

Pediatric Pathologies not Associated with Respiratory Conditions or SARS-CoV-2 Infections in Colombia during the First Mandatory Social Isolation

Patologías pediátricas no asociadas con afecciones respiratorias o infecciones por SARS-CoV-2 en Colombia durante el primer aislamiento social obligatorio

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ABSTRACT

Objective: To describe the epidemiological profile of children under 18 years of age seen at the Hospital Universitario San Ignacio for etiology other than acute respiratory infection or confirmed COVID-19 during the first mandatory social isolation. **Methodology:** A retrospective descriptive observational retrospective study of the records of patients under 18 years of age attended at the Hospital Universitario San Ignacio for pathology other than acute respiratory infection or COVID-19; from March 24 to August 31, 2020. **Results:** Of the 955 patients collected, 461 (48%) consulted for non-respiratory causes or the diagnosis of SARS-CoV-2 infection. 40,3% were between 0 and 3 years old, and 33,2% were between 12 and 17 years old. 25% corresponded to acute chronic pathology and 75% of the visits required hospitalization. The main global diagnoses were neonatal jaundice, acute appendicitis, urinary tract infection, and adolescent mental health pathology. **Conclusions:** Most patients had acute and non-preventable pathologies. There was evidence of late consultations; more severe clinical conditions with a higher percentage of hospitalization; and a significant number of mental health problems in the adolescent group.

Keywords

COVID-19; SARS-CoV-2; pandemics; social isolation; pediatrics.

RESUMEN

Objetivo: Describir el perfil epidemiológico en menores de 18 años atendidos en el Hospital Universitario San Ignacio (HUSI) por una etiología diferente a una infección respiratoria aguda o confirmada de COVID-19 durante el primer aislamiento social obligatorio. **Metodología:** Estudio observacional descriptivo retrospectivo de los registros de pacientes menores de 18 años atendidos en el HUSI por una patología diferente a infección respiratoria aguda o por COVID-19, desde el 24 de marzo hasta el 31 de agosto de 2020. **Resultados:** De 955 pacientes recolectados, 461 (48%) consultaron por causas no respiratorias ni diagnóstico de infección por SARS-CoV-2. El 40,3% tenía entre 0, y 3 años y el 33,2%, de 12 a 17 años. El 25% correspondió a una patología crónica agudizada y el 75% de las atenciones requirieron hospitalización. Los principales diagnósticos globales fueron ictericia neonatal, apendicitis aguda, infección urinaria y patología de salud mental en adolescentes. **Conclusiones:** La mayoría de los pacientes cursaron con patologías agudas y no prevenibles. Se evidenciaron consultas tardías, cuadros clínicos de mayor severidad con mayor porcentaje de hospitalización y un número importante de problemas de salud mental en el grupo de adolescentes.

Palabras clave

pandemias; COVID-19; SARS-CoV-2; aislamiento social; pediatría.

Introduction

The attention of pediatric patients in emergency and hospitalization services has shown a trend towards the extreme groups of 0 to 2 years and 13 to 18 years; the former due to infectious diseases prevalent in children under 5 years of age and the latter concerning mental health and accidents (1,2). In 2020, the world was facing the SARS-CoV-2 pandemic, which impacted Colombia at the beginning of March and exponentially increased the number of cases throughout the national territory, especially in Bogotá (3). Hence, national mandatory social isolation was implemented, a strategy that involved the cancellation of classes in schools, kindergartens, and universities (4). As an immediate effect, in the following weeks, the attendance to emergency services decreased and, with it, the cases of morbimortality due to respiratory infection in pediatric age, traditional for the respiratory peak season of March-May (5).

As a result of less socialization and the greater permanence of children and adolescents

at home, a possible change in the epidemiological behavior of infectious diseases and, consequently, in the reasons for consultation was suggested. Thus, problems related to behavior, care of chronic pathologies, and accidents at home became more important. The aforementioned motivated to know the epidemiological profile of children under 18 years of age admitted to the Hospital Universitario San Ignacio (HUSI), due to etiology other than acute respiratory infection or confirmed COVID-19 infection during the time of mandatory social isolation.

