Boletín de Alerta Bibliográfica

COVID-19
Unidad de Desarrollo de la Investigación, Tecnologías y Docencia
ÍNDICE TEMÁTICO

⇒ CIRUGÍA (CIRUGÍA CARDIOVASCULAR / NEUROCIRUGÍA / OTROS)
⇒ CLÍNICA, DIAGNÓSTICO / TRATAMIENTO
⇒ EPIDEMIOLOGÍA
⇒ NEONATOS / MADRE E HIJO
⇒ RADIOLOGÍA
⇒ SALUD MENTAL
⇒ SÍNDROME INFLAMATORIO MULTISISTÉMICO (MIS-C)

RECURSOS DE INFORMACIÓN

Este número incluye:

- Evidence Assessment: Sinopharm/BBIBP COVID-19 vaccine
  (Evaluación de la evidencia: Vacuna Sinopharm)

- Selección de Recursos de Información sobre COVID-19 elaborado por el Instituto Nacional de Salud (INS)

Doi: 10.1097/mat.0000000000001422

Abstract

This is an updated guideline from the Extracorporeal Life Support Organization (ELSO) for the role of extracorporeal membrane oxygenation (ECMO) for patients with severe cardiopulmonary failure due to coronavirus disease 2019 (COVID-19). The great majority of COVID-19 patients (>90%) requiring ECMO have been supported using venovenous (V-V) ECMO for acute respiratory distress syndrome (ARDS). While COVID-19 ECMO run duration may be longer than in non-COVID-19 ECMO patients, published mortality appears to be similar between the two groups. However, data collection is ongoing, and there is a signal that overall mortality may be increasing. Conventional selection criteria for COVID-19-related ECMO should be used; however, when resources become more constrained during a pandemic, more stringent contraindications should be implemented. Formation of regional ECMO referral networks may facilitate communication, resource sharing, expedited patient referral, and mobile ECMO retrieval. There are no data to suggest deviation from conventional ECMO device or patient management when applying ECMO for COVID-19 patients. Rarely, children may require ECMO support for COVID-19-related ARDS, myocarditis, or multisystem inflammatory syndrome in children (MIS-C); conventional selection criteria and management practices should be the standard. We strongly encourage participation in data submission to investigate the optimal use of ECMO for COVID-19.

Doi: 10.1007/s00383-021-04903-4

Abstract

Purpose: We aimed to understand the challenges facing children's surgical care providers globally and realistic interventions to mitigate the catastrophic impact of COVID-19 on children's surgery.

Methods: Two online Action Planning Forums (APFs) were organized by the Global Initiative for Children's Surgery (GICS) with a geographically diverse panel representing four children’s surgical, anesthesia, and nursing subspecialties. Qualitative analysis was performed to identify codes, themes, and subthemes.

Results: The most frequently reported challenges were delayed access to care for children; fear among the public and patients; unavailability of appropriate personal protective equipment (PPE); diversion of resources toward COVID-19 care; and interruption in student and trainee hands-on education. To address these challenges, panelists recommended human resource and funding support to minimize backlog; setting up international, multi-center studies for systematic data collection specifically for children; providing online educational opportunities for trainees and students in the form of large and small group discussions; developing best practice guidelines; and, most importantly, adapting solutions to local needs.

Conclusion: Identification of key challenges and interventions to mitigate the impact of the COVID-19 pandemic on global children's surgery via an objective, targeted needs assessment serves as an essential first step. Key interventions in these areas are underway.


Doi: 10.1007/s12663-020-01487-9

Abstract

The coronavirus disease (COVID-19) had created the new normal approach towards the management of all maxillofacial problems as it is highly contagious and causing a threat to the health care professionals. The surgical management of patients with cleft and craniofacial deformities has caused lots of anxiety among patients and doctors in the recent COVID era as some essential treatment will be required for cleft babies from day one. Safety and protection for cleft children and parents must be the priority while dealing with this non-emergency disease. This article will highlight the important steps of management of the cleft and craniofacial cases during this pandemic by adhering to the protocols. It also throws light towards the strategies in revoking the cleft surgical management at least till this infection subsides.

Doi: 10.1007/s00383-021-04903-4

Abstract

Introduction: The purpose of this investigation was to assess the utilization of telehealth capabilities by pediatric orthopaedic departments across the United States in response to the COVID-19 pandemic.

Methods: One hundred four pediatric orthopaedic departments were investigated regarding each institution's current telehealth utilization as a direct response to the COVID-19 pandemic.

Results: Of the 104 hospitals contacted across the United States, 100 pediatric orthopaedic departments in 39 states responded for an overall response rate of 96%. Of the 95 institutions offering telehealth services, 83 (87.4%) cited the COVID-19 pandemic as the impetus for the implementation of telehealth services. Of these, 29 institutions (31%) began offering services from March 16 to March 31 and 34 (36%) began offering services from April 1 to April 15. Regional analysis demonstrated an 800% increase in telehealth services in the state of New York, a 600% increase in Florida, a 500% increase in Texas, a 400% increase in Michigan, a 200% increase in Pennsylvania, and a 1,100% increase in California.

Discussion: This study demonstrates the rapid response measures instituted by pediatric orthopaedic institutions to meet the fundamental needs of the pediatric population during this unprecedented pandemic.

Doi: 10.1097/inf.0000000000003094

Abstract

Background: Acute myocarditis (AM) is defined as inflammation of the myocardium. The aim of our study is a comparative analysis of the differences between AM related and unrelated to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

Methods: The retrospective study included children with AM treated from January 2018 to November 2020.

Results: The study included 24 patients; 7 of 24 had AM related to SARS-CoV-2 and they were older than 7. They were more likely to have abdominal pain (P = 0.014), headache (P = 0.003), cutaneous rash (P = 0.003), and conjunctivitis (P = 0.003), while fulminant myocarditis was commonly registered in AM unrelated to SARS-CoV-2 (P = 0.04). A multisystem inflammatory syndrome in children associated with COVID-19 was diagnosed in six adolescents. Patients with AM related SARS-CoV-2 had lower serum cardiac troponin I (cTnI) (P = 0.012), and platelets (P < 0.001), but had a higher C-reactive protein (CRP) value (P = 0.04), and N-terminal-pro hormone BNP in comparison to patients with AM unrelated to SARS-CoV-2. The patients with AM related to SARS-CoV-2 had significant reduction of CRP (P = 0.007). Inotropic drug support was used for shorter durations in patients with AM related to SARS-CoV-2, than in others (P = 0.02). Children with AM related to SARS-CoV-2 had significant improvement of left ventricle systolic function on the third day in hospital (P = 0.001). Patients with AM unrelated to SARS-CoV-2 AM had more frequent adverse outcomes (P = 0.04; three died and four dilated cardiomyopathy).

Conclusions: In contrast to patients with AM unrelated to SARS-CoV-2, patients with AM related to SARS-CoV-2 had a higher CRP value, polymorphic clinical presentation, shorter durations of inotropic drugs use as well as prompt recovery of left ventricle systolic function.

Doi: 10.1097/inf.0000000000003081

Abstract

We describe 2 premature infants presenting with SARS-CoV-2-related pulmonary disease in their second and fifth week of life needing support with mechanical ventilation. Both infants' initial presentation was with repeated apneas. These cases highlight that SARS-CoV-2 infection could present with apneas and has the potential to progress to more severe pulmonary disease in this high-risk age group of patients. Both patients were treated with remdesivir (RDV). We provide the data of 2 high-risk neonates successfully treated with RDV without observation of any described side effects. A recognition that these high-risk neonates could deteriorate and early multidisciplinary team discussion is the mainstay to the compassionate access to RDV. Our experience led us to develop a guideline on the use of RDV below 12 years of age, with particular focus on infants and young children.


