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REVIEW ARTICLE

Multisystem inflammatory syndrome in children associated with COVID-19: nursing care

Síndrome inflamatória multissistêmica pediátrica associada à COVID-19: cuidados de enfermagem

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KEYWORDS

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ABSTRACT

In 2019, a new viral disease, known as SARS-CoV-2 infection, was identified. Scientists believed that it was a disease with low morbidity for pediatric patients; however, a small percentage of children infected with the new coronavirus developed a multisystem inflammatory response, which aroused the interest of many researchers and health professionals. The study describes the main characteristics related to the Pediatric Multisystemic Inflammatory Syndrome Associated with COVID-19 (MIS-C), its complications and nursing care. The main clinical manifestations of MIS-C are hyperthermia, gastrointestinal symptoms, skin manifestations, generalized lymphadenopathy, cardiac and neurological disorders. The main nursing care was listed according to the signs and symptoms, such as monitoring of neurological and hydroelectrolytic changes. The nurse professional must add knowledge about MIS-C so that can qualify his care and improve his skills to provide quality care to pediatric patients.

PALAVRAS-CHAVE

Enfermagem pediátrica
Pediatria
SARS-CoV-2
Síndrome de resposta inflamatória sistêmica

RESUMO

No ano de 2019, foi identificada uma nova doença viral, conhecida como infecção pelo SARS-CoV-2. Cientistas acreditavam que se tratava de uma doença de baixa morbidade para pacientes pediátricos; entretanto, uma pequena porcentagem de crianças infectadas pelo novo coronavírus desenvolveu uma resposta inflamatória multissistêmica, que instigou o interesse de diversos pesquisadores e profissionais da área da saúde. O objetivo do estudo é descrever as principais características relacionadas à Síndrome Inflamatória Multissistêmica Pediátrica Associada à COVID-19 (SIM-P), suas complicações e cuidados de enfermagem. As principais manifestações clínicas da SIM-P são hipertermia, sintomas gastrintestinais, manifestações cutâneas, linfadenopatia generalizada, alterações cardíacas e neurológicas. Foram elencados os principais cuidados de enfermagem de acordo com os sinais e sintomas, tais como monitorização de alterações neurológicas e hidroeletrolíticas. O profissional enfermeiro deve agregar conhecimentos sobre a SIM-P para que seja capaz de qualificar seu cuidado e aprimorar suas competências para proporcionar qualidade no atendimento ao paciente pediátrico.

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INTRODUCTION

In 2019, a series of cases of a new disease that mainly affected the respiratory system causing pneumonia, with an increasing number of deaths in the population, occurred in Wuhan, Hubei, a province in China. Called COVID-19, or SARS-CoV-2 infection, the disease affects primarily adult patients, leading researchers to believe that children were slightly impacted or asymptomatic and with a low risk of severity. However, with the progress of the disease, which became a pandemic, records of pediatric patients suffering from a severe multisystem inflammatory response, approximately four weeks after the acute SARS-CoV-2 infection, brought concerns to several researchers and professionals concerning the pathophysiology of this associated complication[1,2].

The first records of the syndrome occurred in Italy, the United Kingdom, and the United States of America. In Brazil, from April 1, 2020, to February 13, 2021, according to the Ministry of Health (MH) epidemiological report, 736 cases of this syndrome were confirmed, of which 46 evolved to death (6.3% lethality). There was a predominance of males (56.3%) and children between 0 and 4 years of age (41.4%). Among the reported cases, 30% of the children had some comorbidity, and more than 61% required admission to the Intensive Care Unit (ICU)[1,3].

The patients showed symptoms similar to Kawasaki's disease (KD), toxic shock syndrome, and hemophagocytic syndrome, such as skin changes and vital organ involvement after infection by SARS-CoV-2. Thus, Multisystem Inflammatory Syndrome in Children (MIS-C) is the set of clinical manifestations that affect various organs after SARS-CoV-2 infection[1,4].

