Boletín de Alerta Bibliográfica

COVID-19

Unidad de Desarrollo de la Investigación, Tecnologías y Docencia
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Doi: 10.1017/s1047951121000147

Abstract

Coronary artery aneurysms in children were observed as a rare complication associated with coronavirus disease 2019 (COVID-19). This case report describes the severe end of the spectrum of the new multisystem inflammatory syndrome in a 12-year-old child with coronary aneurysms, myocardial dysfunction, and shock, managed successfully with extracorporeal membrane oxygenation support and immunomodulation therapy. This report also highlights the additional benefits of cardiac CT in the diagnosis and follow-up of coronary aneurysms.

Doi: 10.1093/asj/sjaa180

Abstract

Background: Despite the rapid increase in the number of publications pertaining to COVID-19, there is a lack of data examining patient outcomes following elective procedures performed during this pandemic.

Objectives: The purpose of this investigation was to examine the postoperative outcomes of patients who underwent elective procedures in an ambulatory surgery center during the COVID-19 pandemic, and to share the preoperative screening and patient selection protocol implemented in our center.

Methods: Elective procedures performed in an ambulatory surgery center between March 1, 2020 and April 16, 2020 were retrospectively reviewed. The primary outcomes were occurrence of COVID-19-related postoperative complications. These complications include pneumonia, stroke, myocardial infarction, and clotting disorders. The predictive variables analyzed in this study were age, American Society of Anesthesiologists score, specialty conducting the procedure, operating time, and the type of plastic and reconstructive surgery procedure being performed.

Results: A total of 300 consecutive electives cases were included in the study. The most common procedures were pain management (43.0%), gastrointestinal (26.0%), aesthetic (14.0%), orthopedic (10.3%), reconstructive (4.0%), otorhinolaryngology (2.0%), and gynecology (0.67%). The median age of the cohort was 54.6 years (range, 1-90 years) and the median procedure time was 47 minutes (range, 11-304 minutes). COVID-19-related symptoms or complications following the procedures were not observed in any of the patients or in the healthcare care personnel.

Conclusions: In this cohort of 300 elective cases, we found no patients with COVID-19-related symptoms postoperatively. This suggests that with proper preoperative screening and patient selection, elective procedures can be safely performed in an ambulatory surgery center during this pandemic.

Doi: 10.1007/s12178-021-09693-9

Abstract

Purpose of review: This review article presents the current knowledge on the use of telemedicine and summarizes the literature highlighting the advantages and limitations of this technology in the field of orthopedic surgery during the COVID-19 pandemic and beyond.

Recent findings: Orthopedic surgery is the surgical specialty that has seen the highest proportion of its procedures cancelled due to the pandemic. In this context and onward, telemedicine seems to be a reasonable option for the orthopedic surgeon. Multiple studies have described its safety and a similar patient satisfaction compared to in-person consultations. It has a potential to increase productivity and decrease wait times by providing easier access to the clinician and by decreasing travel-associated limitations and costs. Authors have described the possibility to conduct a reliable virtual assessment of the patient range of motion. Some of the limitations to the use of this technology are technological literacy and access to virtual consultation platforms, the inability to conduct a complete physical examination, potential reduction in identification of intimate and child abuse victims, and limited knowledge about the legal implications of this technology. Telemedicine in orthopedic surgery has a potential to increase productivity, reduce costs, and increase the access to healthcare. Identified limitations include risk of misdiagnosis, required technologic literacy, unknown legal implications, and failure to identify victims of abuse. In order to use this technology judiciously, the clinician must take into consideration the patient's condition and his technological literacy and be aware of the advantages and disadvantages.


Doi: 10.1016/j.jpedsurg.2021.01.017

Abstract

Introduction: The COVID-19 pandemic has ripped around the globe, stolen family members and forced healthcare systems to operate under an unprecedented strain. As of December 2020, 74.7 million people have contracted COVID-19 worldwide and although vaccine distribution has commenced, a recent rise in cases suggest that the pandemic is far from over.

