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ORIGINAL ARTICLE

Clinical and Laboratory Profile of Pediatric Multisystem Inflammatory Syndrome (MIS-C) in Hospitalized Children in a Public Hospital

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Abstract

Objective: To assess the prevalence of pediatric multisystem inflammatory syndrome in patients admitted to a public university hospital. **Method:** A cross-sectional study was conducted byo analyzing data documented in medical records of pediatric patients admitted to a public hospital due to COVID-19 between July 2021 to May 2023. Patients aged between 0 and 12 years and 11 months of both sexes were included. Cases that met the following criteria were considered MIS-C: fever ≥38 °C for ≥3 days, associated with two two of the criteria established by the Brazilian Society of Pediatrics. Numerical variables were described as mean and standard deviation and categorical variables as percentages. In the bivariate analysis, the Chi-square and Fishers exact test were used for categorical variables and the Mann-Whitney test for numerical variables. Associations with a p-value of <0.05 were considered statistically significant. **Results:** The overall sample consisted of 45 patients with acute coronavirus infection, with a mean age of 2.4±2.5 years. The prevalence of MIS-C was 31.1% (95% CI 19.5-45.6). Of these 14 patients, 57.2% were aged between 1 and 5 years, 85.8% had no comorbidities and 64.3% were boys. Cutaneous manifestations (p=0.033), alterations in inflammatory markers (p<0.001) and anemia (p=0.013) were more prevalent in the MIS-C group. **Conclusion:** The prevalence of MIS-C related to acute COVID-19 infection was 31.1% (95% CI 19.5-45.6). These patients had a higher prevalence of anemia, mucocutaneous manifestations and changes in inflammatory markers.

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INTRODUCTION

In early December 2019, the first cases of severe pneumonia of unknown origin were identified in Wuhan, capital of Hubei province, China. The pathogen was identified as a novel enveloped RNA beta coronavirus, which was named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)[1].

On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic, characterizing a public health emergency[2].

Individuals of any age may acquire SARS-CoV-2 infection; however, middle-aged and older adults are more affected, and older individuals are more likely to present severe forms of the disease[3]. In the United States, in 2023, adults aged 65 years or older accounted for 63% of all COVID-19 hospitalizations and 88% of the hospital mortality rate from the disease. More than 98% of these individuals had at least one underlying medical condition predisposing them to severe COVID-19[3]. In adults, there are also reports of multisystem inflammatory syndrome related to SARS-CoV-2 infection[4].

In Brazil, up to October 28, 2023, a total of 37,949,844 COVID-19 cases were reported by the Ministry of Health (MH), with 2,185,395 hospitalizations due to Severe Acute Respiratory Distress Syndrome (SARDS) resulting from COVID-19 and 706,808 deaths[5].

In childhood, COVID-19 is usually mild, and clinical manifestations may differ from those observed in adults. In April 2020, in the United Kingdom, a document was published describing the clinical manifestations of severe COVID-19, with features similar to Kawasaki Disease (KD) and Toxic Shock Syndrome. Since then, several similar reports have emerged worldwide, and the condition has been termed Pediatric Multisystem Inflammatory Syndrome post-COVID (MIS-C), also referred to as multisystem inflammatory syndrome temporally associated with SARS-CoV-2, pediatric hyperinflammatory syndrome, or pediatric hyperinflammatory shock[6].

KD is one of the most common vasculitides of childhood, rare in adults, and primarily affects medium-sized muscular arteries, with a predilection for the coronary arteries, potentially leading to severe complications such as aneurysms. It is characterized by fever and signs of acute mucocutaneous inflammation, such as bilateral non-exudative conjunctivitis, erythema of the lips and oral mucosa, rash, changes in the extremities, and cervical lymphadenopathy[7]. In reported case series, approximately 50% of children with MIS-C met the criteria for KD, demonstrating phenotypic overlap between them. The main features distinguishing these conditions include the age of onset, as MIS-C generally affects older children, whereas KD typically affects infants and young children. Gastrointestinal symptoms, myocardial dysfunction, and shock are more common in MIS-C. Inflammatory markers (especially CRP, ferritin, and D-dimer) tend to be higher in MIS-C. Aneurysms are less common in MIS-C and, when present, tend to resolve more rapidly[6].