This study aims to outline and portray the main characteristics of MIS-C, its complications and care, and to increase knowledge to nursing professionals and improve the quality of care provided to pediatric patients.

MAIN CLINICAL MANIFESTATIONS OF MIS-C

The syndrome mainly affects patients older than five years of age and of Afro-descendant ethnicity. Among its main clinical manifestations are[3,4]:

- Persistent hyperthermia (for more than three days);
- Gastrointestinal changes (82%), such as diarrhea, emesis, and abdominal pain;
- Respiratory symptoms (63%) such as runny nose, cough, dyspnea, and drop in saturation (however, differently from the cases of patients with acute SARS-CoV-2 infection, MIS-C does not affect the lungs very often);
- Mucocutaneous manifestations (57%) such as polymorphous rash, extremity edema, and oral mucositis;
- Neurological changes (30%), such as lowering of the sensory, headache and irritability;
- Non-purulent conjunctivitis;
- Generalized lymphadenopathy;
- Hepatosplenomegaly and serositis.

Additionally, patients have decreased peripheral perfusion and cardiac involvement (40%), such as myocarditis, pericarditis, valvulitis, and other cardiac abnormalities. These alterations contribute to the development of shock (36%), a situation of extreme severity, characterized by arterial hypotension, tachycardia, perfusion disorders, and, consequently, multiple organ dysfunction and death[3,4].

The Brazilian MH points out that, as it is a novel condition, detailed monitoring of the outcomes and therapeutic approaches are necessary, as there are daily updates of the disease's clinical and epidemiological data[5].

PATHOGENESIS AND THE "CYTOKINE STORM"

The pathogenesis of MIS-C is still being investigated, though studies have remarked that the inflammatory response occurs days or weeks after exposure to the virus and is not considered an acute response. Children are believed to have fewer pulmonary manifestations (compared to adult patients) since they have an immature respiratory system, with a small amount of angiotensin-2-converting enzyme (ACE-2) receptors, known to participate in the mechanism of entry of the virus in the cell[6].

However, the upper fraction of the respiratory system contains a significant number of ACE-2 receptors, causing mild symptoms. The virus colonizes the nasopharyngeal region, producing antigens that come into contact with phagocytic cells[6]. Leukocytes, such as macrophages and monocytes, and cells of specific tissues, such as dendritic and endothelial cells, produce pro-inflammatory cytokines. Cytokines and chemokines are proteins released in the early stage of infection. Among cytokines, it can be mentioned the interferons (IFNs), which are released at low levels, the pro-inflammatory interleukins (IL-1ß, IL-6), as well as tumor necrosis factor (TNF-α), which are released in high concentrations[7].

IL-6 is the primary T lymphocyte regulator, responsible for the differentiation into T-cytotoxic and T-helper (Th) lymphocytes and promoting T cell inhibition. Cytotoxic T cells have the function to identify cells linked to antigens and perform their apoptosis. Th lymphocytes produce antibodies and induce the proliferation of B lymphocytes, which produce a higher number of antibodies. Antibodies, in turn, are responsible for the lysis of the virus[7,8].

When the pro-inflammatory factors are released late, the "cytokine storm" begins, as they attract a large number of defense cells, such as neutrophils and monocytes, causing excessive infiltration of leukocytes cells in the tissues, causing the rupture of the epithelium and, eventually, the release of a more significant number of inflammation factors. Thus, it becomes a cycle, causing progressive immunopathological changes[1,7].

DIAGNOSIS

Regarding the clinical history, it was observed

that patients develop symptoms after COVID-19 or after contact with infected people. Thus, the vast majority of cases have a positive serology test (IgM or IgG) and a negative test that assesses the presence of the virus in the nasopharyngeal mucosa (RT-PCR). However, it is not necessary to perform the exam to close the diagnosis[4].