Methods: This piece explores how COVID-19 has explicitly impacted the field of pediatric urology and its patients with a focus on vulnerable subpopulations.

Results: Various medical and surgical associations have published guidelines in reaction to the initial onset of the pandemic in early 2020.

Discussion and conclusion: As the number of patients with COVID-19 increases, long-term recovery and future preparedness are imperative and should be cognizant of patient subpopulations that have been subject to disproportionate morbidity and mortality burden. Development of a dedicated response team would aid in achieving preparedness by drafting and implementing plans for resource allocation during scarcity, including logistic and ethical considerations of vaccine distribution.

Doi: 10.1007/s00586-020-06707-x

Abstract

Introduction: While telemedicine usage has increased due to the COVID-19 pandemic, there remains little consensus about how spine surgeons perceive virtual care. The purpose of this study was to explore international perspectives of spine providers on the challenges and benefits of telemedicine.

Methods: Responses from 485 members of AO Spine were analyzed, covering provider perceptions of the challenges and benefits of telemedicine. All questions were optional, and blank responses were excluded from analysis.

Results: The leading challenges reported by surgeons were decreased ability to perform physical examinations (38.6%), possible increased medicolegal exposure (19.3%), and lack of reimbursement parity compared to traditional visits (15.5%). Fewer than 9.0% of respondents experienced technological issues. On average, respondents agreed that telemedicine increases access to care for rural/long-distance patients, provides societal cost savings, and increases patient convenience. Responses were mixed about whether telemedicine leads to greater patient satisfaction. North Americans experienced the most challenges, but also thought telemedicine carried the most benefits, whereas Africans reported the fewest challenges and benefits. Age did not affect responses.

Conclusion: Spine surgeons are supportive of the benefits of telemedicine, and only a small minority experienced technical issues. The decreased ability to perform the physical examination was the top challenge and remains a major obstacle to virtual care for spine surgeons around the world, although interestingly, 61.4% of providers did not acknowledge this to be a major challenge. Significant groundwork in optimizing remote physical examination maneuvers and achieving legal and reimbursement clarity is necessary for widespread implementation.


Doi: 10.1097/mat.0000000000001309


Abstract

**Background:** With the rise of COVID-19 cases, societies recommended canceling all elective surgical procedures because of perioperative concerns, transmission risk, and the need to divert resources. Once the number of cases stabilized, there was recognition that a system was needed to triage and prioritize scheduling operations.

**Methods:** A universal scoring system to triage surgical elective cases was developed for the Advocate Aurora Health system (Surgical Wait Priority Score, SWAPS) and was modified for use in pediatrics (pSWAPS). Resource-related, patient-related, and case urgency factors were used to create the overall score. Interrater reliability of ten cases was determined by four surgeons' scores and calculating Fleiss' Kappa coefficient. The system has been used for two months at two operating rooms with different resource restrictions with the goal of prioritizing elective cases.

**Results:** 18 factors were identified as significant contributors to the pWAPS creating a cumulative score ranging from 0 to 120. In the first month, 61 and 99 procedures were screened at the Oak Lawn (OL) and Park Ridge (PR) campuses respectively, and in the second month, 94 (OL) and 135 (PR) procedures were evaluated. The average pSWAPS scores were 37.9 at OL and 54.3 at PR. All cases that had scores within the immediate group were scheduled and completed.

**Conclusion:** The pSWAPS system is a simple, flexible scoring system that takes into consideration resource constraints. pSWAPS has been used for two months. It has served as an effective tool for safe and methodical reintroduction of elective procedures during the COVID-19 pandemic and could be used again for another surge.