Clinical manifestations of MIS-C appear several weeks after the peak of COVID-19 infection, indicating that this set of symptoms is related to immune dysregulation following acute infection[1].

The criteria for defining MIS-C according to the Brazilian Society of Pediatrics (SBP), based on WHO guidelines, include fever ≥38°C for ≥3 days, associated with two of the following criteria: rash or bilateral non-purulent conjunctivitis or signs of mucocutaneous inflammation (oral, hands, or feet); hypotension or shock; signs of myocardial dysfunction, pericarditis, valvulitis, or coronary abnormalities (echocardiographic findings or elevated troponin); evidence of coagulopathy (altered PT, aPTT, or D-dimer); acute gastrointestinal symptoms (diarrhea, vomiting, or abdominal pain); elevated inflammatory markers such as C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), or procalcitonin; and exclusion of other causes of microbial inflammation (including bacterial sepsis, staphylococcal or streptococcal infections), along with evidence of COVID-19 (RT-PCR, antigen test, or positive serology) or contact with COVID-19 patients[8].

Patients presenting with MIS-C may be previously healthy or may have pre-existing chronic conditions, especially those that impair the immune system, such as autoimmune diseases, neoplasms, or use of immunosuppressive medications[7].

It is important to note that the respiratory system is not always involved; however, more severe cases require ventilatory and hemodynamic support and may occasionally progress to death[8].

Therefore, the objective of this study was to evaluate the prevalence of MIS-C and to analyze the clinical characteristics and laboratory and imaging findings in patients with COVID-19 admitted to a public university hospital in the city of Caxias do Sul.

METHODS

This retrospective cross-sectional observational study was conducted through an analysis of data documented in the medical records of pediatric patients hospitalized due to coronavirus infection at a public university hospital in the city of Caxias do Sul, RS, from July 2021 to May 2023. The project was submitted to the Ethics Committee of the University of Caxias do Sul and approved under protocol 67334922.5.0000.5341.

All patients aged between 0 and 12 years and 11 months, of both sexes, with COVID-19 infection confirmed by diagnostic testing (antigen detection, serology, or RT-PCR) were included in this study.

The MIS-C outcome was defined according to the criteria established by the SBP for characterization of the syndrome[8].

The exposure variables studied were: age, sex, presence of previous comorbidities, respiratory, mucocutaneous, gastrointestinal, hemodynamic, cardiovascular, and neurological manifestations, need for oxygen and mechanical ventilation

(MV), type of feeding up to the 6th month of life, and nutritional status of the patients, using the Z score for weight-for-age according to WHO standards (patients with Z scores between +2 and -2 were considered eutrophic). The following complementary tests were analyzed: complete blood count, CRP, AST, ALT, D-dimer, ESR, chest radiography, and echocardiogram.

Data were compiled using the REDCap free software, and for analysis, the data were exported to Excel and SPSS® version 21.0. Numerical variables are described as mean and standard deviation, and categorical variables as percentages. In bivariate analysis, the chi-square test and Fisher's exact test were used for categorical variables, and the Mann-Whitney test for numerical variables. Associations with $p<0.05$ were considered statistically significant.

RESULTS

The overall sample consisted of 45 patients; 42% were aged between 1 and 5 years, 51.1% were male, 40% received exclusive breastfeeding up to the sixth month of life, and 62% had no known comorbidities. The most prevalent prior condition was asthma, accounting for 13.3% of cases. Overall, 15.6% required mechanical ventilation (MV), and there was 1 death.

The mean length of hospital stay for patients with COVID-19 without MIS-C was 12.0 days (SD ±17.0), and for those with MIS-C it was 12.7 days (SD ±8.8).

Table 1 describes the clinical characteristics of all patients, comparing those affected by acute COVID-19 infection with those who developed MIS-C. Among patients with acute COVID-19 infection (n=31 or 68.8% of the total sample), 54.8% were female and 45.2% were under 1 year of age. Among the evaluated comorbidities, asthma accounted for 16.21% of cases, followed by heart diseases and neoplasms, both present in 6.5% of cases; 38.7% of patients received exclusive breastfeeding up to the sixth month of life. Regarding children with acute COVID-19 infection, 16.2% had gastrointestinal manifestations, but only one (3.2%) patient presented mucocutaneous symptoms (rash and conjunctivitis), 2 (6.4%) patients exhibited cardiovascular symptoms, and 3 (9.7%) had neurological alterations.