Materials and methods

A retrospective descriptive observational study was carried out on the series of cases of patients under 18 years of age seen at the Hospital Universitario San Ignacio for pathologies other than acute respiratory infection or infection confirmed by COVID-19, during the first mandatory social isolation (March 24 to August 31, 2020, epidemiological weeks March 25 to 29 and August 23 to 31, 2020). Patients older than one day of life and younger than 18 years of age, whose initial care had been provided by the emergency department, hospitalization, or pediatric intensive care unit, were included. Patients with a confirmed acute respiratory infection or COVID-19 infection during hospital stay were excluded.

Through the HUSI Statistics Office, using the DI-SEARCH tool, the patients attended during this period, and the services mentioned were identified. The data from the medical records were recorded in a REDcap format, according to clinical, sociodemographic, and care-related variables. Among a group of researchers, subsequent quality control and audit was performed on a random basis. Errors found were corrected by a peer reviewer. The data were analyzed statistically using the calculation of frequencies and proportions for qualitative variables, as well as the mean and standard deviation for quantitative variables. In addition, an analysis was made by epidemiological weeks,

as established by the National Public Health Surveillance System.

Results

During the study period (first mandatory social isolation) 955 patients under 18 years of age were seen in the pediatric emergency department of the HUSI. Out of the total number of patients seen, 461 (48 %) consulted for non-respiratory causes and were not diagnosed with SARS-CoV-2 infection. 40.3 % (n = 186) were aged 0 to 3 years, and 33.2 % were aged 12 to 17 years, with equal proportions by sex. The service through which most of the patients were admitted to pediatrics was the emergency department, with 78 % (n = 359); in second place, was the hospitalization service (referrals), with 17 % (n = 17); in third place, for procedures in operating rooms, with 4 % (n = 20), and, finally, 1 % (n = 3) were directly referred to the pediatric intensive care unit (PICU) (Table 1).

Table 1.
Demographic data

Variable	n	%
Age		
Neonate (1-30 days)	49	11
Infant (1-24 months)	111	24
Preschool (2 to 5 years)	51	11
School-age (6 to 9 years)	61	13
Pre/adolescent (10 to 12 years)	28	6
Adolescent (13 to 17 years)	161	35
Sex		
Male	228	50
Female	231	50
Social security		
Contributory	403	87.4
Subsidized	53	11.5
Special Regime	3	0.7
Non-affiliation	2	0.4
Guardian		
Mother	394	85.5
Father	42	9.1
Grandfather/grandmother	6	1.3
Aunt/Uncle	5	1.1
Brother/sister	2	0.4

Regarding the initial admission assessment (triage), most patients (74.4%) were classified as 3; triages 1 and 2 corresponded to 11.1% of the patients. Of the total number of patients who attended, only 9% (n = 43) received some type of intervention at home without prior medical indication. Out of the patients, 36.2% (n = 167) were evaluated by a physician before consulting the emergency department, and 63.8% (n = 294) consulted directly. Twenty-five percent (n = 117) corresponded to chronic decompensated pathologies, and the remaining 25% (n = 344) to acute pathologies.

The days with the highest number of consultations were at the beginning of the week (Monday, Tuesday, and Wednesday). The time of day of the consultation with the highest number of patients was in the morning (37%). The

months with the highest number of consultations were May (23%) and July (20%). When analyzed by epidemiological weeks, we found that the last week of May and the first week of June, as well as the second and third weeks of August, had the highest consultation peaks, with an average proportion of 48% concerning respiratory causes (Figure 1).