**Level of evidence:** prognosis study, level of evidence - 4.

Doi: 10.1002/cpt.2176

Abstract

Severe COVID-19 disease including multisystem inflammatory syndrome (MIS-C) have been reported in children. This report summarizes development of remdesivir physiologically-based pharmacokinetic (PBPK) model that accurately describes observed adult remdesivir and metabolites exposure and predicts pediatric remdesivir and metabolites exposure. Adult PBPK model was applied to predict pediatric remdesivir and metabolites steady-state exposures using the Pediatric Population Model in SimCYP and incorporated the relevant physiologic and mechanistic information. Model development was based on adult Phase 1 exposure data in healthy volunteers who were administered a 200 mg loading dose of remdesivir IV over 0.5 hr on Day 1, then 100 mg daily maintenance doses of remdesivir intravenous (IV) over 0.5 hr starting on Day 2 and continuing through Days 5 or 10. Simulations indicated that use of the adult therapeutic remdesivir dosage regimen (200 mg loading dose on Day 1 then 100 mg daily maintenance dose starting on Day 2) in pediatric patients ≥40 kg and a weight-based remdesivir dosage regimen (5 mg/kg loading dose on Day 1 then 2.5 mg/kg daily maintenance dose starting on Day 2) in pediatric patients weighing 2.5 - <40 kg is predicted to maintain therapeutic exposures of remdesivir and its metabolites. The comprehensive PBPK model described in this report supported remdesivir dosing in planned pediatric clinical studies and dosing in the emergency use authorization and pediatric compassionate use programs that were initiated to support RDV as a treatment option during the pandemic.


Letter

Doi: 10.1007/s00431-021-03940-4

Doi: 10.1128/jcm.02686-20

Abstract

Testing efforts for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) have been burdened by the scarcity of testing materials and personal protective equipment for health care workers. The simple and painless process of saliva collection allows for widespread testing, but enthusiasm is hampered by variable performance compared to that of nasopharyngeal swab (NPS) samples. We prospectively collected paired NPS and saliva samples from a total of 300 unique adult and pediatric patients. SARS-CoV-2 RNA was detected in 32.2% (97/300) of the individuals using the TaqPath COVID-19 Combo kit (Thermo Fisher). Performance of saliva and NPS was compared against the total number of positives regardless of specimen type. The overall concordances for saliva and NPS were 91.0% (273/300) and 94.7% (284/300), respectively. The values for positive percent agreement (PPA) for saliva and NPS were 81.4% (79/97) and 89.7% (87/97), respectively. Saliva yielded detection of 10 positive cases that were negative by NPS. For symptomatic and asymptomatic pediatric patients not previously diagnosed with COVID-19, the performances of saliva and NPS were comparable (PPA, 82.4% versus 85.3%). The overall values for PPA for adults were 83.3% and 90.7% for saliva and NPS, respectively, with saliva yielding detection of 4 fewer cases than NPS. However, saliva performance for symptomatic adults was identical to NPS performance (PPA of 93.8%). With lower cost and self-collection capabilities, saliva can be an appropriate sample choice alternative to NPS for detection of SARS-CoV-2 in children and adults.


Doi: 10.1016/j.jpeds.2021.01.027

Abstract

We conducted a multicenter clinical validity study of the Panbio COVID-19 Antigen Rapid Test of nasopharyngeal samples in pediatric patients with COVID-19 compatible symptoms of ≤5 days of evolution. Our study showed limited accuracy in nasopharyngeal antigen testing: overall sensitivity was 45.4%, and 99.8% of specificity, positive-predictive value was 92.5%.


Abstract

Background: The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has collapsed health systems worldwide. In adults, the virus causes severe acute respiratory distress syndrome (ARDS), while in children the disease seems to be milder, although a severe multisystem inflammatory syndrome (MIS-C) has been described. The aim was to describe and compare the characteristics of the severe COVID-19 disease in adults and children.

Methods: This prospective observational cohort study included the young adults and children infected with SARS-CoV-2 between March-June 2020 and admitted to the paediatric intensive care unit. The two populations were analysed and compared focusing on their clinical and analytical characteristics and outcomes.