A total of 14 children developed MIS-C, corresponding to 31.1% of cases (95% CI: 19.5–45.6). Regarding the diagnosis of MIS-C, 57.2% were aged between 1 and 5 years, 85.8% had no previous comorbidities, 64.3% were male, and 42.9% received exclusive breastfeeding during the first 6 months of life. Concerning clinical manifestations, 35.7% presented cutaneous signs or symptoms, and 28.5% presented gastrointestinal alterations (Table 1).

Comparing acute COVID-19 cases with those that progressed to MIS-C, it is noteworthy that children with MIS-C showed a higher prevalence of mucocutaneous manifestations (35.7% vs. 3.2%, p=0.033).

Table 2 describes the respiratory manifestations of COVID-19 and MIS-C. The need for oxygen support occurred in 37.8% of patients; 37.8% presented respiratory effort and, similarly, 37.8% presented tachypnea. Among patients with MIS-C, 35.7% presented tachypnea and respiratory effort, and 42.9% required O_2 support.

Table 3 describes the laboratory abnormalities of the patients. Not all patients with acute coronavirus infection underwent testing. Of the 19 patients who had a complete blood count, 33.3% presented anemia; among the 16 patients who had platelet counts, 37.5% had abnormalities and 64.7% had leukocytosis; among the 15 who had CRP measured, 66.7% showed elevated levels. D-dimers were measured in 3 patients and were elevated in 66.7% of them; 32.2% of patients had at least one altered inflammatory marker. PT/aPTT abnormalities occurred in only 1 case (14.3%), and liver enzymes were normal in all patients.

Among patients with MIS-C, 14 underwent all analyzed tests; 92.8% had at least one altered inflammatory marker. All patients underwent complete blood count with platelets, of whom 71.5% had anemia, 38.5% leukocytosis, and 42.9% platelet abnormalities; all had CRP measured, with 78.6% showing elevated levels. Of the 11 who had D-dimers measured, 100% showed elevated levels. Comparing acute COVID-19 cases with those that progressed to MIS-C, a higher prevalence of anemia was observed in patients with MIS-C (71.5% vs. 33.3%, p=0.013). Regarding tests indicating inflammation, the presence of elevated inflammatory markers was also higher in patients with MIS-C (92.8% vs. 32.3%, p<0.001).

Regarding imaging studies, not all patients underwent these methods; 9 patients had an echocardiogram, and 33.3% presented abnormalities, identified as valvulitis.

Table 1. Children hospitalized with COVID-19 in a public hospital in Caxias do Sul, RS, and clinical characteristics related to MIS-C – Multisystem Inflammatory Syndrome

Variable	Total cases n (%)	MIS-C n (%)	COVID-19 n (%)	p-value
Sex				0.235
Male	23 (51.1)	9 (64.3)	14 (45.2)	
Female	22 (48.9)	5 (35.7)	17 (54.8)	
Age				0.284
< 1 year	17 (37.8)	3 (21.4)	14 (45.2)	
1 to 5 years	19 (42.2)	8 (57.2)	11 (35.5)	
> 5 years	9 (20.0)	3 (21.4)	6 (19.3)	