Doi: 10.1097/inf.0000000000003104

Abstract

Liver dysfunction is highlighted by several studies as a relevant complication in the context of coronavirus disease 2019 (COVID-19). We present a pediatric patient with mild phenotype but transient severe liver injury. Hepatic damage should be considered even in mild cases of the disease to ensure prompt recognition and management.

Doi: [10.1097/inf.0000000000003103](https://doi.org/10.1097/inf.0000000000003103)

Abstract

This cross-sectional study, including children hospitalized for severe acute respiratory syndrome coronavirus 2 infection, demonstrates for the first time that nonhealthcare worker parents perform similarly to healthcare workers in the administration to their children of an unsupervised nasal swab for severe acute respiratory syndrome coronavirus 2 detection by following written instructions and video tutorials.


Doi: [10.1097/inf.0000000000003101](https://doi.org/10.1097/inf.0000000000003101)

Abstract

**Background:** Real-time reverse transcription-quantitative polymerase chain reaction (RT-qPCR) is the reference laboratory method to diagnose SARS-CoV-2 infection then requires equipment and is time-consuming. There is a crucial demand for rapid techniques such as antigen detection test. Considering the different diagnostic accuracy of tests with other respiratory viruses in adults and children, SARS-CoV-2 antigen test must be evaluated specifically in children.

**Methods:** The purpose of this study was to evaluate the performance of Panbio COVID-19 Ag Rapid Test Device (Abbott) as a point-of-care test for diagnosis of SARS-CoV-2 in comparison to RT-qPCR in a pediatric population.

**Results:** Four hundred forty nasopharyngeal swabs were tested. Amongst the 18 positive RT-qPCR samples, 14 were detected by the rapid antigen test, given an overall sensitivity of 77.7%. All the samples detected positive with the antigen rapid test were also positive with RT-qPCR.

**Conclusion:** The sensitivity of Panbio COVID-19 Ag Rapid Test Device is lower in children than in adults. Nevertheless, considering the good values of specificity, negative and positive predictive values this test could be used as a frontline test to obtain quick results, although the negative values with COVID-19 high clinical suspicion should be confirmed using RT-qPCR.

Doi: 10.2147/phmt.s294739

Abstract

Objectives: Remdesivir shortens time to recovery in adults with severe coronavirus disease 2019 (COVID-19), but its efficacy and safety in children are unknown. We describe outcomes in children with severe COVID-19 treated with remdesivir.

Methods: Seventy-seven hospitalized patients <18 years old with confirmed severe acute respiratory syndrome coronavirus 2 infection received remdesivir through a compassionate-use program between March 21 and April 22, 2020. The intended remdesivir treatment course was 10 days (200 mg on day 1 and 100 mg daily subsequently for children ≥40 kg and 5 mg/kg on day 1 and 2.5 mg/kg daily subsequently for children <40 kg, given intravenously). Clinical data through 28 days of follow-up were collected.

Results: Median age was 14 years (interquartile range 7-16, range <2 months to 17 years). Seventy-nine percent of patients had ≥1 comorbid condition. At baseline, 90% of children required supplemental oxygen and 51% required invasive ventilation. By day 28 of follow-up, 88% of patients had a decreased oxygen-support requirement, 83% recovered, and 73% were discharged. Among children requiring invasive ventilation at baseline, 90% were extubated, 80% recovered, and 67% were discharged. There were 4 deaths, of which 3 were attributed to COVID-19. Remdesivir was well tolerated, with a low incidence of serious adverse events (16%). Most adverse events were related to COVID-19 or comorbid conditions. Laboratory abnormalities, including elevations in transaminase levels, were common; 61% were grades 1 or 2.

Conclusions: Among 77 children treated with remdesivir for severe COVID-19, most recovered and the rate of serious adverse events was low.


Doi: 10.1097/inf.0000000000003096

Abstract

Children and adolescents with severe acute respiratory syndrome coronavirus 2 infection usually have a milder illness, lower mortality rates and may manifest different clinical entities compared with adults. Acute effusive pericarditis is a rare clinical manifestation in patients with COVID-19, especially among those without concurrent pulmonary disease or myocardial injury. We present 2 cases of acute pericarditis, in the absence of initial respiratory or other symptoms, in adolescents with COVID-19.


**Abstract**

**Background:** A novel coronavirus (SARS-CoV-2) emerging has put global public health institutes on high alert. Little is known about the epidemiology and clinical characteristics of human coronaviruses infections in relation to infections with other respiratory viruses.

**Methods:** From February 2017 to December 2019, 3660 respiratory samples submitted to Zhejiang Children Hospital with acute respiratory symptoms were tested for four human coronaviruses RNA by a novel two-tube multiplex reverse transcription polymerase chain reaction assays. Samples were also screened for the occurrence of SARS-CoV-2 by reverse transcription-PCR analysis.

**Results:** Coronavirus RNAs were detected in 144 (3.93%) specimens: HCoV-HKU1 in 38 specimens, HCoV-NL63 in 62 specimens, HCoV-OC43 in 38 specimens and HCoV-229E in 8 specimens. Genomes for SARS-CoV-2 were absent in all specimens by RT-PCR analysis during the study period. The majority of HCoV infections occurred during fall months. No significant differences in gender, sample type, year were seen across species. 37.5 to 52.6% of coronaviruses detected were in specimens testing positive for other respiratory viruses. Phylogenetic analysis identified that Zhejiang coronaviruses belong to multiple lineages of the coronaviruses circulating in other countries and areas.

**Conclusion:** Common HCoVs may have annual peaks of circulation in fall months in the Zhejiang province, China. Genetic relatedness to the coronaviruses in other regions suggests further surveillance on human coronaviruses in clinical samples are clearly needed to understand their patterns of activity and role in the emergence of novel coronaviruses.


**Abstract**

Clinical descriptions about influenza-like illness in children seem non specific during the co-circulation of SARS-CoV-2 and influenza. This paper aimed to summarize recent studies comparing clinical features and outcome, laboratory and radiological findings of COVID-19 patients with influenza patients in pediatric population.

Doi: 10.1093/jpids/piaa148

Abstract


Doi: 10.1186/s12887-021-02679-z

Abstract

Background: Following the outbreak of the COVID-19 pandemic, a change in the incidence and transmission of respiratory pathogens was observed. Here, we retrospectively analyzed the impact of COVID-19 on the epidemiologic characteristics of Mycoplasma pneumoniae infection among children in Chengdu, one of the largest cities of western China.

Method: M. pneumoniae infection was diagnosed in 33,345 pediatric patients with respiratory symptoms at the Chengdu Women's & Children's Central Hospital between January 2017 and December 2020, based on a serum antibody titer of ≥1:160 measured by the passive agglutination assay. Differences in infection rates were examined by sex, age, and temporal distribution.

Results: Two epidemic outbreaks occurred between October-December 2017 and April-December 2019, and two infection peaks were detected in the second and fourth quarters of 2017, 2018, and 2019. Due to the public health response to COVID-19, the number of positive M. pneumoniae cases significantly decreased in the second quarter of 2020. The number of M. pneumoniae infection among children aged 3-6 years was higher than that in other age groups.

Conclusions: Preschool children are more susceptible to M. pneumoniae infection and close contact appears to be the predominant factor favoring pathogen transmission. The public health response to COVID-19 can effectively control the transmission of M. pneumoniae.

