2	8.33

Prepared by: The authors

According to age, most of the infected persons were adults and older adults, according to sex, COVID-19 prevailed more men than women residing in the city of Macas and Taisha. The majority of this group had primary education followed by professionals with third level education.

According to the condition of discharge, 12 people died and 2 requested discharge. According to the reports in the medical records, these two people, due to the health conditions in which they were, most probably died, which adds up to the number of deaths in this group.

Discussion

In this analysis, the prevalence of Covid-19 according to demographic characteristics in relation to age is adults and older adults. According to sex, more men than women enter the service, which coincides with several articles describing increased morbimortality in adults and the male gender (16.7). Regarding illiteracy in the Shuar ethnic group, primary education prevails; an article published in Colombia on the impact of Covid-19 in the Amazon, indicates similar data in indigenous ethnic groups[17].

Within the clinical characteristics there is the expression of asthenia, cough, respiratory difficulty and in the X-Ray examination there was evidence of alveolar-interstitial infiltrates characteristic of Covid-19, these data are similar to other studies reported at national and international level where metabolic diseases such as diabetes mellitus type II and nutritional disorders such as overweight are also included[7,15,18,19]. The sample collected in the study according to the Shuar ethnic group corresponds to 22% which corresponds to a small sample, however, López in his publication agrees that this is a worrying reality due to the low demographics of these populations[13].

The study shows that the Shuar population is admitted with moderate hypoxia and more than half of those admitted died. Some authors indicate that many of the hospital admissions due to severe respiratory insufficiency related to Covid-19 are of people who did not go to health centers in a timely manner[8,10] and that the cultures have their own cosmovision and traditional medicines. Moncada and Salazar indicate that it is not possible to impose other types of practices without negative consequences and perhaps worse than the evils to be avoided[20]. Another factor in this problem may be residence in rural areas where accessibility to health care is limited.

In this study, although the majority of the Shuar ethnic group indicated that they live in the city of Macas, a good percentage indicated that they live in Taisha, a remote town in Morona Santiago that is difficult to access. This is indicated by the WHO through its humanitarian response plan in Ecuador, which recognizes the vulnerability of these peoples due to their relative geographic isolation.

Conclusions

We were able to identify the prevalence of Covid-19 according to the demographic and clinical characteristics of the patients admitted to the ICU area of the General Hospital of Macas. In addition, it was found that there were no clinical differences according to age, sex or ethnicity, which gives food for thought and raises new hypotheses about the evolution and virulence of the disease. Mortality in the Shuar ethnic group is high given the low demography of these peoples. It is essential that health personnel in remote communities carry out promotional activities on respiratory hygiene and warn about the warning signs in which the population should isolate themselves and seek health care, given the high mortality rate in these ethnic groups.

Knowledge of the behavior of Covid-19 can help to create new prevention alternatives. Especially in groups that are socially isolated by different factors, vulnerable and at higher risk of death.

It leaves a basis for future research and urges the creation of new intercultural policies adapted to the reality of each people and which include the knowledge and ancestral knowledge of the indigenous communities of Ecuador.

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