Variable	Total cases n (%)	MIS-C n (%)	COVID-19 n (%)	p-value
Comorbidities				0.948*
No	28 (62.2)	12 (85.8)	16 (51.5)	
Prematurity	3 (6.78)	1 (7.1)	2 (6.5)	
Asthma	6 (13.3)	1 (7.1)	5 (16.1)	
Heart disease	2 (4.4)	0 (0.0)	2 (6.5)	
Heart disease + Encephalopathy	1 (2.2)	0 (0.0)	1 (3.2)	
Diabetes	1 (2.2)	0 (0.0)	1 (3.2)	
Neoplasms	2 (4.4)	0 (0.0)	2 (6.5)	
Others	2 (4.4)	0 (0.0)	2 (6.5)	
Feeding in the first 6 months of life				0.232*
Exclusive breastfeeding	18 (40.0)	6 (42.9)	12 (38.7)	
Breastfeeding + infant formula	10 (22.2)	4 (28.6)	6 (19.3)	
Breastfeeding + solids	5 (11.1)	3 (21.4)	2 (6.5)	
Exclusive formula	8 (17.8)	0 (0.0)	8 (25.8)	
Cow's milk	4 (8.9)	1 (7.1)	3 (9.7)	
Mucocutaneous manifestations				0.033
No	39 (86.7)	9 (64.3)	30 (96.8)	
Rash	2 (4.4)	2 (14.3)	0 (0.0)	
Rash + lip edema	1 (2.2)	1 (7.1)	0 (0.0)	
Rash + conjunctivitis	3 (6.7)	2 (14.3)	1 (3.2)	
Cardiovascular manifestations				0.115
No	41 (91.1)	12 (85.8)	29 (93.6)	
Irregular rhythm	1 (2.2)	0 (0.0)	1 (3.2)	
Murmur	1 (2.2)	0 (0.0)	1 (3.2)	
Edema	1 (2.2)	1 (7.1)	0 (0.0)	
Hypotension/Shock	1 (2.2)	1 (7.1)	0 (0.0)	
Gastrointestinal manifestations				0.365
No	36 (80.0)	10 (71.5)	26 (83.8)	
Hepatomegaly	2 (4.4)	0 (0.0)	2 (6.5)	
Abdominal pain	4 (8.9)	3 (21.4)	1 (3.2)	
Diarrhea/vomiting	3 (6.7)	1 (7.1)	2 (6.5)	
Neurological manifestations				0.266*
No	39 (86.7)	11 (78.6)	28 (90.3)	
Yes	6 (13.3)	3 (21.4)	3 (9.7)	

MIS-C – Multisystem Inflammatory Syndrome post COVID-19. *Fisher's Exact Test

Table 2: Respiratory manifestations of COVID-19 and MIS-C in children hospitalized in a public hospital in Caxias do Sul, RS.

Variable	Total cases n (%)	MIS-C n (%)	COVID-19 n (%)	p-value
Need for supplemental oxygen				0.731
No	24 (62.2)	8 (57.1)	16 (51.6)	
Yes	21 (37.8)	6 (42.9)	15 (48.4)	
Tachypnea				0.848
No	28 (62.2)	9 (64.3)	19 (61.3)	
Yes	17 (37.8)	5 (35.7)	12 (38.7)	
Respiratory effort				0.848
No	28 (62.2)	9 (64.3)	19 (61.3)	
Yes	17 (37.8)	5 (35.7)	12 (38.7)	

MIS-C – Multisystem Inflammatory Syndrome post COVID-19, *Fisher's Exact Test
MV: Mechanical ventilation

Table 3: Laboratory abnormalities in patients with COVID-19 and comparison with MIS-C in children hospitalized in a public hospital in Caxias do Sul, RS.

Variable	MIS-C n/N (%)	COVID-19 n/N (%)	p-value
Anemia	10/14 (71.5)	5/15 (33.3)	0.013**
Leukocytosis	5/13 (38.5)	11/17 (64.7)	0.153**
Platelet abnormalities	6/14 (42.9)	6/16 (37.5)	0.765**
Elevated CRP	11/14 (78.6)	10/15 (66.7)	0.383*
Elevated D-dimers	11/11 (100.0)	2/3 (66.7)	0.214*
Altered PT/aPTT	3/11 (27.3)	1/7 (14.3)	0.485*
Altered AST/ALT	1/8 (12.5)	0/2 (0.0)	0.800*
Elevated inflammatory markers	13/14 (92.8)	10/31 (32.3)	<0.001

n/N – number of altered cases/number of patients tested
MIS-C – Multisystem Inflammatory Syndrome post COVID-19, *Fisher's Exact Test
CRP: C-reactive protein
PT: Prothrombin time
aPTT (KTTP): Activated partial thromboplastin time
AST: Aspartate aminotransferase
ALT: Alanine aminotransferase

Table 4: Echocardiographic and chest radiography abnormalities in patients hospitalized in a public hospital in Caxias do Sul, RS, with COVID-19 and MIS-C.