Results: Twenty patients were included. There were 16 adults (80%) and 4 children (20%). No mortality was recorded. All the adults were admitted due to ARDS. The median age was 32 years (IQR 23.3-41.5) and the most relevant previous pathology was obesity (n = 7, 43.7%). Thirteen (81.3%) needed mechanical ventilation, with a median PEEP of 13 (IQR 10.5-14.5). Six (37.5%) needed inotropic support due to the sedation. Eight (50%) developed a healthcare-associated infection, the most frequent of which was central line-associated bloodstream infection (n = 7, 71.4%). One patient developed a partial pulmonary thromboembolism, despite him being treated with heparin. All the children were admitted due to MIS-C. Two (50%) required mechanical ventilation. All needed inotropic support, with a median vasoactive-inotropic score of 27.5 (IQR 17.5-30). The difference in the inotropic requirements between the two populations was statistically significant (37.5% vs. 100%, p < 0.001). The biomarker values were higher in children than in adults: mid-regional pro-adrenomedullin 1.72 vs. 0.78 nmol/L (p = 0.017), procalcitonin 5.7 vs. 0.19 ng/mL (p = 0.023), and C-reactive protein 328.2 vs. 146.9 mg/L (p = 0.005). N-terminal pro-B-type natriuretic peptide and troponins were higher in children than in adults (p = 0.034 and p = 0.039, respectively).

Conclusions: Adults and children had different clinical manifestations. Adults developed severe ARDS requiring increased respiratory support, whereas children presented MIS-C with greater inotropic requirements. Biomarkers could be helpful in identifying susceptible patients, since they might change depending on the clinical features.


Doi: 10.1016/j.visj.2021.100966

Doi: 10.1016/j.ijid.2021.01.036

Resumen

Objetivos: To describe the epidemiology, clinical and laboratory features and outcome of hospitalized children with coronavirus disease 2019 (COVID-19) in a Middle Eastern setting.

Métodos: We describe a multicenter retrospective study of children hospitalized with confirmed COVID-19 in 7 centres across Oman between February 2020 and July 2020.

Resultados: In total, 56 children < 14 years of age required hospitalization in seven Omani centres over five months (February - July 2020). Thirty-seven (68%) children were admitted with uncomplicated COVID-19, 13 (23%) with pneumonia and 5 (9%) with the multisystem inflammatory syndrome in children (MIS-C). Infants constituted (23/56, 41%) and around half of them (12/23, 52%) were below 2-months of age. Fever was the most common symptom (46;82%) followed by respiratory symptoms in (33; 59%) and gastrointestinal symptoms (31;55%). Twenty-two (39%) children had underlying medical conditions; sickle cell disease in (7; 13%) followed by chronic respiratory disease in (4; 7%) and severe neurological impairment in (4; 7%). We found that leukocytosis, elevated inflammatory markers, and anemia for age were independently associated with intensive care admission. There were no mortalities related to admission with COVID-19 in this cohort.

Conclusión: Most of the children hospitalized with confirmed COVID-19 had a mild course and a satisfactory outcome. Sickle cell disease is the commonest comorbidity associated with pediatric admission of COVID-19 in Oman.

DOI: 10.1001/jamapediatrics.2021.0001

Abstract

Importance: School and daycare closures were enforced as measures to confine the novel coronavirus disease 2019 (COVID-19) pandemic, based on the assumption that young children may play a key role in severe acute respiratory coronavirus 2 (SARS-CoV-2) spread. Given the grave consequences of contact restrictions for children, a better understanding of their contribution to the COVID-19 pandemic is of great importance.

Objective: To describe the rate of SARS-CoV-2 infections and the seroprevalence of SARS-CoV-2 antibodies in children aged 1 to 10 years, compared with a corresponding parent of each child, in a population-based sample.