Once MIS-C is suspected, tests should be performed to complement the disease's diagnosis and investigate the involvement of organs and systems. Initially, laboratory tests are requested to monitor inflammatory activity, liver and kidney function, such as blood count, triglycerides, ferritin, the dosage of inflammatory markers, coagulation, and myocardial function markers (troponin, CK-MB, myoglobin, pro myoglobin, pro-BNP). Also, it is crucial to order tests to rule out other infections, such as urine tests, blood cultures, and serology for viral diseases[2].

When there is pulmonary involvement, investigation for respiratory viruses, arterial blood gas analysis, chest radiography and computed tomography (CT) should be performed. The evaluation should be complemented by investigating cardiovascular involvement, such as echocardiography. When there are signs of central nervous system(CNS) involvement, liquor analysis, and head CT exams are required[1,4].

The criteria for diagnosis were developed by the Center for Disease Control (CDC) and the World Health Organization (WHO), which have minor differences, such as the age of prevalence, time of presentation of fever, and affected systems[4]. Thus, the Brazilian MH created a framework to adapt the diagnostic criteria for the country's context, which was validated by the Brazilian Society of Pediatrics, the Brazilian Society of Cardiology, and Instituto Evandro Chagas[3]. Table 1 shows the diagnoses for MIS-C according to the MH. Table 2 compares the diagnostic criteria for MIS-C according to the CDC and WHO.

Table 1 — MIS-C diagnostic criteria according to the Ministry of Health of Brazil[3].

CASE DEFINITION OF MIS-C
Patients who have been hospitalized or those who died had: **- High fever (> 38°C) and constant (≥ 3 days) in children or teenagers (up to 19 years of age)** **And** **At least two of the following symptoms:** - Non-purulent conjunctivitis or bilateral cutaneous lesion or signs of mucocutaneous inflammation (oral, hands or feet); - Arterial hypotension or shock; - Manifestations of myocardial dysfunction, pericarditis, valvulitis or coronary abnormalities [including echocardiogram findings or Troponin elevation, or N-terminal B-type natriuretic peptide (NT-proBNP*)]; - Evidence of coagulopathy (due to elevated PT, aPTT or D-dimer). - Acute gastrointestinal manifestations (diarrhea, vomiting or abdominal pain); **And** - High inflammation markers (ESR, CRP * or procalcitonin, among others). **And** - Ruled out any other causes of infectious and inflammatory origin, including bacterial sepsis, staphylococcal or streptococcal shock syndromes. **And** - Evidence of COVID-19 (molecular biology, positive antigen or serological test) or a history of contact with COVID-19 case. **Additional information:** Children and adolescents who meet full or partial criteria for Kawasaki syndrome or toxic shock syndrome may be included.

* PT - prothrombin time, aPTT - activated partial thromboplastin time, ESR - erythrocyte sedimentation rate, CRP - reactive protein.

HOW TO MAKE THE DIFFERENTIAL DIAGNOSIS?

MIS-C has clinical manifestations similar to other diseases that affect pediatric patients. Thus, the signs and symptoms of MIS-C are usually accompanied by a previous flu-like condition, which may be associated with a positive diagnosis of COVID-19, a non-mandatory feature, or contact with a person suspected of SARS-CoV-2 infection. However, it is essential to note that many children have asymptomatic infections. It is imperative to know the differential symptoms of MIS-C for the correct diagnosis[11].

The clinical manifestations of MIS-C are similar to several diseases, as they activate the inflammatory cascade, causing nonspecific and systemic symptoms, such as those that occur in KD, toxic shock syndrome, and HPS[6].

- Kawasaki Disease: KD is an acute vasculitis that affects blood vessels of medium and small caliber, mainly the coronary arteries (causing aneurysms). It is considered the leading cause of acquired heart disease in children under five years old, but its etiology is still unknown. It is believed that, as in MIS-C, a viral infection activates the inflammatory cascade in children who have a genetic predisposition to the disease[1,12].