Variable	MIS-C n/N (%)	COVID-19 n/N (%)	p-value
Echocardiogram			0.027
Normal	6/9 (66.7)	0/4 (0.0)	
Valvulitis	3/9 (33.3)	3/4 (75.0)	
Others	0/9 (0.0)	1/4 (25.0)	
Chest X-ray			0.344
Normal	4/11 (36.4)	2/12 (16.7)	
Atelectasis	1/11 (9.1)	4/12 (33.3)	
Infiltrate	6/11 (54.5)	5/12 (41.7)	
Atelectasis + Infiltrate	0/11 (0.0)	1/12 (8.3)	

n/N – n = number of cases with abnormalities/number of patients who underwent the test
MIS-C – Multisystem Inflammatory Syndrome post COVID-19

Of the 11 children who underwent chest radiography, 63.6% presented radiographic abnormalities, 6 with viral infiltrate and 1 with atelectasis (data shown in Table 4). Furthermore, regarding imaging studies, not all patients were evaluated with these methods. Of the 4 who underwent echocardiography, 100% had abnormalities; of the 12 patients who underwent chest radiography, 83.3% had abnormal findings on the exam (Table 4).

DISCUSSION

This study demonstrated a high prevalence of MIS-C among children hospitalized with COVID-19 (31.1%; 95% CI: 19.5–45.6%), highlighting the higher frequency of mucocutaneous manifestations (35.7% vs. 3.2%; p=0.033), a significant association with anemia (71.5% vs. 33.3%; p=0.013), and a high proportion of altered inflammatory markers (92.8% vs. 32.3%; p<0.001).

Epidemiological and laboratory surveillance of COVID-19 in Brazil began in January 2020, and on February 3 of the same year, a Public Health Emergency of National Importance was declared due to human infection with coronavirus. According to the latest epidemiological bulletin published by the Ministry of Health (MH) in October 2023, 2,103 cases of MIS-C occurred in Brazil; 142 children died, resulting in an overall case fatality rate of 6.8% during the period. Of the total MIS-C cases, 35.4% occurred in 2020, 42.2% in 2021, 21% in 2022, and 2.4% in 2023. The age group with the highest number of cases was 1 to 4 years[5].

In the present study, analysis of the age group with MIS-C showed that 57.2% of cases occurred in children between 1 and 5 years, and that acute coronavirus infection was more common in patients under 1 year of age (45.2%). This may reflect the immaturity of the pediatric immune system, which is still developing and is more susceptible to infectious complications. In contrast, international studies reviewed

reported that the most affected age group for MIS-C was from 5 years onward[6,9].

Regarding sex, the present study showed a slight predominance of MIS-C in males, accounting for 64.3% of cases, consistent with Brazilian data[5,10]. In contrast, isolated COVID-19 was more prevalent in females (54.8% of cases). There was no statistical difference in length of hospital stay between patients who developed MIS-C and those who did not.

The literature still lacks consistent analyses on the nutrition of patients affected by COVID-19. However, in the present study, 40% of children received exclusive breastfeeding up to 6 months of age, suggesting that for infections with the novel coronavirus, breastfeeding may not be directly associated with protection, although the small sample size limits this interpretation.

Although children with comorbidities, such as asthma and obesity, are more likely to develop severe COVID-19 (with hospitalization, need for intensive care, or mechanical ventilation) than previously healthy children, this relationship has not yet been confirmed for the development of MIS-C[6,11]. In this study, 62.2% of patients in the total sample had no previous comorbidities. On the other hand, patients with acute coronavirus infection showed a higher prevalence of previous diseases compared to those with MIS-C, with emphasis on asthma.