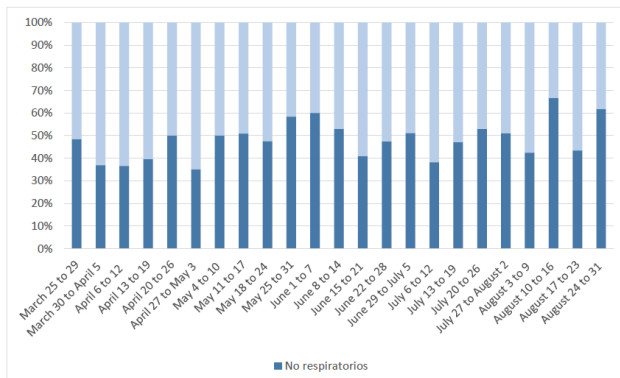


Figure 1.
Consultation trend of the patients evaluated

In 37% of the patients, the evolution time of the symptomatology was longer than 72 hours, and in 25%, it was less than 6 hours (Figure 2). As for the reasons for consultation, 25% corresponded to an acute chronic pathology, with comorbidities such as prematurity and oncologic disease, making up the majority of them (Figure 3). Abdominal pain was the main reason for consultation ($n = 80$), followed by vomiting and diarrhea ($n = 72$), fever ($n = 57$), neonatal jaundice ($n = 45$), scheduled for chemotherapy administration ($n = 28$). Regarding mental health pathologies, 22 cases of behavioral changes (self- and heteroaggression, changes in eating behavior, among others), and 15 acute intoxications with suicidal intent were detected (Figure 4).

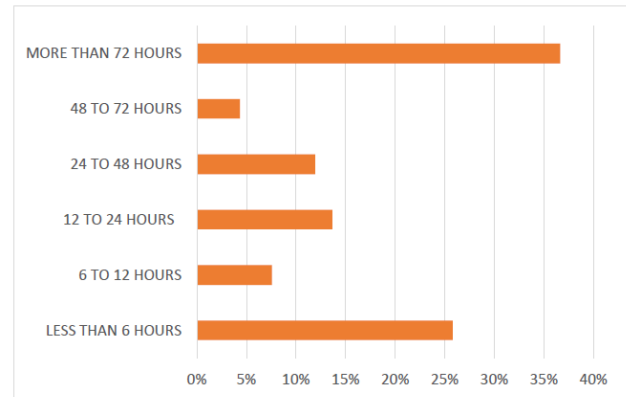


Figure 2.
Time of evolution of symptoms in the patients evaluated

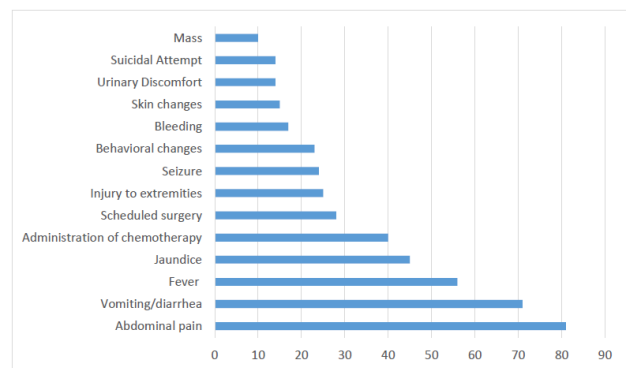


Figure 3.
Main reasons for consultation in the patients evaluated

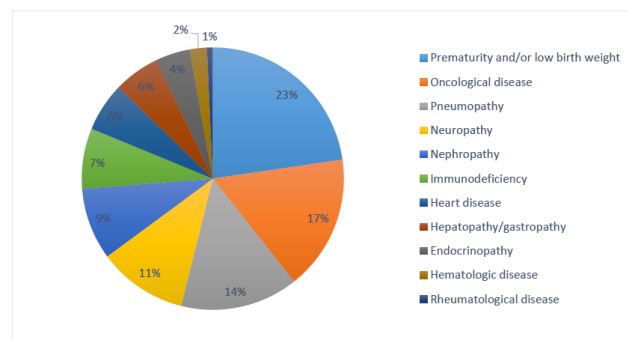


Figure 4.
Main comorbidities of the evaluated patients

After evaluation by the pediatric service, the main global diagnoses were neonatal jaundice, acute appendicitis, convulsive syndrome, depressive disorder, and acute poisoning with suicidal intent (Figure 5). For infants under one month of age, neonatal jaundice was the main diagnosis ($n = 43$), and for infants, it was urinary tract infection ($n = 12$) and immunosuppression ($n = 11$). In the preschool group, admission for scheduled tonsillectomy predominated ($n = 6$). In schoolchildren, the convulsive syndrome was the main reason for consultation ($n = 10$). In preadolescents and adolescents, the most frequent diagnosis was acute appendicitis ($n = 6$ and $n = 20$, respectively). In adolescents, intoxication with suicidal intent ($n = 15$), depressive disorder ($n = 10$), and cancer under treatment ($n = 13$) predominated.