Doi: 10.1038/s41390-021-01547-x

Abstract

Introduction: Pediatric critical care patients with COVID-19 treated in Peru have higher mortality than those previously reported from other countries. Pediatric providers have reported a high number of patients without comorbidities presenting with hemorrhagic strokes associated with COVID-19. We present a study analyzing the factors associated with mortality in this setting.

Methods: Prospective case-control study that included patients <17 years old admitted to a pediatric critical care unit with a positive test confirming COVID-19. The primary outcome was mortality. Fisher's exact test and the Mann-Whitney U test were used for the analysis.

Results: Forty-seven patients were admitted to critical care. The mortality of our study is 21.3%. The mortality of patients with neurological presentation was 45.5%, which was significantly higher than the mortality of acute COVID-19 (26.7%) and MIS-C (4.8%), p 0.18. Other risk factors for mortality in our cohort were strokes and co-morbidities. Only one patient presenting with hemorrhagic stroke had an undiagnosed comorbidity.

Conclusion: Cerebrovascular events associated with COVID-19 in pediatric patients, including infants, must be recognized as one of the more severe presentations of this infection in pediatric patients.

Impact: Pediatric patients with COVID-19 can present with hemorrhagic and ischemic strokes on presentation. Neurological presentation in pediatric patients with COVID-19 has high mortality. Mortality of pediatric patients with COVID-19 is associated with comorbidities. Pediatric presentation and outcomes of COVID-19 in different regions can be novel to previously described.

Doi: 10.1093/ajcp/aqab033

Abstract

Objectives: Serologic assay performance studies for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in pediatric populations are lacking, and few seroprevalence studies have routinely incorporated orthogonal testing to improve accuracy.

Methods: Remnant serum samples for routine bloodwork from 2,338 pediatric patients at UPMC Children's Hospital of Pittsburgh were assessed using the EUROIMMUN Anti-SARS-CoV-2 ELISA IgG (EuroIGG) assay. Reactive cases with sufficient volume were also tested using 3 additional commercial assays.

Results: Eighty-five specimens were reactive according to the EuroIGG, yielding 3.64% (95% confidence interval [CI], 2.91%-4.48%) seropositivity, of which 73 specimens had sufficient remaining volume for confirmation by orthogonal testing. Overall, 19.18% (95% CI, 10.18%-28.18%) of samples were positive on a second and/or third orthogonal assay. This 80.82% false positivity rate is disproportionate to the expected false positivity rate of 50% given our pediatric population prevalence and assay performance.

Conclusions: In pediatric populations, false-positive SARS-CoV-2 serology may be more common than assay and prevalence parameters would predict, and further studies are needed to establish the performance of SARS-CoV-2 serology in children.


Abstract

Background: SARS-CoV-2 can induce an immune impairment and dysregulation, finally resulting in the massive release of inflammatory mediators (cytokine storm), strongly contributing to the pulmonary and systemic manifestations in severe coronavirus disease 2019 (COVID-19). As a consequence, different drugs active on the immune system have been proposed for the treatment of the disease in adults.

Role of the anti-rheumatic agents in children: Children are more likely to develop a mild disease course, as the severe form of COVID-19 is identified in less than 5% of the pediatric patients. Moreover, in children a peculiar disease phenotype, defined as multisystem inflammatory syndrome in children (MIS-C) is observed, representing the most severe expression of the inflammatory dysregulation caused by SARS-CoV-2. The limited experience with the severe pediatric COVID-19 and MIS-C does not allow conclusions about the role of the immune pharmacological approach, and therefore the treatment of these conditions represents a considerable clinical challenge. The use of chloroquine, hydroxychloroquine, and colchicine in the early disease stages is not sufficiently supported by evidence, and there is an increasing interest in the role of biologic agents, including anti-IL-1 and anti-IL-6 agents, in the prevention and treatment of the severe manifestations of COVID-19.

Conclusion: The therapeutic approach to pediatric COVID-19 is multidisciplinary, and anti-rheumatic agents have a prominent role in severe disease. This paper reviews the rationale for the use of anti-rheumatic agents in pediatric COVID-19 and MIS-C and the clinical experience with the single drugs. Finally, the areas of potential improvement in the use of anti-rheumatic agents, including the optimization of the drug choice and the timing of administration, are discussed.
Epidemiología

Publicaciones


Doi: 10.1007/s00467-021-05084-x

Abstract

Background and objectives: COVID-19 is responsible for the 2019 novel coronavirus disease pandemic. Despite the vast research about the adult population, there has been little data collected on acute kidney injury (AKI) epidemiology, associated risk factors, treatments, and mortality in pediatric COVID-19 patients admitted to the ICU. AKI is a severe complication of COVID-19 among children and adolescents.

Methods: A comprehensive literature search was conducted in PubMed/MEDLINE and Cochrane Center Trials to find all published literature related to AKI in COVID-19 patients, including incidence and outcomes.

Results: Twenty-four studies reporting the outcomes of interest were included. Across all studies, the overall sample size of COVID positive children was 1,247 and the median age of this population was 9.1 years old. Among COVID positive pediatric patients, there was an AKI incidence of 30.51%, with only 0.56% of these patients receiving KRT. The mortality was 2.55% among all COVID positive pediatric patients. The incidence of multisystem inflammatory syndrome in children (MIS-C) among COVID positive patients was 74.29%.

Conclusion: AKI has shown to be a negative prognostic factor in adult patients with COVID-19 and now also in the pediatric cohort with high incidence and mortality rates. Additionally, our findings show a strong comparison in epidemiology between adult and pediatric COVID-19 patients; however, they need to be confirmed with additional data and studies.

Doi: 10.1136/archdischild-2020-321351

Abstract

Knowledge of thrombosis in children with SARS-CoV-2 is scarce. In this multicentre national cohort of children with SARS-CoV-2 involving 49 hospitals, 4 patients out of 537 infected children developed a thrombotic complication (prevalence of 0.7% (95% CI: 0.2% to 1.9%) out of the global cohort and 1.1% (95% CI: 0.3% to 2.8%) out of the hospitalised patients). We describe their characteristics and review other published paediatric cases. Three out of the four patients were adolescent girls, and only two cases had significant thrombotic risk factors. In this paediatric cohort, D-dimer value was not specific enough to predict thrombotic complications. Adolescence and previous thrombotic risk factors may be considered when initiating anticoagulant prophylaxis on children with SARS-CoV-2 disease (COVID-19).


Abstract

Background: There is increasing concern that persistent infection of SARS-CoV-2 within immunocompromised hosts could serve as a reservoir for mutation accumulation and subsequent emergence of novel strains with the potential to evade immune responses.

Methods: We describe three patients with acute lymphoblastic leukemia who were persistently positive for SARS-CoV-2 by real-time polymerase chain reaction. Viral viability from longitudinally-collected specimens was assessed. Whole-genome sequencing and serological studies were performed to measure viral evolution and evidence of immune escape.

Findings: We found compelling evidence of ongoing replication and infectivity for up to 162 days from initial positive by subgenomic RNA, single-stranded RNA, and viral culture analysis. Our results reveal a broad spectrum of infectivity, host immune responses, and accumulation of mutations, some with the potential for immune escape.

Interpretation: Our results highlight the potential need to reassess infection control precautions in the management and care of immunocompromised patients. Routine surveillance of mutations and evaluation of their potential impact on viral transmission and immune escape should be considered.