Regarding MIS-C, in terms of clinical manifestations, the study showed, in order of prevalence (excluding persistent fever, present in 100% of patients), that 35.7% of children presented mucocutaneous signs/symptoms, and 35.7% presented tachypnea or respiratory effort; 28.5% had gastrointestinal symptoms and 21.4% neurological symptoms. Only two children presented hypotension or shock. These findings are consistent with the Brazilian context, although the sample is small, since according to national data analyses, among the most commonly reported signs and symptoms in confirmed MIS-C cases were, in descending order, gastrointestinal symptoms (82.4%), respiratory (67.0%), and cardiovascular (59.8%). Cutaneous rash was reported in 54.3% of cases, followed by neurological manifestations (48.5%), conjunctivitis (37.1%), and hypotension (32.3%)[5,11]. It is important to note, however, that the set of nonspecific symptoms makes diagnosis of the syndrome difficult. In contrast, severe isolated COVID-19 has its most prominent manifestations in the respiratory tract[10]. In this study, this was confirmed, with rare manifestations in other systems (one patient (3.2%) had mucocutaneous manifestations and 16.2% had gastrointestinal symptoms) and a significant number of patients requiring supplemental oxygen (48.4%) or showing signs/symptoms of pulmonary involvement (38.7% with tachypnea and respiratory effort).

Comparing clinical manifestations of MIS-C with acute COVID-19, mucocutaneous signs and symptoms were statistically more prevalent in MIS-C (p=0.033), suggesting greater diagnostic specificity to differentiate the syndrome from severe COVID-19.

Regarding laboratory tests analyzed, anemia stands out, being present in 45.5% of patients in the total sample, and among these, 71.5% belonged to the MIS-C group, with statistically significant difference compared to the COVID-19 group (p=0.013). There are no data regarding this finding in the reviewed studies. There were no significant findings regarding AST, ALT, or coagulation tests. Still regarding laboratory tests, a high frequency of altered inflammatory markers was found among MIS-C cases, particularly C-reactive protein and D-dimer, consistent with the literature[6].

Regarding imaging studies, not all patients underwent these methods. Among patients with MIS-C who underwent chest radiography, 63.6% presented abnormalities of viral characteristics (infiltrate and atelectasis), a finding that may assist and support the diagnostic hypothesis of viral origin in a syndromic condition such as MIS-C, which may occur weeks after the acute phase. However, in international data, many patients presented normal chest radiographs. When present, abnormal findings included signs of infectious complications, such as pleural effusion and consolidations, even more commonly than infiltrate[6]. In MIS-C, cardiac abnormalities are noteworthy in international studies and Brazilian data. These are characterized by decreased left ventricular function, coronary artery aneurysm, and pericardial effusion. The mechanisms of involvement are still under investigation and are likely related to acute viral myocarditis, hypoxia, stress cardiomyopathy, ischemia, or a combination of these factors[5,10]. In the present study, few patients underwent echocardiography. Among those who developed MIS-C and underwent the test, only 33.3% had echocardiographic abnormalities. Additionally, all patients with acute COVID-19 who underwent echocardiography also presented abnormalities (pericardial effusion and valvular insufficiency).

This study has limitations: the cross-sectional design, which does not allow establishing a cause-and-effect relationship between variables and MIS-C; the small sample size may explain the limited statistical significance of findings and their variability compared to previously published studies; there are also limitations regarding the quality of records and incomplete data. Patient race was not collected due to lack of availability in medical records. The time elapsed between COVID-19 and development of MIS-C was also not collected, which would be useful to clarify the timing of symptom development and acute versus chronic presentation. Additionally, available laboratory data recorded only total platelet counts, not allowing discrimination between thrombocytopenia and thrombocytosis, with results presented in an aggregated manner. Overall, the data reported here should be interpreted with caution, and further research is needed to better understand the presentation pattern of MIS-C.

In conclusion, this study demonstrated a high prevalence of MIS-C related to acute COVID-19 infection (31.1%; 95% CI: 19.5–45.6). The association with anemia, mucocutaneous manifestations, and inflammatory markers reinforces the role of hematological and inflammatory alterations as potential differentiators of the syndrome compared to acute COVID-19. Future studies with larger samples and longitudinal designs are needed to confirm these findings and to further elucidate the pathophysiology and risk factors of MIS-C.