Design, setting, and participants: This large-scale, multicenter, cross-sectional investigation (the COVID-19 BaWü study) enrolled children aged 1 to 10 years and a corresponding parent between April 22 and May 15, 2020, in southwest Germany.

Exposures: Potential exposure to SARS-CoV-2.

Main outcomes and measures: The main outcomes were infection and seroprevalence of SARS-CoV-2. Participants were tested for SARS-CoV-2 RNA from nasopharyngeal swabs by reverse transcription-polymerase chain reaction and SARS-CoV-2 specific IgG antibodies in serum by enzyme-linked immunosorbent assays and immunofluorescence tests. Discordant results were clarified by electrochemiluminescence immunoassays, a second enzyme-linked immunosorbent assay, or an in-house Luminex-based assay.

Results: This study included 4964 participants: 2482 children (median age, 6 [range, 1-10] years; 1265 boys [51.0%]) and 2482 parents (median age, 40 [range, 23-66] years; 615 men [24.8%]). Two participants (0.04%) tested positive for SARS-CoV-2 RNA. The estimated SARS-CoV-2 seroprevalence was low in parents (1.8% [95% CI, 1.2-2.4%]) and 3-fold lower in children (0.6% [95% CI, 0.3-1.0%]). Among 56 families with at least 1 child or parent with seropositivity, the combination of a parent with seropositivity and a corresponding child with seronegativity was 4.3 (95% CI, 1.19-15.52) times higher than the combination of a parent who was seronegative and a corresponding child with seropositivity. We observed virus-neutralizing activity for 66 of 70 IgG-positive serum samples (94.3%).

Conclusions and relevance: In this cross-sectional study, the spread of SARS-CoV-2 infection during a period of lockdown in southwest Germany was particularly low in children aged 1 to 10 years. Accordingly, it is unlikely that children have boosted the pandemic. This SARS-CoV-2 prevalence study, which appears to be the largest focusing on children, is instructive for how ad hoc mass testing provides the basis for rational political decision-making in a pandemic.

Doi: 10.1080/22221751.2021.1878937

Resumen

Background: Pediatric COVID-19 studies exploring the relationships between NPS and saliva viral loads, clinical and immunological profiles are lacking.

Methods: Demographics, immunological profiles, nasopharyngeal swab (NPS), and saliva samples collected on admission, and hospital length of stay (LOS) were assessed in children below 18 years with COVID-19.

Findings: 91 patients were included between March and August 2020. NPS and saliva viral loads were correlated (r=0.315, p=0.01). Symptomatic patients had significantly higher NPS and saliva viral loads than asymptomatic patients. Serial NPS and saliva viral load measurements showed that the log10 NPS (r=-0.532, p<0.001) and saliva (r=-0.417, p<0.001) viral loads for all patients were inversely correlated with the days from symptom onset with statistical significance. Patients with cough, sputum, and headache had significantly higher saliva, but not NPS, viral loads. Higher saliva, but not NPS, viral loads were associated with total lymphopenia, CD3 and CD4 lymphopenia (all p<0.05), and were inversely correlated with total lymphocyte (r=-0.43), CD3 (r=-0.55), CD4 (r=-0.60), CD8 (r=-0.41), B (r=-0.482), and NK (r=-0.416) lymphocyte counts (all p<0.05). Interpretation: Saliva viral loads on admission in children correlated better with clinical and immunological profiles than NPS.


