



ORIGINAL ARTICLE

COVID-19 sequelae in patients aged 20 and 60 years attending the "Tulcán Sur" Health Center in Ecuador

Secuelas por COVID-19 en pacientes de 20 y 60 años que acuden al Centro de Salud "Tulcán Sur" de Ecuador

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ABSTRACT

Introduction: although the care of patients with COVID-19 has led to increasing research activity in health care, studies on long-term follow-up and sequelae are still scarce in Ecuador. Objective: to characterize patients with COVID-19 treated at the "Tulcán Sur" Health Center and their sequelae.

Methods: observational, descriptive and prospective study in patients between 20 and 60 years of age with COVID-19 treated at the "Tulcán Sur" Health Center in Ecuador. We studied variables such as: age, history, complications, sequelae and their duration, subsequent measures and rehabilitation performed. Descriptive statistics were used.

Results: patients between 51 and 60 years of age (53,85 %) and a history of Diabetes Mellitus (32,87 %) predominated. 27,8 % required hospitalization in an Intensive Care Unit. The main complications were respiratory (36,36 %) and the sequelae were pulmonary fibrosis (27,98 %) and respiratory distress (22,38 %). In 51,05 % of the patients the sequelae lasted between one and three months, while 11,89 % did not experience sequelae. 72,72 % of the patients did not undergo any rehabilitative therapy after COVID-19.

Conclusions: among patients with COVID-19 there was a predominance of those past the fourth decade of life, with a high incidence of comorbidities, and low hospitalization rates. The main complications and sequelae were of the respiratory system, where they were mainly experienced between the first and third month. Attendance at health services for periodic check-ups was irregular, and the use of rehabilitative therapy was low.

Keywords: COVID-19; Health Centers; Aftercare; Complications.

RESUMEN

Introducción: si bien la atención al paciente con COVID-19 ha suscitado una creciente actividad investigativa asistencial, aún los estudios sobre el seguimiento a largo plazo y las secuelas son escasos en Ecuador.

Objetivo: caracterizar a los pacientes con COVID-19 atendidos en el Centro de Salud "Tulcán Sur" y sus secuelas.

Métodos: estudio observacional, descriptivo y prospectivo en pacientes entre 20 y 60 años con COVID-19 atendidos en el Centro de Salud "Tulcán Sur" de Ecuador. Se estudiaron variables como: edad, antecedentes, complicaciones, secuelas y su duración, medidas posteriores y rehabilitación realizadas. Se empleó estadística descriptiva.

Resultados: predominaron los pacientes de edades entre 51 y 60 años (53,85 %) y antecedentes de Diabetes Mellitus (32,87 %). El 27,8 % requirió la hospitalización en una Unidad de Cuidados intensivos. Las principales complicaciones fueron respiratorias (36,36 %) y las secuelas la fibrosis pulmonar (27,98 %) y la dificultad respiratoria (22,38 %). En el 51,05 % de los pacientes las secuelas duraron entre uno y tres meses, mientras el 11,89 % no experimentó secuelas. El 72,72 % de los pacientes no realizaron ninguna terapia rehabilitadora tras la COVID-19.

Conclusiones: entre los pacientes con COVID-19 predominaron aquellos pasados la cuarta década de vida, con alta incidencia de comorbilidades, y bajos índices de hospitalización. Las principales complicaciones y secuelas fueron del sistema respiratorio, donde fueron experimentadas principalmente entre el primer y tercer mes. La asistencia a los servicios de salud para realizarse chequeos periódicos fue irregular, y la realización de terapéutica rehabilitadora fue baja.

Palabras clave: COVID-19; Centros de Salud; Cuidados Posteriores; Complicaciones.

INTRODUCTION

Since its detection in Wuhan, China, in 2019, COVID-19 has infected millions of people, and caused the death of a high number of them. COVID-19 is an emerging disease, with global incidence, exhibiting higher number of complications in patients with comorbidities. It can be variable in correspondence with the form of presentation and accompanying symptoms, as well as the immune response of the recipient.⁽¹⁾

Several studies have analyzed the impact of COVID-19 in Latin America. In Peru, a study carried out in a national reference hospital⁽²⁾ analyzed 70 patients, finding a predominance of male patients (76 %), where 41,2 % required artificial ventilatory support, and a mortality rate of 29,4 % was reported among those ventilated. In Sandino municipality, Pinar del Río province, Cuba,⁽³⁾ the incidence rate of COVID-19 was 528,23 per 100,000 inhabitants, where no loss of life was reported. The predominant age was 41 to 60 years, and the sex was male.