Doi: 10.1097/inf.0000000000003102

Abstract

Limited data are available about the outcomes of coronavirus disease 2019 (COVID-19) during pregnancy and risk of vertical transmission in exposed neonates. We reviewed studies published February 1, 2020, through August 15, 2020, on outcomes in pregnant women with COVID-19 and neonates with perinatal exposure. Among pregnant women with COVID-19, 181 (11%) required intensive care unit admission and 123 (8%) required mechanical ventilation. There were 22 maternal deaths. Most infections occurred in the third trimester. Among women who delivered, 28% had a preterm birth, and 57% had a Caesarean section. Sixty-one (4%) of 1222 neonates with reported testing had at least 1 positive severe acute respiratory syndrome coronavirus 2 polymerase chain reaction test. The most common symptom among neonates was respiratory distress (n = 126; 21%). There were 14 neonatal deaths, one of which occurred in a neonate with positive testing. Further study of COVID-19 in pregnant women and neonates, including standardized reporting of outcomes, testing and treatment protocols, is essential to optimize maternal and neonatal care.


Doi: 10.1542/neo.22-5-e1001

Abstract

The coronavirus disease 2019 pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has swept across the world like an indiscriminating wildfire. Pregnant women and neonates are particularly vulnerable to this infection compared with older children and healthy young adults, with unique challenges in their management. Unfamiliarity with the consequences of this novel virus and lack of high-quality data led to considerable heterogeneity in obstetrical and neonatal management early in the pandemic. The aim of the this review is to summarize the impact of SARS-CoV-2 infection on pregnancy and childbirth and to examine care and possible outcomes for neonates with Covid-19-positive mothers. A brief review of vaccines currently approved by the United States Food and Drug Administration for emergency use and their potential effects on pregnant and lactating women in included.

Doi: 10.1097/aog.0000000000004367

Abstract

Background: Studies evaluating the safety and efficacy of currently available vaccines for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) do not include pregnant participants. No data are available to counsel on vaccine safety and potential for neonatal passive immunity.

Case: A 34-year-old multigravid patient working in health care received the Pfizer-BioNTech (BNT162b2) mRNA vaccine for SARS-CoV-2 in the third trimester of pregnancy. Uncomplicated spontaneous vaginal delivery of a female neonate with Apgar scores of 9 and 9 occurred at term. The patient's blood as well as neonatal cord blood were evaluated for SARS-CoV-2-specific antibodies. Both the patient and the neonate were positive for antibodies at a titer of 1:25,600.

Conclusion: In this case, passage of transplacental antibodies for SARS-CoV-2 was shown after vaccination in the third trimester of pregnancy.


Doi: 10.1177/00099228211006688

Abstract

The emergence of novel coronavirus disease-2019 poses an unprecedented challenge to pediatricians. While the majority of children experience mild disease, initial case reports on young infants are conflicting. We present a case series of 8 hospitalized infants 60 days of age or younger with coronavirus disease-2019. A quarter of these patients had coinfections (viral or bacterial). None of these infants had severe disease. Continued vigilance in testing this vulnerable group of infants is warranted.

Doi: 10.1093/jpids/piaa133

Abstract

Vertical transmission of SARS-CoV-2 has already been described, while clinical consequences to the fetus are still under investigation. This article reports a case of systemic fetal inflammatory response and pericardial effusion. As far as is known, this is the first case of fetal/neonatal cardiac complications related to SARS-CoV-2 infection.


Doi: 10.1136/bcr-2021-241846

Abstract

A 9-day-old girl presented during the 2020 SARS-CoV-2 pandemic in wide-complex tachycardia with acute, symptomatic COVID-19 infection. Because the potential cardiac complications of COVID-19 were unknown at the time of her presentation, we chose to avoid the potential risks of haemodynamic collapse associated with afterload reduction from adenosine. Instead, a transoesophageal pacing catheter was placed. Supraventricular tachycardia (SVT) with an aberrated QRS morphology was diagnosed and the catheter was used to pace-terminate tachycardia. This presentation illustrates that the haemodynamic consequences of a concurrent infection with largely unknown neonatal sequelae present a potentially high-risk situation for pharmacologic conversion. Oesophageal cannulation can be used to diagnose and terminate infantile SVT.

Doi: 10.1371/journal.pone.0250196

Abstract

Introduction: The evidence for vertical transmission of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) is not well established. Therefore, the objective of this review is to summarize emerging evidence on the vertical transmission of Severe Acute Respiratory Syndrome Coronavirus 2.

Methods: We conducted a systematic search in PubMed, CINAHL, Web of Science, SCOPUS, and CENTRAL. Likewise, a search for preprint publications was conducted using MedRxiv and Research Square. Studies that addressed vertical transmission of SARS-CoV-2 (concept) among pregnant women infected by Covid-19 (population) in any setting (community, hospital, or home) in any country or context were considered for inclusion. Any types of studies or reports published between December 2019 and September 2020 addressing the effects of SARS-CoV-2 on pregnant women and their newborn babies were included. Studies were screened for eligibility against the inclusion criteria for the review by two reviewers.

Results: We identified 51 studies reporting 336 newborns screened for COVID-19. From the 336 newborns screened for COVID-19, only 15 (4.4%) were positive for throat swab RT-PCR. All neonates with positive throat swab RT-PCR were delivered by cesarean section. Among neonates with throat swab SARS-CoV-2 positive only five (33.3%) had concomitant placenta, amniotic fluid, and cord blood samples tested, of which only one amniotic fluid sample is positive for RT PCR. Five neonates had elevated IgG and IgM but without intrauterine tissue tested. Four neonates had chest imaging suggestive of COVID-19 pneumonia.

Conclusion: Currently there is not enough evidence on vertical virologic transmission of COVID-19 infection during the third trimester of pregnancy. Additionally, there is no evidence to support cesarean delivery, abstaining from breast feeding nor mother and infant separation. Further research involving an adequate sample size of breast milk, placenta, amniotic fluid, and cord blood to ascertain the possibility of vertical transmission and breast milk transfer is needed.
Abstract

**Importance:** The outcomes of newborn infants of women testing positive for SARS-CoV-2 in pregnancy is unclear.

**Objective:** To evaluate neonatal outcomes in relation to maternal SARS-CoV-2 test positivity in pregnancy.

**Design, setting, and participants:** Nationwide, prospective cohort study based on linkage of the Swedish Pregnancy Register, the Neonatal Quality Register, and the Register for Communicable Diseases. Ninety-two percent of all live births in Sweden between March 11, 2020, and January 31, 2021, were investigated for neonatal outcomes by March 8, 2021. Infants with malformations were excluded. Infants of women who tested positive for SARS-CoV-2 were matched, directly and using propensity scores, on maternal characteristics with up to 4 comparator infants.

**Exposures:** Maternal test positivity for SARS-CoV-2 in pregnancy.

**Main outcomes and measures:** In-hospital mortality; neonatal resuscitation; admission for neonatal care; respiratory, circulatory, neurologic, infectious, gastrointestinal, metabolic, and hematologic disorders and their treatments; length of hospital stay; breastfeeding; and infant test positivity for SARS-CoV-2.