Its main symptoms are rash, enlarged cervical lymph nodes, and alterations in the oral and nasal mucous membranes.There is also the involvement of other organs, such as the liver, lungs, gastrointestinal tract, CNS, and joints. Additionally, a small percentage of patients have a clinical setting similar to septic shock, known as KD shock syndrome, which results from

ventricular myocardial dysfunction with a decrease in peripheral vascular resistance, requiring immediate treatment in the ICU. It courses with low values of platelets and hemoglobin and high levels of C-reactive protein[1,12].

Table 2 — Comparison between the diagnostic criteria for MIS-C according to the Center for Disease Control (CDC) and the World Health Organization (WHO)[9,10].

Source	Criteria
CDC	▪ Age under 21 years ▪ Fever > 38°C for at least 24 h ▪ Laboratory tests showing inflammation ▪ Evidence of severe disease requiring hospitalization, involving at least two systems (cardiac, renal, hematological, respiratory, gastrointestinal, dermatological or neurological systems). ▪ Occurrence of COVID-19 infection proven through serology, antigen or RT-PCR tests; or exposure to the virus in the four weeks before the onset of symptoms.
WHO	▪ Children and adolescents from 0 — 19 years of age ▪ High fever for more than three days ▪ Two of the following symptoms: - Rash or bilateral purulent conjunctivitis or signs of mucocutaneous inflammation - Hypotension or shock - Evidence of coagulopathy - Gastrointestinal symptoms - Signs of myocardial dysfunction, pericarditis, valvulitis and coronary anomalies ▪ Elevation of inflammatory markers ▪ Other possible microbiological causes of inflammation must be ruled out ▪ Evidence of COVID-19 infection or close contact with infected patients.

Gastrointestinal manifestations were observed in MIS-C, a situation rarely observed in KD[13]. Also MIS-C affects older children, and patients are more likely to have cardiac dysfunction and hypotension rather than coronary artery aneurysms[1].

▪ Toxic Shock Syndrome: the syndrome affects older children, with an average age of nine years. It is caused by exposure to microorganisms capable of producing a large number of exotoxins, which are known as "superantigens", such as bacteria (mainly Staphylococcus aureus and Streptococcus pyogenes) and some respiratory viruses. Superantigens interact with T cells, which produce a large amount of inflammatory cytokines[14]

It shows symptoms similar to KD, such as fever, rash, increased vascular permeability with consequent hypotension, changes in tissue integrity (rash) and mucous membranes, with the involvement of several body systems, such as renal, hepatic, hematological, respiratory, neurological and muscular. Among its laboratory alterations, there is a decrease in platelet values, normal hemoglobin values, and increased creatinine levels[1,14]. For differential diagnosis, microbiological tests must be performed[2].

▪ Hemophagocytic syndrome (HPS) or Hemophagocytic Lymphohistiocytosis: HPS is a rare condition associated with immune hyperactivation, with uncontrolled activation of T lymphocytes and macrophages, which phagocytose erythrocytes, leukocytes, platelets, and their precursor cells. The "primary" type is caused by abnormalities in genes that produce a cytokine storm and hemophagocytosis of affected organs. The "secondary" type is triggered by autoimmune, malignant, or inflammatory diseases, such as infections and medication use[15].

Fever and signs of organ dysfunction like hepatosplenomegaly, coagulopathy, hypertriglyceridemia, hypofibrinogenemia and hyperferritinemia, cardiac dysfunction, and changes in the CNS occur. Thrombocytopenia and leukopenia are observed, and there is evidence of infection, with high levels of C-reactive protein and D-dimer, along with alterations in prothrombin and activated thromboplastin times[1,15]. It is associated with autoimmune diseases and neoplasms. Also, cardiac and gastrointestinal manifestations are more frequent in MIS-C[2,13].