The presence of COVID-19 in the organism is diverse, such as fever, sore throat, diarrhea, among others, but also olfactory and gustatory dysfunctions such as anosmia, when there is the total loss of such faculty, as well as ageusia, which is a disorder in which the person completely loses the sense of taste.⁽⁴⁾

After the acute phase, symptoms or sequelae resulting from the so-called post-COVID-19 syndrome may persist.⁽⁵⁾ Hence, a follow-up of patients hospitalized or not for COVID-19 for up to 12 months thereafter may be of great value to physicians in primary health care and family medicine.

COVID-19 brings with it multiple health-related consequences. These manifest themselves progressively in those who suffer from it, being able to establish complications and sequelae; which, on occasions, are in correspondence with the symptomatology suffered during the disease.⁽⁶⁾

Rosales Castillo et al.⁽⁷⁾ point out the importance of clinical follow-up of these patients after the acute phase, in order to monitor and supervise the persistence, improvement or worsening of the aforementioned signs and symptoms.

Although research on COVID-19 has advanced, few studies have shown the results of long-term patient follow-up. In this sense, it is necessary to study the sequelae, with the aim of drawing up action and treatment plans.

Establishing an optimized strategy in the follow-up of this type of patients is especially relevant, since in some cases abnormal healing could develop in the short and long term, with the risk of permanent sequelae, with the risk of mortality and morbidity.⁽⁸⁾

The present investigation was developed with the objective of characterizing patients with COVID-19 attended at the "Tulcán Sur" Health Center and their sequelae.

METHODS

An observational, descriptive, retrospective study was carried out in patients between 20 and 60 years of age, treated at the "Tulcán Sur" Health Center. The study universe consisted of 228 patients between 20 and 64 years of age who were diagnosed with COVID-19 at the "Tulcán Sur" Health Center; the sample consisted of 143 patients, selected by simple random sampling.

Theoretical and empirical methods were used for the development of the research. At the theoretical level, the analytical-synthetic method was used, which allowed the identification of risk factors in patients aged 20-60 years with sequelae due to COVID-19, as well as determining the conclusions based on the results obtained. The inductive - deductive method allowed to understand in a general way the study problem and to determine the particular characteristics of the patients who present sequelae by COVID-19 and to generalize its results for the rest of the population. The historical-logical method made it possible to analyze the origin and background of the object of research, to understand its evolution over time and the subsequent sequelae.

At the empirical level, scientific observation and the survey were used. These allowed the direct collection of information, analyzing the different risk factors and complications presented by patients aged 20-64 years Post COVID-19, also allowed the collection in a systemic, valid, reliable, intentional and fundamental way, obtaining data that determine the real situation and formulate strategies to improve nursing care in patients with sequelae due to COVID-19.

For the collection of information, a questionnaire with closed-ended questions was elaborated. The questionnaire was designed by means of a series of 14 closed, structured and easily solved questions, all directed to the search for the research objective.

RESULTS

We found a predominance of patients between 51 and 60 years of age (53,85 %). With respect to personal pathological antecedents, a predominance of patients with Diabetes Mellitus was found (32,87 %); 13,29 % of the patients presented respiratory affections. The main toxic habit was the consumption of processed food (23,08 %) followed by sedentary behaviors (23,08 %) (Table 1).

Table 1. Distribution of patients between 20 and 60 years of age with COVID-19 seen at the "Tulcán Sur" Health Center according to characteristics.

Variable	Scale	No	%
Age (in years)	20 to 30	9	6,29
	31 to 40	40	27,97
	41 to 50	17	11,89
	51 to 60	77	53,85
Personal pathologic history	Diabetes Mellitus	47	32,87
	Respiratory diseases	19	13,29
	Obesity	16	11,19
	Cardiovascular Diseases	24	16,78
	None	37	25,87
Toxic habits	Consumo de alcohol	26	18,18
	Smoking	20	13,99
	Consumption of processed foods	47	32,87
	High-fat foods	14	9,79
	Sedentary lifestyle	33	23,08
	None	3	2,09

A total of 51,05 % reported having the disease under home isolation, while 27,8 % required hospitalization in an Intensive Care Unit.