Doi: 10.1172/jci.insight.144499

Abstract

Four endemic human coronaviruses (HCoVs) are commonly associated with acute respiratory infection in humans. B cell responses to these "common cold" viruses remain incompletely understood. Here we report a comprehensive analysis of CoV-specific antibody repertoires in 231 children and 1168 adults using phage-immunoprecipitation sequencing. Seroprevalence of antibodies to endemic HCoVs ranged between ~4 and 27% depending on the species and cohort. We identified at least 136 novel linear B cell epitopes. Antibody repertoires against endemic HCoVs were qualitatively different between children and adults in that anti-HCoV IgG specificities more frequently found among children targeted functionally important and structurally conserved regions of the spike, nucleocapsid and matrix proteins. Moreover, antibody specificities targeting the highly conserved fusion peptide region and S2’ cleavage site of the spike protein were broadly cross-reactive with peptides of epidemic human and non-human coronaviruses. In contrast, an acidic tandem repeat in the N-terminal region of the Nsp3 subdomain of the HCoV-HKU1 polyprotein was the predominant target of antibody responses in adult donors. Our findings shed light on the dominant species-specific and pan-CoV target sites of human antibody responses to coronavirus infection, thereby providing important insights for the development of prophylactic or therapeutic monoclonal antibodies and vaccine design.

Doi: [10.1136/bmjopen-2020-042121](https://doi.org/10.1136/bmjopen-2020-042121)

**Abstract**

**Introduction:** Relatively limited data are available regarding paediatric COVID-19. Although most children appear to have mild or asymptomatic infections, infants and those with comorbidities are at increased risk of experiencing more severe illness and requiring hospitalisation due to COVID-19. The recent but uncommon association of SARS-CoV-2 infection with development of a multisystem inflammatory syndrome has heightened the importance of understanding paediatric SARS-CoV-2 infection.

**Methods and analysis:** The Paediatric Emergency Research Network-COVID-19 cohort study is a rapid, global, prospective cohort study enrolling 12,500 children who are tested for acute SARS-CoV-2 infection. 47 emergency departments across 12 countries on four continents will participate. At enrolment, regardless of SARS-CoV-2 test results, all children will have the same information collected, including clinical, epidemiological, laboratory, imaging and outcome data. Interventions and outcome data will be collected for hospitalised children. For all children, follow-up at 14 and 90 days will collect information on further medical care received, and long-term sequelae, respectively. Statistical models will be designed to identify risk factors for infection and severe outcomes.

**Ethics and dissemination:** Sites will seek ethical approval locally, and informed consent will be obtained. There is no direct risk or benefit of study participation. Weekly interim analysis will allow for real-time data sharing with regional, national, and international policy makers. Harmonisation and sharing of investigation materials with WHO, will contribute to synergising global efforts for the clinical characterisation of paediatric COVID-19. Our findings will enable the implementation of countermeasures to reduce viral transmission and severe COVID-19 outcomes in children.

**Trial registration number:** NCT04330261.


Resumen

Introducción y objetivos. Con objeto de hacer frente a la rápida propagación de la pandemia por coronavirus SARS-CoV2, España decretó el confinamiento domiciliario de la población el 15 de marzo de 2020. El objetivo principal de este estudio es evaluar la repercusión de dicha medida sobre el control glucémico en niños y adolescentes con diabetes mellitus tipo 1 (DM1).

Pacientes y métodos. Estudio observacional, retrospectivo, en niños y adolescentes con DM1 usuarios de sistemas de monitorización de glucosa intersticial. Se recogió la siguiente información correspondiente a las 2 últimas semanas de cuarentena, previas al inicio del desconfinamiento, para su posterior comparación con los datos de 2 semanas previas al confinamiento: necesidades diarias de insulina, glucosa intersticial media, HbA1c estimada, coeficiente de variación (CV), tiempo en rango (70-180 mg/dl), hipoglucemia (<70 y <54 mg/dl) e hiperglucemia (>180 y > 250 mg/dl), uso del sensor y número de glucemias capilares. Mediante encuesta se obtuvo información acerca de rutinas de ingesta, ejercicio físico, necesidad de ajustes en la terapia, complicaciones agudas surgidas y acompañamiento de los pacientes por sus cuidadores durante el confinamiento.