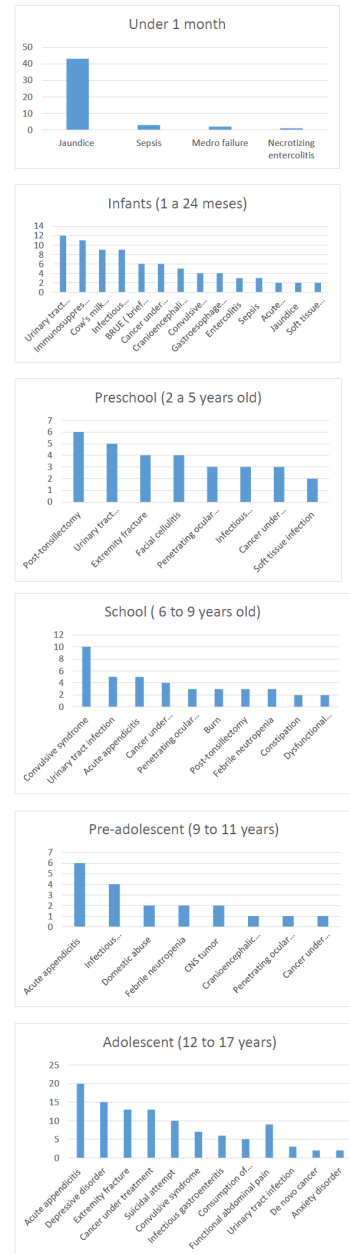


Figure 5.
Main diagnoses of patients evaluated by age group

Of the total number of patients seen, 63% required management in the general hospitalization area; 5% in the pediatric high-dependency unit, and 5% in the PICU. The remaining 10% remained under observation in the emergency department for less than 8 hours, and 2% were discharged after initial emergency

care. The reason why the patients required care in the PICU on admission was mainly cardiovascular postoperative procedures, in 17% of the cases; followed by intoxication with suicidal intent and complicated appendicitis, with 13% each; convulsive status, in 9%, and the remainder to other less frequent pathologies.

Discussion

In the absence of vaccines and specific treatments for COVID-19, its high transmissibility, and mortality, the need arose to employ public health strategies aimed at reducing infection rates and avoiding the collapse of health systems. As part of these measures, several governments implemented isolation and social distancing (4). With the implementation of mandatory isolation and the cancellation of face-to-face activities in schools and daycare centers, there was a significant drop in the emergency department and hospitalization visits, especially for cases related to respiratory infections (6). At HUSI, during the months of the first mandatory social isolation (April to August 2020), a total of 955 patients under 18 years of age were attended. For the same period in 2019, a monthly average of 1321 pediatric patients were seen in the emergency department, which is estimated to be equivalent to a drop of approximately 85% in the usual emergency consultation.

The HUSI quickly implemented measures to care for patients with suspected or confirmed SARS-CoV-2 infection, and a change in the reasons for consultation of pediatric patients was evidenced. Virtual consultation appears as an option for those pathologies that were previously treated in emergency departments. We are not aware of other studies in Colombia that have measured the phenomenon of a decrease in hospital admissions or consultations in the pediatric population during this same period and in institutions of the same level.

According to the results of the study at HUSI, the consultation of the pediatric population during the first social isolation (March 24 to August 31, 2020) was mainly in May (23%) and

July (20%), possibly related to the different stages of restriction, partial openings and mandatory isolation, implemented by the government. Historically, the care of pediatric patients in our institution increases in the respiratory peak periods, corresponding to March-May and October-November. By 2020, such an increase in emergency care and hospitalizations did not occur, most likely related to social isolation and the cessation of transmissibility of frequent infectious diseases in pediatrics.