**Results:** Of 88,159 infants (49.0% girls), 2,323 (1.6%) were delivered by mothers who tested positive for SARS-CoV-2. The mean gestational age of infants of SARS-CoV-2-positive mothers was 39.2 (SD, 2.2) weeks vs 39.6 (SD, 1.8) weeks for comparator infants, and the proportions of preterm infants (gestational age <37 weeks) were 205/2,323 (8.8%) among infants of SARS-CoV-2-positive mothers and 4719/85,836 (5.5%) among comparator infants. After matching on maternal characteristics, maternal SARS-CoV-2 test positivity was significantly associated with admission for neonatal care (11.7% vs 8.4%; odds ratio [OR], 1.47; 95% CI, 1.26-1.70) and with neonatal morbidities such as respiratory distress syndrome (1.2% vs 0.5%; OR, 2.40; 95% CI, 1.50-3.84), any neonatal respiratory disorder (2.8% vs 2.0%; OR, 1.42; 95% CI, 1.07-1.90), and hyperbilirubinemia (3.6% vs 2.5%; OR, 1.47; 95% CI, 1.13-1.90). Mortality (0.30% vs 0.12%; OR, 2.55; 95% CI, 0.99-6.57), breastfeeding rates at discharge (94.4% vs 95.1%; OR, 0.84; 95% CI, 0.67-1.05), and length of stay in neonatal care (median, 6 days in both groups; difference, 0 days; 95% CI, -2 to 7 days) did not differ significantly between the groups. Twenty-one infants (0.90%) of SARS-CoV-2-positive mothers tested positive for SARS-CoV-2 in the neonatal period; 12 did not have neonatal morbidity, 9 had diagnoses with unclear relation to SARS-CoV-2, and none had congenital pneumonia.

**Conclusions and relevance:** In a nationwide cohort of infants in Sweden, maternal SARS-CoV-2 infection in pregnancy was significantly associated with small increases in some neonatal morbidities. Given the small numbers of events for many of the outcomes and the large number of statistical comparisons, the findings should be interpreted as exploratory.

Doi: 10.1007/s00247-021-05065-0

Abstract

Background: A hyperinflammatory immune-mediated shock syndrome has been recognised in children exposed to the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease 2019 (COVID-19).

Objective: To describe typical imaging findings in children with multisystem inflammatory syndrome associated with COVID-19.

Materials and methods: During the first wave of the COVID-19 pandemic, imaging studies and clinical data from children treated for multisystem inflammatory syndrome were collected from multiple centres. Standardised case templates including demographic, biochemical and imaging information were completed by participating centres and reviewed by paediatric radiologists and paediatricians.

Results: We included 37 children (21 boys; median age 8.0 years). Polymerase chain reaction (PCR) testing was positive for SARS-CoV-2 in 15/37 (41%) children and immunoglobulins in 13/19 children (68%). Common clinical presentations were fever (100%), abdominal pain (68%), rash (54%), conjunctivitis (38%) and cough (32%). Thirty-three children (89%) showed laboratory or imaging findings of cardiac involvement. Thirty of the 37 children (81%) required admission to the intensive care unit, with good recovery in all cases. Chest radiographs demonstrated cardiomegaly in 54% and signs of pulmonary venous hypertension/congestion in 73%. The most common chest CT abnormalities were ground-glass and interstitial opacities (83%), airspace consolidation (58%), pleural effusion (58%) and bronchial wall thickening (42%). Echocardiography revealed impaired cardiac function in half of cases (51%) and coronary artery abnormalities in 14%. Cardiac MRI showed myocardial oedema in 58%, pericardial effusion in 42% and decreased left ventricular function in 25%. Twenty children required imaging for abdominal symptoms, the commonest abnormalities being free fluid (71%) and terminal ileum wall thickening (57%). Twelve children underwent brain imaging, showing abnormalities in two cases.

Conclusion: Children with multisystem inflammatory syndrome showed pulmonary, cardiac, abdominal and brain imaging findings, reflecting the multisystem inflammatory disease. Awareness of the imaging features of this disease is important for early diagnosis and treatment.

Doi: 10.1002/ppul.25426

Abstract

Aim: This study aimed to compare chest computed tomography (CT) findings with reverse-transcription polymerase chain reaction (RT-PCR) test results in children with probable or definitive diagnosis of coronavirus disease 2019 (COVID-19).

Methods: In this retrospective archive study, pediatric patients who were followed up in the hospital with a possible or definitive diagnosis of COVID-19 and who had chest CT at presentation were included. CT scan images of the patients were reinterpreted by a pediatric radiologist and compared with their RT-PCR test results.

Results: Of the total of 89 patients, 33 had negative and 56 had positive RT-PCR tests. The presence of pulmonary lesions and consolidation was statistically significantly higher in the RT-PCR negative group than in the RT-PCR positive group (p = 0.037 and 0.001, respectively). Lobe involvement of 0%-25% was higher in the RT-PCR positive group (p = 0.001), and lobe involvements of 25%-50% and 50%-75% were significantly higher in the RT-PCR negative group (p = 0.001 and 0.005, respectively). Central and perihilar involvement was found to be statistically significant in the RT-PCR negative group (p = 0.008 and 0.005, respectively).

Conclusion: Chest CT findings may provide some clues in predicting RT-PCR positivity in children with a probable diagnosis of COVID-19. Lobe involvement percentage of up to 25% is a finding in favor of patients with positive RT-PCR test, whereas 25%-75% lobe involvement, central and perihilar involvement, and consolidation can be interpreted in favor of patients with negative RT-PCR test.

Doi: 10.2196/24760

Abstract

Background: In December 2019, a novel coronavirus called SARS-CoV-2 was identified as the cause of a cluster of pneumonia cases in Wuhan, China. It rapidly spread due to human-to-human transmission, resulting in a global pandemic. Nearly every country, including Qatar, has established guidelines and regulations to limit the spread of the virus and to preserve public health. However, these procedures have been associated with negative effects on the psychological and intellectual well-being of individuals, including children and adolescents.

Objective: The objective of this study was to determine the psychological influence of home isolation and social distancing on children and adolescents during the COVID-19 pandemic in Qatar, and the strategies used to cope with these measures.

Methods: This cross-sectional study was undertaken using an online questionnaire administered through SMS text messaging. All home-isolated children and adolescents registered at the Primary Health Care Corporation aged 7-18 years were invited to participate in the study. Children and adolescents with intellectual disadvantages were excluded. A P value of .05 (two-tailed) was considered statistically significant.

Results: Data were collected from 6608 participants from June 23 to July 18, 2020. Nearly all participants adhered to the official regulations during the period of home isolation and social distancing; however, 69.1% (n=4568) of parents believed their children were vulnerable to the virus compared to 25% (n=1652) who expressed they were not vulnerable at all. Higher levels of anger, depression, and general anxiety were prevalent among 1.3% (n=84), 3.9% (n=260), and 1.6% (n=104) of participants, respectively. The mean score for the emotional constructs anger and depression decreased with increased compliance with regulations (P=.04 and P=.11, respectively). The differences in mean score for all psychological and coping strategies used among participants across the 3 levels of vulnerability to SARS-CoV-2 were statistically significant. The mean score varied little with increasing reported vulnerability to the virus. This mild variation can make a difference when the sample size is large, as is the case in this study.

Conclusions: Screening for psychological and social disruptions is important for the development of strategies by schools and health care providers to assess and monitor behavioral changes and negative psychological impact during post-COVID-19 reintegration. Participants experiencing higher levels of anxiety should be given more attention during reintegration and transitional phases in schools. Although electronic devices and social media platforms may have lowered anxiety levels in some cases, it is important to address how they are used and how content is tailored to children and adolescents. It is also important to maintain an active lifestyle for children and young persons, and encourage them not to neglect their physical health, as this promotes a better psychological state of mind.