TREATMENT

There is no specific treatment for the disease, just as there is no specific treatment for Sars-CoV-2 infection. Therapy aimed at decreasing the systemic inflammatory state and restoring the functioning of organs and systems. Different treatments can be implemented, varying according to the presentation of clinical signs and the need for admission to the ICU[1,4].

Among the proposed treatments are the use of antiplatelet agents, volume replacement in shock and inotropic drugs in severe cases, antimicrobials in signs of septic shock, and immunoglobulin and corticosteroids to treat inflammation. In the most severe cases, mechanical ventilation (MV), renal replacement therapy (RRT), and extracorporeal membrane oxygenation (ECMO) may be used[1,4]. These therapies will be detailed below.

▪ Intravenous immunoglobulin (IgEV): used in moderate to severe cases when symptoms are compatible with KD, SHF, and toxic shock syndrome. The dose is 1 to 2 g/kg, and the infusion should be conducted

in 12 h. It can be repeated in refractory cases[1,4].

▪ Corticosteroids: the drug of choice is methylprednisolone, at an initial dose of 10 to 30 mg/kg/day, for 1 to 3 consecutive days, followed by 2 mg/kg/day for 5 days, and with a gradual dose reduction over 2 to 3 weeks. It is associated with the use of IgEV in cases where the patient is refractory to the isolated immunoglobulin[1,4].

▪ Antiplatelet agents: acetylsalicylic acid (ASA) is the drug of choice in MIS-C with KD-associated manifestations with platelets ≥ 450,000/µL. It should not be used in cases of thrombocytopenia (≤ 80,000/µL). The dose to be used is 30 to 50 mg/kg/day and should be reduced to 3 to 5 mg/kg/day when the child is afebrile for 48 h. After identifying platelet count normalization and confirming that there are no coronary changes (after four weeks of diagnosis), it should be suspended[1,4].

Enoxaparin should be used along with ASA when there is evidence of thrombosis or ventricular dysfunction, with an ejection fraction < 35% for two weeks after hospital discharge. Besides, in cases of severe coronary aneurysms, it must be maintained indefinitely[1,4].

▪ Inotropic support: used in cardiogenic shock with ventricular dysfunction. Dobutamine or milrinone are indicated for patients with low cardiac output associated with adequate systemic blood pressure. In cases of systemic arterial hypotension, epinephrine should be the drug of choice[1,13].

▪ RRT: its purpose is to correct metabolic abnormalities and manage excess extracellular fluid resulting from acute kidney injury (AKI). Thus, it provides the opportunity for the recovery of renal function. AKI is defined by the acute or subacute loss of renal function and. When associated with MIS-C, systemic collapse is observed following orotracheal intubation and onset of MV or hyperinflammation[13]. Among the RRT methods, there is prolonged hemodialysis, conventional intermittent hemodialysis, and peritoneal dialysis. The method of choice must be individualized according to the patient and institution[16].

▪ MV: it has the function of totally or partially replacing the patient's spontaneous ventilation in acute or chronic respiratory failure cases. It is responsible for improving gas exchange and decreasing respiratory workload. It can be used non-invasively, with a face mask, or invasively, using an endotracheal tube or tracheostomy cannula[17].

▪ ECMO: therapy that uses an extracorporeal circulation to perform pulmonary and cardiac function in patients who have reversible cardiopulmonary insufficiency. The treatment is performed for a variable period of one to four weeks and is indicated for patients who have a chance of progressing to death greater than 50%[18]. Concerning the ECMO device, blood is drained from the patient, using cannulas, to an external pump that carries blood to an oxygenator, where the gas exchange occurs through a membrane. Afterward, the blood is pumped to a heater, which warms the blood through a heat exchange with heated water, to return the blood to the patient's circulation. The system and the patient must be kept anticoagulated with continuous heparin[18]. The venovenous system (VV), when the blood is drained through the internal jugular vein (IJV) and redirected to the femoral vein, requires good cardiac functioning of the patient, providing pulmonary support. In the venoarterial system (VA), the venous cannula is connected to the IJV to perform drainage to the device, and the blood returns through the arterial cannula, which is connected to the carotid, femoral or aortic artery. ECMO VA system is used for cardiac and pulmonary support[18].