In the usual consultations before the pandemic, the greatest number of consultations were recorded at the extremes of pediatric age (0-2 and 13-18 years), and more than twice as likely if they suffered from chronic pathologies (1,7). Of our study population, during this first mandatory social isolation, patients between 13 and 17 years of age were the most frequently seen, followed by the group of infants between 1 and 24 months. The reasons for consulting the emergency department, usually before isolation, were related to respiratory and infectious pathologies and conditions originating in the perinatal period (8,9), which vary according to environmental and social factors, such as winter seasons, rainfall, overcrowding, or attendance at day-care centers and schools.

During the first mandatory social isolation, most of the consultations at HUSI in children under 18 years of age, other than respiratory causes, were abdominal pain, vomiting/diarrhea, fever, and neonatal jaundice. This observation coincides with the increased attention to patients with neonatal hyperbilirubinemia and acute appendicitis, acute and non-preventable entities that required the permanent operation of pediatric services and that did not change, despite the social isolation measures.

Depending on the level of complexity of the medical centers, the number of chronic patients increases, and the local epidemiology may vary (10). The study conducted by O'Mahony et al. (11) found that children with chronic conditions account for 20% of pediatric emergency department visits, with increased rates of hospitalization and PICU. At HUSI, 25% of the patients seen in that period analyzed

corresponded to acute chronic pathologies, whose main antecedents were prematurity and oncological disease (de novo oncological disease, tumor relapses, or complications due to chemotherapy), reasons that require continuous follow-up and management by the pediatric specialist.

Historically, care in pediatric emergency departments corresponds mostly to mild pathologies, which explains the higher proportion of children discharged or with stays of less than 8 hours (7,12). Some studies have described that the majority do not require any type of in-hospital therapeutic or diagnostic intervention and that approximately 10% of patients require the administration of drugs or diagnostic tests (12,13). In this period, up to 35% of the cases showed symptoms of more than 72 hours of evolution, possibly related to the fear of consulting an emergency department. In addition, more than 70% of the consultations required hospitalization in a pediatric department, which could indicate greater clinical complexity and severity of the pathologies treated. An example of this was the intensive care of acute poisoning due to suicidal intent, complicated appendicitis, and convulsive status.

Within the data analyzed, a significant number of consultations for pathologies related to mental health problems were evident in the adolescent group. Several studies have shown that approximately half a million children a year present to an emergency department with a mental health problem, with mood disorders being the most common diagnoses (23.9%), and within these, depression in 78% of cases (14). In our study, the adolescent population consulted for depressive disorder ($n = 10$) and attempted suicide ($n = 15$). We do not have precise data on psychiatric consultations among those under 18 years of age in our institution to make comparisons. However, it is described that the onset of confinement and less social interaction led to an overall increase in isolated psychiatric symptoms such as insomnia, anxiety, depression, and post-traumatic stress disorder (15), with

the pediatric population being one of the most vulnerable.

It is worth mentioning that this was a study in a highly complex institution, which could overestimate the severity of the pathologies and underestimate other types of consultations that could have been directed to centers of lower complexity. As limitations for our study, we do not have precise data on psychiatric pathology before mandatory social isolation or in previous periods that would allow us to make comparisons. The purpose was to know the behavior in our pediatric population during the pandemic phenomenon and to be able to have data for future similar situations.

As a strength, this study is the first epidemiological profile of pediatric care in our institution during a period of social isolation that may allow us to predict similar public health situations in the future. We propose to evaluate possible late effects of this isolation in the future since our study analyzed behavior immediately after the first social isolation.

Conclusion

Although the number of consultations for respiratory causes decreased, our study described the findings in the epidemiological profile of the care of children and adolescents at HUSI, in which the following were identified as central aspects: late consultations, severe clinical conditions, and a significant number of consultations related to mental health problems in the adolescent group. An important percentage of the patients seen in this age group corresponds to chronic pathologies with complexity and severity that warranted the permanence of pediatric services and care by a specialist.

Conflict of interests

The authors declare no conflicts of interest.

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