Abstract

Parents of children with Special Educational Needs and Disabilities in the UK (n = 241) were asked to describe the impact of COVID-19 on their own mental health and that of their child. An inductive content analysis of the data was undertaken. Both parents and children appear to be experiencing loss, worry and changes in mood and behaviour as a result of the rapid social changes that have occurred. Some parents reported feeling overwhelmed and described the impact of child understanding and awareness. Finally, a minority of parents reported that COVID-19 has had little impact on mental health in their family, or has even led to improvements. Implications for how to support these families in the immediate future are discussed.


Doi: 10.1007/s10643-021-01193-2

Abstract

Worldwide, millions of children have missed out on early childhood education and care (ECEC) due to the closure of their settings during the COVID-19 pandemic. However, little is known about the socio-emotional impact of these closures on young children. This paper draws upon a study of 506 parents of children aged 1-10 years in Ireland who completed the online Play and Learning in the Early Years (PLEY) Survey during lockdown in May and June 2020. Parents responded to a series of questions about their child's play, learning and development during lockdown, and described the impact of the restrictions on their children's lives. The study was approved by the institutional ethics committee. Findings indicate that most children missed their friends, playing with other children, and the routine and structure of ECEC and school settings. Parents described the negative impact of the closure of these settings on their children's social and emotional well-being, which they suggested, resulted in tantrums, anxiety, clingingness, boredom, and understimulation. However, some parents did report positive aspects of lockdown for their children and the family, including more time to play with siblings and a break from the usual routine. While the findings of the PLEY study indicate that children's socio-emotional development was severely disrupted during lockdown, with a variety of negative impacts, this experience was not universal. Moreover, the findings suggest that families missed the nurturing environment provided by ECEC programs that supported their children's socio-emotional development, as well as the structure and routine afforded by their children's participation in early childhood programs.

Doi: 10.23736/s2724-5276.21.06178-4

Abstract

Background: Previous pandemics around the world have shown that negative emotions are intensified in individuals when restrictions are imposed on human daily life activities. This study aims to draw attention to the pandemic-specific factors that might be associated with the severity of depression, anxiety, and COVID-19 phobia of high school students.

Methods: A total of 1,431 high school students aged 14 to 18 years were invited to participate in this study using online survey forms. They were asked to fill out a questionnaire about themselves and the changes in their lives during the pandemic. They completed the COVID-19 Phobia Scale (C19P-S) and the Revised Children’s Anxiety and Depression Scale (RCADS).

Results: Findings showed that being a girl is an increased risk factor for anxiety, depression, and COVID-19 phobia. In addition, following the official daily COVID-19 data and having a healthcare professional in the building of residence are significant risk factors for COVID-19 phobia. Having a psychiatric disorder, having a chronic disease, losing anyone due to COVID-19 infection, undergoing a COVID-19 diagnostic test, and meeting friends in person are increased risk factors for anxiety or depression during the pandemic.

Conclusions: Changes in adolescents' lives caused by the COVID-19 pandemic are negatively affecting their mental health. Studies are needed to maintain the mental well-being of adolescents under the conditions of this pandemic.
**SÍNDROME INFLAMATORIO MULTISISTÉMICO (MIS-C)\)**

**Publicaciones**


Doi: [10.1084/jem.20210446](https://doi.org/10.1084/jem.20210446)

Abstract

Multisystem inflammatory syndrome in children (MIS-C) emerged in April 2020 in communities with high COVID-19 rates. This new condition is heterogenous but resembles Kawasaki disease (KD), a well-known but poorly understood and clinically heterogenous pediatric inflammatory condition for which weak associations have been found with a myriad of viral illnesses. Epidemiological data clearly indicate that SARS-CoV-2 is the trigger for MIS-C, which typically occurs about 1 mo after infection. These findings support the hypothesis of viral triggers for the various forms of classic KD. We further suggest that rare inborn errors of immunity (IEIs) altering the immune response to SARS-CoV-2 may underlie the pathogenesis of MIS-C in some children. The discovery of monogenic IEIs underlying MIS-C would shed light on its pathogenesis, paving the way for a new genetic approach to classic KD, revisited as a heterogeneous collection of IEIs to viruses.


Doi: [10.1097/01.naj.0000749756.12090.63](https://doi.org/10.1097/01.naj.0000749756.12090.63)

Abstract

The coronavirus disease 2019 (COVID-19) pandemic has impacted the health of children worldwide. Although overall mortality from COVID-19 in children remains low, an associated multisystem inflammatory disorder has emerged. The disorder has been recognized and named multisystem inflammatory syndrome in children (MIS-C) by the World Health Organization and the Centers for Disease Control and Prevention. This comprehensive review describes the epidemiology, pathophysiology, signs and symptoms, other potential diagnoses, and treatments relevant to MIS-C. The review also includes patient and family education and anticipatory guidance, and discusses nursing implications for nurses working in various roles and settings, including direct care, research, and public health.

Doi: 10.1007/s00296-021-04845-z

Abstract

Multisystem Inflammatory Syndrome in Children (MIS-C) recently reported in a minority of children affected by SARS-CoV-2, mimics Kawasaki disease (KD), a medium vessel vasculitis of unknown cause. In contrast to acute COVID-19 infection, which is usually mild in children, 68% of patients with MIS-C will need intensive care unit. Myocarditis and coronary artery ectasia/aneurysm are included between the main cardiovascular complications in MIS-C. Therefore, close clinical assessment is need it both at diagnosis and during follow-up. Echocardiography is the cornerstone modality for myocardial function and coronary artery evaluation in the acute phase. Cardiovascular magnetic resonance (CMR) detects diffuse myocardial inflammation including oedema/fibrosis, myocardial perfusion and coronary arteries anatomy during the convalescence and in adolescents, where echocardiography may provide inadequate images. Brain involvement in MIS-C is less frequent compared to cardiovascular disease. However, it is not unusual and should be monitored by clinical evaluation and brain magnetic resonance (MRI), as we still do not know its effect in brain development. Brain MRI in MIS-C shows T2-hyperintense lesions associated with restricted diffusion and bilateral thalamic lesions. To conclude, MIS-C is a multisystem disease affecting many vital organs, such as heart and brain. Clinical awareness, application of innovative, high technology imaging modalities and advanced treatment protocols including supportive and anti-inflammatory medication will help physicians to prevent the dreadful complications of MIS-C.


Doi: 10.4103/ijo.jo_52_21

Abstract

Multi Inflammatory Syndrome (MIS-C) associated with Corona Virus Disease (COVID) in children and young adults presents with a varied clinical spectrum; from that mimicking Kawasaki disease (KD), Incomplete Kawasaki disease to even Hemophagocytic Lymphohistiocytosis. A 14-year-old girl, presented to us, with headache, fever, bilateral uveitis, unilateral cervical lymphadenopathy, oral mucosal changes and abdominal pain. A disproportionate increase in inflammatory markers and Interleukin - 6, in the setting of a negative COVID real-time reverse transcription polymerase chain reaction (RTPCR) and significantly elevated COVID antibody titre confirmed our diagnosis. She was treated with intravenous Immunoglobulin and oral steroids with which she recovered. We want to highlight considering the possibility of MIS-C in children presenting with uveitis at a time when COVID-19 has been conquering the world with community spread.

Doi: 10.1016/j.eclinm.2021.100850

Abstract

Background: COVID-19 in children is usually mild or asymptomatic, but severe and fatal paediatric cases have been described. The pathology of COVID-19 in children is not known; the proposed pathogenesis for severe cases includes immune-mediated mechanisms or the direct effect of SARS-CoV-2 on tissues. We describe the autopsy findings in five cases of paediatric COVID-19 and provide mechanistic insight into the mechanisms involved in the pathogenesis of the disease.