Table 2. Distribution of patients according to place of care during COVID-19

Place of care	No	%
Asymptomatic without isolation	21	14,68
Home isolation	73	51,05
Hospitalization	9	6,29
ICU hospitalization	40	27,98

Respiratory complications were reported in 36,36 % of patients, while 20,99 % of patients had no complications. Pulmonary fibrosis (27,97 %) was reported as the main sequelae, followed by respiratory distress (22,38 %). 51,05 % reported that the sequelae lasted between one and three months, and 6,29 % up to one year; 11,89 % reported no sequelae.

Table 3. Distribution of patients according to the presence of complications and sequelae after COVID-19 infection.

Variable	Scale	No	%
Complications	Respiratory	52	36,36
	Psychoemotional	48	33,57
	Neurological	7	4,89
	Cardiovascular	6	4,19
	Gastrointestinal	13	9,1
	None	30	20,99
Secuelas	Secuelas Dyspnea	32	22,38
	Cough	10	6,99
	Pulmonary fibrosis	40	27,97
	Anosmia and ageusia	21	14,69
	Weakness	24	16,78
	Arthralgias	16	11,19
Time of duration of sequelae	Less than 1 month	9	6,29
	Between 1 and 3 months	73	51,05
	Up to 6 months	35	24,48
	1 year	9	6,29
	No sequelae	17	11,89

Regarding attendance to medical check-ups, only 51,05 always attended, and 6,29 never attended. After the infection, 53,15 % of the patients took measures to favor their recovery, where 27,28 % resorted to the practice of exercises and/or physiotherapy; 18,8 % reported getting vaccinated. It was identified that 72,72 % of the patients did not undergo any rehabilitative therapy after COVID-19; among those who underwent physiotherapy, the most used was physiotherapy of muscle strengthening exercises.

Variable	Scale	No	%
Attendance at medical check-ups	Always	73	51,05
	Seldom	61	42,66
	Never	9	6,29
Measures after infection	Vaccination against COVID-19	26	18,18
	Biosecurity measures (mouth cover, disinfection, hand washing)	6	4,19
	Medical control and pharmacological treatment	3	2,09
	Healthy eating	23	16,08
	Exercises	39	27,28
	None	67	46,85
	Rehabilitative therapy	Respiratory therapy	10
General physical therapy	13	9	
Muscle strengthening exercises	16	11,18	
None	104	72,72	

DISCUSSION

A study conducted by Cecilia-Paredes et al.⁽⁹⁾ found a predominance of patients between 51 and 60 years of age in the range between 20 and 60 years, similar to that reported in the present investigation. This fact is justified by the decrease in the capacities of the immune system at the age limits of life, which decreases the capacity to respond to this disease.

Regarding personal pathological history, Cecilia-Paredes et al.⁽⁹⁾ identified a predominance of hypertensive patients, which differs from the present study, where diabetes mellitus predominated; similarly, other studies^(10,11) found a higher incidence of hypertension. This fact is multifactorial, and depends to a great extent on the regional and national incidence of the diseases.

The number of comorbidities can be considered an aggravating factor and a poor predictor, even more valuable than the existence of a specific comorbidity. If the results of Mastroso et al.⁽⁵⁾ are taken into account, where a relationship was identified between the presence of 2 or more comorbidities ($p < 0.001$) and the development of physical and mental sequelae.

Regarding health status during the acute phase of the disease, a study in Cuba,⁽³⁾ reported that 55,73 % of the patients were asymptomatic, a higher result than that identified in the present study.

The sequelae of COVID-19 can cause a series of complications in the patient, which affect their daily performance, thus affecting the productive levels of the locality, since these people will not be able to perform their work with the same efficiency, which would have a direct impact on their income and increase their economic, human and material efforts. Although at the beginning it was considered that this disease only had repercussions on the respiratory system, as research progressed, repercussions were identified at all levels of the organism's economy.