NURSING DIAGNOSES (ND) AND CARE PLAN

The ND was selected from the NANDA International Taxonomy 2018–2020 and had the function of helping nurses make a clinical judgment about the responses, experiences, and potentials of the individual, family, or community about health and life processes. Thus, it serves as a basis for selecting nursing interventions, aiming to achieve the results expected by nurses[19,20].

The professional nurse must conduct a systemic assessment based on technical and scientific knowledge and professional expertise, listing precise and individualized care for each patient and identifying and minimizing unfavorable events. Table 3 illustrates the main ND and care plan[21,22].

Table 3 — Nursing diagnosis and care plan[21,22].

Nursing Diagnosis	Definition	Defining characteristics, risk factors and/or signs and symptoms	Care plan
Hyperthermia	Central body temperature above normal daytime parameters due to failure in thermoregulation.	-Axillary temperature above 37°C; - Lethargy; - Skin warm to the touch; - Reddened skin; - Vasodilation; - Tachycardia.	Monitor skin temperature and other vital signs; Monitor fluid intake and elimination; monitor complications related to fever and the signs and symptoms of conditions that cause fever, such as seizures and sensory changes.

Nursing Diagnosis	Definition	Defining characteristics, risk factors and/or signs and symptoms	Care plan
Risk of electrolyte imbalance	Susceptibility to changes in serum electrolyte levels that can compromise health.	- Diarrhea; - Vomiting; - Bleeding; - Hyponatremia; - Hypokalemia; - Hyperkalemia.	Maintain a strict water balance; monitor the hydration status, through the control of urine output; monitor the hemodynamic status; weighing daily; monitor fluid losses (bleeding, vomiting, diarrhea, sweating and tachypnea); correctly administer intravenous solution containing electrolytes in constant flow.
Imbalanced nutrition: less than body requirements	Insufficient nutrient intake to meet metabolic needs.	- Inability to eat food; - Change in taste; - Respiratory effort; - Patient using a nasoenteric tube	Assess the need for NEP; administer diet by NEP; offer liquid and pasty diets, when it is difficult to swallow; provide oral care before meals; Help the patient to sit down before eating or being fed; determine food preferences and request evaluation with a nutritionist.
Risk for Infection	Susceptibility to invasion and multiplication of pathogenic organisms that can compromise health.	- Presence of hyperthermia (axillary temperature above 37°C); - Leukopenia (leukocytes <3500 cells/μL)	Notify suspicious infections; Follow neutropenic guidelines, such as isolation for patient protection, as well as installing droplet isolation; Limit the number of visitors; Wear disposable gloves and aprons; Strict hand hygiene; Inspect and report hyperemia, edema and presence of secretions at the insertion of venous devices; Communicate axillary temperature rise; Pay attention to the presence of secretion in the airways and pulmonary auscultation with the presence of adventitious sounds.
Risk for Shock	Susceptibility to inadequate blood flow to body tissues, which can lead to life-threatening cell dysfunction that can compromise health.	- Mean arterial pressure (MAP) < 65 mmHg; - Capillary refill time > 3 s; - Hypovolemia; - Hyperthermia; - Decrease in urinary output.	Monitor for early shock compensation responses, such as increased heart rate, cold extremities and increased capillary refill time (CRT); monitor the initial signs of Systemic Inflammatory Response Syndrome (increased temperature, tachycardia, tachypnea, leukocytosis or leukopenia); monitor and communicate the signs of cardiac involvement - capillary filling <3 s and pallor; monitor bleeding.
Risk for Bleeding	Susceptibility to the reduction in the volume of blood that can compromise health.	- Low platelets (< 150,000/mm^3) - Changes in coagulation tests such as prothrombin time (PT), partial thromboplastin time (PTT), fibrinogen.	Keep patient at rest in bed; identify the cause of the bleeding; apply direct pressure or compressive dressing, if appropriate; Monitor the amount and nature of blood loss; monitor coagulation tests, including TP, TTP, fibrinogen and platelet count; monitor neurological functioning; maintain patent venous access; monitor urine output and tachycardia; observe ECMO cannulas for kinks or disconnects.
Decreased cardiac output	Susceptibility to the volume of blood pumped by the heart is inadequate to meet the metabolic demands of the body that can compromise health.	- Changes in heart rate; - Bradycardia; - Hypotension; - Ejection fraction decreased.	Monitor heart rate and rhythm; Observe signs and symptoms of reduced cardiac output, such as pallor, bradycardia and hypotension; perform the assessment of peripheral circulation, communicating reduced perfusion and pulse.