Methods: Children and adolescents who died with COVID-19 between March 18 and August 15, 2020 were autopsied with a minimally invasive method. Tissue samples from all vital organs were analysed by histology, electron microscopy (EM), reverse-transcription polymerase chain reaction (RT-PCR) and immunohistochemistry (IHC).

Findings: Five patients were included, one male and four female, aged 7 months to 15 years. Two patients had severe diseases before SARS-CoV-2 infection: adrenal carcinoma and Edwards syndrome. Three patients were previously healthy and had multisystem inflammatory syndrome in children (MIS-C) with distinct clinical presentations: myocarditis, colitis, and acute encephalopathy with status epilepticus. Autopsy findings varied amongst patients and included mild to severe COVID-19 pneumonia, pulmonary microthrombosis, cerebral oedema with reactive gliosis, myocarditis, intestinal inflammation, and haemophagocytosis. SARS-CoV-2 was detected in all patients in lungs, heart and kidneys by at least one method (RT-PCR, IHC or EM), and in endothelial cells from heart and brain in two patients with MIS-C (IHC). In addition, we show for the first time the presence of SARS-CoV-2 in the brain tissue of a child with MIS-C with acute encephalopathy, and in the intestinal tissue of a child with acute colitis. Interpretation: SARS-CoV-2 can infect several cell and tissue types in paediatric patients, and the target organ for the clinical manifestation varies amongst individuals. Two major patterns of severe COVID-19 were observed: a primarily pulmonary disease, with severe acute respiratory disease and diffuse alveolar damage, or a multisystem inflammatory syndrome with the involvement of several organs. The presence of SARS-CoV-2 in several organs, associated with cellular ultrastructural changes, reinforces the hypothesis that a direct effect of SARS-CoV-2 on tissues is involved in the pathogenesis of MIS-C.

Funding: Fundação de Amparo à Pesquisa do Estado de São Paulo, Conselho Nacional de Desenvolvimento Científico e Tecnológico, Bill and Melinda Gates Foundation,

Doi: 10.1111/jpc.15520

Key Points

- Multisystem inflammatory syndrome in children presents with hyper-inflammation that can affect the heart, progress to warm, vasoplegic shock, refractory to volume resuscitation, and eventually require haemodynamic support.

- Elevation of troponin and brain natriuretic peptide (pro-BNP) during hospitalisation are important markers of prognosis and should be seen as warning signs.

- Treatment using anti-inflammatory strategies such as intravenous immunoglobulin and steroids showed benefits.


Doi: 10.1182/blood.2020010218

Abstract

Coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is associated with thrombotic complications in adults, but the incidence of COVID-19 related thrombosis in children and adolescents is unclear. Most children with acute COVID-19 have mild disease, but coagulopathy has been associated with multisystem inflammatory syndrome in children (MIS-C), a post-infectious complication. We conducted a multicenter retrospective cohort study to determine the incidence of thrombosis in children hospitalized with COVID-19 or MIS-C and to evaluate associated risk factors. We classified patients into one of three groups for analysis: COVID-19, MIS-C, or asymptomatic SARS-CoV-2. Among a total of 853 admissions (426 COVID-19, 138 MIS-C, and 289 asymptomatic SARS-CoV-2) in 814 patients, there were 20 patients with thrombotic events (TE) (including 1 stroke). Patients with MIS-C had the highest incidence (6.5%, 9/138) versus COVID-19 (2.1%, 9/426) or asymptomatic SARS-CoV-2 (0.7%, 2/289). In patients with COVID-19 or MIS-C, the majority of thrombotic events (89%) occurred in patients ≥12 years. Patients > 12 years with MIS-C had the highest rate of thrombosis at 19% (9/48). Notably, 71% of TE that were not present on admission occurred despite thromboprophylaxis. Multivariable analysis identified the following as significantly associated with thrombosis: age ≥12 years, cancer, presence of a central venous catheter, and MIS-C. In patients with COVID-19 or MIS-C, hospital mortality was 2.3% (13/564), but was 28% (5/18) in patients with thrombotic events. Our findings may help inform pediatric thromboprophylaxis strategies.

Doi: 10.23736/s2724-5276.21.06327-8

Abstract

**Background:** SARS-CoV-2 related multisystem inflammatory syndrome in children (MIS-C) is a newly defined clinical entity in pediatric ages resembles Kawasaki Disease or toxic shock syndrome. Here we aimed to raise awareness about this SARS-CoV-2 related syndrome.

**Methods:** Children diagnosed with MIS-C and followed in Pediatric Clinic between November 2020 and January 2021, were included in study. Data about patients' demographic characteristics, clinical and laboratory findings, treatment and outcomes were collected from medical records.

**Results:** The median age of 20 children with MIS-C was 80.5 months, 11 of them were male. The most common symptoms at admission were fever (100%), abdominal pain (70%), myalgia (50%), and rash (50%). Lymphopenia, elevated inflammatory markers and cardiac enzymes were their main laboratory findings. Cardiac involvement (90%) consisted of myopericarditis, valvulitis, left ventricular dysfunction, and coronary arteritis. Symptoms mimicking acute appendicitis and ileus were due to gastrointestinal involvement (50%). Macular rash on the trunk, erythema on upper eyelids were striking. Empiric antibiotics and intravenous immunoglobulin were used in all patients, glucocorticoids (90%), anti-thrombotic (65%) and vasoactive (45%) agents were used according to severity of disease. Response to IVIG treatment was poor, whereas glucocorticoids have dramatic affect. Seven patients (35%) were monitored in intensive care unit, none of them required intubation, mechanic ventilation or ECMO. The median recovery time, that is, the period when fever subsided and inflammatory markers returned to normal was 9.5 days.

**Conclusions:** Glucocorticoids has critical role in treatment of MIS-C, early recognition and treatment may decrease need for intensive care by providing rapid recovery.


Doi: 10.1093/cid/ciaa1042

Abstract

Some clusters of children with a multisystem inflammatory syndrome (MIS-C) associated with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection have been reported. We describe the epidemiological and clinical features of children with MIS-C in Spain. MIS-C is a potentially severe condition that presents in children with recent SARS-CoV-2 infection.
Objective: To evaluate the differential characteristics of SARS-CoV-2 associated inflammatory multisystem syndrome (MIS-C) in children.

Methods: A retrospective cohort study was conducted. The definition of MIS-C was based on WHO criteria. Temporally related COVID-19 patients were included as controls.

Results: 25 patients with MIS-C and 75 controls were included. Multivariate multiple logistic regression model of variables that showed to be significant in univariate analysis revealed that age ≥2 years (OR 24.7; 95% CI 1.03-592.4; P=0.048), lymphopenia (OR 9.03, 95%CI 2.05-39.7; P=0.004), and platelet count <150x10^9/L (OR 11.7; 95% CI 1.88-75.22; P=0.009) were significantly associated with MIS-C. Presence of underlying disease seemed to reduce the risk of MIS-C (OR 0.06; 95% CI 0.01-0.3).

Conclusions: MIS-C was more common in patients older than 2 years and in those with lymphopenia or thrombocytopenia. Underlying disease appears to reduce the risk of MIS-C.

Doi: 10.3389/fped.2021.650697

Abstract

We describe a 7-year-old child with multisystemic inflammatory syndrome that was temporarily associated with the novel coronavirus disease which evolved into serious illness, with coronary aneurysm, using human immunoglobulin and acetylsalicylic acid, in which clinical manifestations including hepatitis, convulsions, and coma were aggravated with Reye's syndrome. To date, there has been no report of the association of multisystemic inflammatory syndrome that is temporarily associated with the novel coronavirus disease and Reye's syndrome.