Gómez Tejeda et al.⁽¹⁾ describe the main cardiovascular implications in patients with COVID-19 as arrhythmias, thromboembolic disease, myocarditis, acute-onset heart failure and myocardial infarction, which lead to a more severe form of the disease. The inflammatory response, hemodynamic changes secondary to the viral process, as well as hypoxemia, are mechanisms that have a negative impact on cardiovascular health, leading to the development of acute cardiac injury.

Likewise, it is reported that COVID-19 has thromboembolic effects. Guapisaca Gaona et al.⁽¹²⁾ reported that this is due to the high inflammatory component, hypercoagulability, platelet activation, endothelial damage and blood stasis caused by COVID-19; this conditions the appearance of events such as pulmonary thromboembolism. Likewise, it was identified that these patients have a worse prognosis, presenting severe forms of the disease, requiring hospitalization in intensive care units.

Rosales-Castillo et al.⁽⁷⁾ analyzed in their study the persistent clinical manifestations or sequelae after 50 (SD: 6) days. Persistence was found in 62,5 %, predominantly dyspnea (31,4 %), asthenia (30,5 %), myalgias (13 %), anosmia (1,7 %) and ageusia (1 %). Although pulmonary fibrosis was identified as a sequelae in the present study, it is largely consistent with the study.

Pulmonary fibrosis is one of the main sequelae that a patient with COVID-19 may develop. Acute damage favors the deposition of hyaline material in the alveolar membranes and in a later phase the lungs present fibrin deposition and infiltration of inflammatory cells and fibroblasts, so that, finally, the tissue becomes fibrotic.⁽¹³⁾

Regarding the duration of symptoms, the study by Xiong et al.⁽¹⁴⁾ reported that 13 % of patients reported that three months after suffering from COVID-19 they still had cardiovascular sequelae. Although this result is not comparable, since it only speaks of the duration of the cardiovascular sequelae, it can be highlighted that the period of 1 to three months was the period of maximum duration of the sequelae in more than half of the patients in the present study.

Regarding post-COVID-19 care, a study by Tak⁽¹⁵⁾ reported that, in a sample of 82 patients, 86,6 % received COVID-19 vaccines, and 57,3 % received some specific drug treatment, either immunomodulatory or to treat the sequelae. These results differ from the present investigation, where patients who did not take any action after suffering from COVID-19 predominated.

One study found a decrease in physical abilities in 48,3 % of patients post hospitalization for COVID-19. Muscle fragility/weakness (36,2 %), desaturation/dyspnea on exertion (28.3 %) were identified as physical sequelae.⁽¹¹⁾

The literature reports that, in patients with COVID-19, physical activity is drastically decreased, going from intense and structured exercise prior to the disease to light physical activities after the disease. This decrease is the result of the effect of the disease on the body. Therefore, the usefulness of rehabilitation therapies that favor the recovery of physical activity in a coherent manner, according to the individual's capabilities, is suggested.⁽⁶⁾

The authors recommend a systematic follow-up of the state of health and existing sequelae in post-COVID-19 patients, without being framed in the 12-month period, making a long-term follow-up, either semiannually or annually.

CONCLUSIONS

Patients aged between 51 and 60 years (53,85 %) and a history of Diabetes Mellitus (32,87 %) predominated. 27,8 % required hospitalization in an Intensive Care Unit. The main complications were respiratory (36.36 %) and the sequelae were pulmonary fibrosis (27,98 %) and respiratory distress (22,38 %). In 51,05 % of the patients the sequelae lasted between 1 and 3 months, while 11,89 % did not experience sequelae. 72,72 % of the patients did not undergo any rehabilitative therapy after COVID-19.

Among the patients with COVID-19, those past the fourth decade of life predominated, with high incidence of comorbidities, and low rates of hospitalization. The main complications and sequelae were of the respiratory system, where they were experienced mainly between the first and third month. Attendance at health services for periodic check-ups was irregular, and the performance of rehabilitative therapy was low.

Conflicts of Interest

The authors declare no conflicts of interest in relation to the present investigation.

Declaration of Authorship

All authors participated in the conceptualization, research, writing - initial draft, writing - revision and editing.

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