REFERENCES

1. Guan W, Ni Z, Hu Y, Liang W, Ou C, He J, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. *N Engl J Med* [Internet]. 2020 Feb 28 [citado em 2023 set 03];382(18):1708–20. Disponível em: http://www.nejm.org/doi/10.1056/NEJMoa2002032
2. Organização Pan-Americana da Saúde. Histórico da pandemia de COVID-19 – OPAS/OMS [Internet]. Washington (DC): OPAS; [citado em 2024 jan 06]. Disponível em: https://www.paho.org/pt/covid19/historico-da-pandemia-covid-19
3. McIntosh K, Hirsch M. COVID-19: Clinical features. UpToDate [Internet]. Waltham, MA: UpToDate; 2023 [citado em 2023 set 05]. Disponível em: https://www.uptodate.com/contents/covid-19-clinical-features
4. Morris S, Schwartz N, Patel P. Case Series of Multisystem Inflammatory Syndrome in Adults Associated with SARS-CoV-2 Infection — United Kingdom and United States, March–August 2020. *MMWR Morb Mortal Wkly Rep* [Internet]. 2020 Oct 9 [citado em 2024 jan 06];69(40):1450–6. Disponível em: https://www.cdc.gov/mmwr/volumes/69/wr/mm6940e1.htm
5. Ministério da Saúde (BR), Secretaria de Vigilância em Saúde e Ambiente. Boletim Epidemiológico Especial nº 156: Doença pelo Novo Coronavírus – COVID-19. Brasília: Ministério da Saúde, 2023 [citado em 2024 jan 06]. Disponível em: https://www.gov.br/saude/pt-br/centrais-de-conteudo/publicacoes/boletins/epidemiologicos/covid-19/2023/boletim-epidemiologico-no-156-boletim-coe-coronavirus/view
6. Son MB, Friedman K. COVID-19: Multisystem Inflammatory Syndrome in Children (MIS-C) clinical features, evaluation, and diagnosis. UpToDate [Internet]. Waltham, MA: UpToDate; 2023 [citado em 2024 jan 06]. Disponível em: https://www.uptodate.com/contents/covid-19-multisystem-inflammatory-syndrome-in-children-mis-c-clinical-features-evaluation-and-diagnosis
7. Sundel R. Kawasaki disease: Clinical features and diagnosis. UpToDate [Internet]. Waltham, MA: UpToDate; 2022 [citado em 2023 set 05]. Disponível em: https://www.uptodate.com/contents/kawasaki-disease-clinical-features-and-diagnosis
8. Sociedade Brasileira de Pediatria, Departamentos Científicos de Infectologia e Reumatologia. Síndrome inflamatória multissistêmica em crianças e adolescentes provavelmente associada à COVID-19: uma apresentação aguda, grave e potencialmente fatal. Rio de Janeiro: Sociedade Brasileira de Pediatria; 2020 [citado em 2023 set 07]. Disponível em: https://www.sbp.com.br/fileadmin/user_upload/22532d-NA_Sindr_Inflamat_Multissistemica_associada_COVID19.pdf
9. Kaushik S, Aydin S, Derespina K, Ushay H, Ofori-Amanfo G, Medar S. Multisystem Inflammatory Syndrome in Children Associated with Severe Acute Respiratory Syndrome Coronavirus 2 Infection (MIS-C): a Multi-institutional Study from New York City. *J Pediatr* [Internet]. 2020 [citado em 2023 set 03];226:197-203.e2. Disponível em: https://doi.org/10.1016/j.jpeds.2020.06.045
10. Feldstein LR, Tenforde MW, Friedman KG, Newhams M, Rose EB, Dapul H, et al. Characteristics and Outcomes of US Children and Adolescents With Multisystem Inflammatory Syndrome in Children (MIS-C) compared With Severe Acute COVID-19. *JAMA* [Internet]. 2021 Mar 9 [citado em 2023 set 03];325(11):1074-87. Disponível em: https://doi.org/10.1001/jama.2021.2091
11. Fontes LGM, Saavedra RC, Carvalho JMA, Broucke VRBV, Araújo FA, Menezes GO. Síndrome Inflamatória Multissistêmica Pediátrica (SIM-P) na Bahia, em 2020. *Rev Baiana Saúde Pública* [Internet]. 2021 [citado em 2024 jan 06];45(1):46-61. Disponível em: https://rbsp.sesab.ba.gov.br/index.php/rbsp/article/view/3288