Doi: 10.4081/reumatismo.2021.1331

Abstract

Since the coronavirus disease 2019 (COVID-19) outbreak started, children have been considered marginally involved compared to adults, with a quite significant percentage of asymptomatic carriers. Very recently, an overwhelming inflammatory activation, which shares clinical similarities with Kawasaki disease (KD), has been described in children exposed to COVID-19. We report three KD-like cases that occurred during the pandemic of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in a highly affected area of Northern Italy. The clinical presentation was characterized by the presence of unremitting fever, diarrhea and elevated inflammatory markers. Case #1 and Case #2 occurred one week apart and shared other clinical features: laboratory tests confirmed COVID-19 exposure and high inflammatory activation with myocardial involvement. Case #3 followed a more typical pattern for KD. Interestingly, this patient showed lower levels of procalcitonin, C-reactive protein, D-dimers, and ferritin compared to the other two cases, whereas platelet count was higher. We hypothesize that SARS-CoV-2 might act in children as a trigger, either inducing a classical KD phenotype or causing a systemic inflammatory response leading to a severe KD-like phenotype, eventually characterized by myocardial impairment. We think that bringing these cases and their differences to the attention of the rheumatology community during the COVID-19 pandemic will be beneficial in order to highlight the importance of early diagnosis and to increase awareness of this new phenomenon.
Sugunan S, Bindusha S, Geetha S, Niyas HR, Kumar AS. Clinical Profile and Short-Term Outcome of Children with SARS-CoV-2 Related Multisystem Inflammatory Syndrome (MIS-C) Treated with Pulse Methylprednisolone. Indian Pediatr. 2021 Apr 20:S097475591600319.

Link: https://indianpediatrics.net/COVID29.03.2020/RP-00319.pdf

Abstract

Background: Multi system inflammatory syndrome in children (MIS-C) is a rare, but life-threatening complication of SARS-CoV-2 infection.

Objectives: To study the clinical profile and outcome of children with MIS-C treated with methylprednisolone pulse therapy and/or IVIG.

Study design: Observational study.

Participants: Children satisfying CDC MIS-C criteria admitted during the study period.

Outcome measures: Primary outcome was persistence of fever beyond 36 hours after start of immunomodulation therapy. Secondary outcomes included duration of ICU stay, mortality, need for repeat immunomodulation, time to normalization of CRP and persistence of coronary abnormalities at 2 weeks.

Results: Study population included 32 patients with MIS-C with median (IQR) age of 7.5 (5-9.5) years. The proportion of children with gastrointestinal symptoms was 27 (84%), cardiac was 29 (91%) and coronary artery dilatation was 11 (34%). Pulse methylprednisolone and intravenous immunoglobulin were used as first line therapy in 26 (81%), and 6 (19%) patients, respectively. Treatment failure was observed in 2/26 patients in methylprednisolone group and 2/6 patients in IVIG group. C-reactive protein levels less than 60mg/L by day 3 was seen in 17(74%) in methylprednisolone group and 2 (25%) in IVIG group (P=0.014). There was no mortality. At 2 weeks follow-up coronary artery dilatation persisted in 4 in methylprednisolone group and 1 in IVIG group.

Conclusions: In patients with SARS-CoV-2 related MIS-C, methylprednisolone pulse therapy was associated with favorable short-term outcomes.

Doi: 10.1111/jth.15340

Abstract

Background: Adults infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) have had high rates of thrombosis. A novel condition in children infected with SARS-CoV-2, multisystem inflammatory syndrome in children (MIS-C), has limited data on their prothrombotic state or need for thromboprophylaxis.

Objectives: We aimed to analyze the prothrombotic state using coagulation profiles, rotational thromboelastometry (ROTEM) parameters and clinical outcomes, to determine if this could aid in risk stratification for thromboprophylaxis.

Methods: This analysis included patients (< 21 years of age) with a diagnosis of MIS-C (n=40) and controls (presenting with suspicion of MIS-C but later ruled out; n=26).

Results: MIS-C patients had higher levels of inflammatory markers including D-dimer (p<0.0001), compared to controls, along with evidence of hypercoagulability on ROTEM with elevated FIBTEM MCF (p<0.05). For MIS-C patients with D-dimers >1000 ng/mL, there was a significant correlation of FIBTEM MCF (p<0.0001) with a mean value of 37.4 (standard deviation 5.1). D-dimer >2144 ng/mL was predictive of intensive care unit admission (area under the curve (AUC) 0.80, 95% CI: 0.60-0.99; p<0.01; sensitivity: 82%, specificity: 75%), and elevated FIBTEM MCF (AUC 1 for >2500 ng/mL). MIS-C patients (50%) received enoxaparin thromboprophylaxis (in addition to aspirin) with significant improvement in their inflammatory and ROTEM parameters upon outpatient follow up; none developed symptomatic thrombosis.

Conclusions: Despite an observed prothrombotic state, none of the MIS-C patients (on aspirin alone or in combination with enoxaparin) developed symptomatic thrombosis. ROTEM, in addition to coagulation profiles, may be helpful to tailor thromboprophylaxis in critically ill MIS-C patients.

Doi: 10.33314/jnhrc.v19i1.3410

Abstract

Background: Children comprise only 1-5% of COVID-19 cases. Recent studies have shown that COVID-19 associated multisystem inflammatory syndrome in children (MIS-C) can present with neurological signs and symptoms. In this systematic review and meta-analysis, we have reviewed neurological involvement in these patients.

Methods: A comprehensive electronic literature search was done on PubMed, Google Scholar, Embase, Cochrane database, and SCOPUS for the published English language articles from December 1, 2019, to February 28, 2021. A meta-analysis of the proportion was expressed as a pooled proportion with a 95% confidence interval (CI). Representative forest plots showing individual studies and the combined effect size were generated to provide an overview of the results.

Results: This systematic review and meta-analysis analyzed 15 published MIS-C studies with a total of 785 patients. Neurological manifestations in patients with MIS-C was found in 27.1%. We found that 27% developed headaches, 17.1% developed meningism/meningitis and 7.6% developed encephalopathy. Other uncommon neurological manifestations of MIS-C includes anosmia, seizures, cerebellar ataxia, global proximal muscle weakness and bulbar palsy. In MIS-C patients with neurological feature, neuroimaging showed signal changes in the splenium of the corpus callosum. Electroencephalography showed slow wave pattern and nerve conduction studies and electromyography showed mild myopathic and neuropathic changes.

Conclusions: Our study revealed that neurological manifestations are not uncommon in patients with MIS-C. Further large prospective studies are needed to better explore the disease spectrum and to unravel the underlying pathophysiology.


Doi: 10.1136/bcr-2021-241688

Abstract

This case demonstrates pneumatosis intestinalis and small bowel perforation in a paediatric patient with multisystem inflammatory syndrome in children (MIS-C). Our patient presented with fever, abdominal pain and shortness of breath. She progressed to haemodynamic failure and small bowel perforation approximately 1 week after admission. Patients with suspected or confirmed MIS-C should be monitored closely for abdominal catastrophe, especially when critically ill in the intensive care unit.
Evidence Assessment: Sinopharm/BBIBP COVID-19 vaccine

Evaluación de la evidencia de la vacuna Sinopharm
Recursos e Información

A) Información para el público en general

1. Sobre el Covid-19

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INSTITUTO NACIONAL DE SALUD
Recursos e Información COVID-19

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