Nursing Diagnosis	Definition	Defining characteristics, risk factors and/or signs and symptoms	Care plan
Impaired gas exchange	Defined as excess or deficit in oxygenation and/or elimination of carbon dioxide in the alveolocapillary membrane.	- Supraclavicular and intercostal muscle retractions; - Nasal wing beat; - Saturation drops; - Dyspnea; - Change in skin color; - Diaphoresis.	Use personal protective equipment (PPE), according to the institutional protocol; check the need for aspiration of the upper airways; monitor signs and symptoms of respiratory failure; position so as to facilitate adequate ventilation (keep the head of the bed elevated); administer supplemental oxygen and monitor pulse oximetry; check ventilation parameters in order toperform protective ventilation.
Risk for Aspiration	Susceptibility to the entry of gastrointestinal secretions, oropharyngeal secretions, solids or liquids in the tracheobronchial pathways that can compromise health.	- Enteral feeding; - Ability to swallow; - Decreased level of consciousness; - Ineffective cough; - Presence of secretion in the airways.	Keep the tracheal cuff inflated; monitor the level of awareness; keep the head of the bed elevated after the administration of the diet; aspirate secretions when necessary.
Impaired skin integrity	Altered epidermis and/or dermis	The presence of alteration in the color of the skin, which does not subside after decompression; presence of blister; the rupture of the skin.	Take a physical exam to identify breaks in the skin; maintain hydration and alternate decubitus every two hours, protecting bony prominences; apply antipruritics, when appropriate; apply coverings to the skin to prevent pressure injuries.
Risk for venous thromboembolism	Susceptibility to the development of a blood clot in a deep vein, usually in the thigh, calf or upper extremity, which can rupture and lodge in another vessel, which can compromise health.	- Absence or reduction of peripheral pulses; - Pale skin color; - Pain and edema in extremities; - Paresthesia.	Monitor the occurrence of pain in the affected area; assess whether there is the presence of the Homans sign - pain when the foot is forcibly flexed; monitor increase in extremity circumference; administer anticoagulant medication, according to medical prescription; Monitor PT and PTT.
Acute confusion	Reversible disturbances of consciousness, attention, cognition and perception that appear in a brief period, lasting less than 3 months.	- Agitation; - Change in levels of consciousness; - Hallucinations.	Inform the patient about recent and non-threatening events; guide about time, place and people; stimulate memory; maintaining constant vigilance; enabling rest; install oxygen if appropriate; check vital signs.

CONCLUSION

From this study, we found that MIS-C is still little known by health professionals. Therefore, they must be attentive to updates on the disease, routinely seeking knowledge about the clinical picture and treatment to quickly identify and treat patients, aiming at the full recovery of their vital functions. Knowledge about the Pediatric Multisystemic Inflammatory Syndrome associated with COVID-19 is essential for the qualification of the care provided by nursing professionals in the care of children and teenagers.

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