Resultados. Se incluyeron 80 pacientes (edad media 12,61 ± 3,32 años, tiempo medio de evolución de la enfermedad 5,85 ± 3,92 años), 66,2% tratados con bomba de insulina, usuarios de los siguientes sistemas de monitorización: Guardian 3 (65%), FreeStyle Libre (18,8%) y Dexcom G6 (16,2%). El tiempo en rango en la cohorte se incrementó de forma significativa durante el confinamiento (72,1 ± 10,5 vs 74,8 ± 10,5%; p=0,011) a expensas de una disminución del tiempo en hipoglucemia tanto <70 mg/dl (4,6 ± 3,2 vs 3,2 ± 2,7%; p<0,001) como <54 mg/dl (1,2 ± 1,6 vs 0,7 ± 1,2%; p<0,001) y de hiperglucemia > 250 mg/dl (4,6 ± 3,9 vs 3,7 ± 3,7%; p=0,038), reduciéndose también el CV (35,8 ± 6,3 vs 33,1 ± 6,1%; p<0,001). Los pacientes tratados con múltiples dosis de insulina y con peor control glucémico basal fueron los que experimentaron mayor mejoría. Las necesidades diarias de insulina permanecieron estables. La práctica regular de ejercicio físico y el confinamiento parental no tuvieron una repercusión significativa.

Conclusiones. El confinamiento se asoció a una mejoría del control glucémico en niños y adolescentes con DM1, especialmente en aquellos con peor control basal.

Doi: 10.1159/000513060

Abstract

**Background:** Pediatric endocrine practices had to rapidly transition to telemedicine care at the onset of the novel coronavirus disease 2019 (COVID-19) pandemic. For many, it was an abrupt introduction to providing virtual healthcare, with concerns related to quality of patient care, patient privacy, productivity, and compensation, as workflows had to change.

**Summary:** The review summarizes the common adaptations for telemedicine during the pandemic with respect to the practice of pediatric endocrinology and discusses the benefits and potential barriers to telemedicine. Key Messages: With adjustments to practice, telemedicine has allowed providers to deliver care to their patients during the COVID-19 pandemic. The broader implementation of telemedicine in pediatric endocrinology practice has the potential for expanding patient access. Research assessing the impact of telemedicine on patient care outcomes in those with pediatric endocrinology conditions will be necessary to justify its continued use beyond the COVID-19 pandemic.

Doi: 10.1542/peds.2020-033092

Abstract

We describe the presentation and diagnosis of a child with newly diagnosed ANCA-associated vasculitis and associated diffuse alveolar hemorrhage who was positive for COVID-19 IgG antibodies indicative of a prior asymptomatic infection. Multiple PCR-based tests coinciding with the start of symptoms were negative indicating that acute infection was not the cause of the patient’s symptoms. COVID-19 induced autoimmune diseases have been described in adults, but this represents the first case described in a pediatric patient.

Doi: 10.1007/s00467-021-04944-w

Abstract

**Background:** Coronavirus disease 2019 (COVID-19) is thought to cause kidney injury via a variety of mechanisms. The most common reported kidney injury following COVID-19 infection is acute tubular injury (ATI); however, the procoagulant state induced by the virus may also damage the kidneys.

**Case-diagnosis/treatment:** Herein, we report two cases of acute necrotizing glomerulonephritis (GN) with fibrinoid necrosis in the context of COVID-19 infection. The one with more chronic features in the kidney biopsy progressed to permanent kidney failure but the second one had an excellent response to glucocorticoid pulse therapy with subsequent normal kidney function at 2-month follow-up.

**Conclusions:** Both reported cases had an acute presentation of kidney injury with positive nasopharyngeal PCR test for COVID-19. Based on the data review by the researchers, this is the first report of acute necrotizing GN associated with COVID-19 infection.

Doi: 10.1136/bmjopen-2020-041247

Abstract

Introduction: Previous novel COVID-19 pandemics, SARS and middle east respiratory syndrome observed an association of infection in pregnancy with preterm delivery, stillbirth and increased maternal mortality. COVID-19, caused by SARS-CoV-2 infection, is the largest pandemic in living memory. Rapid accrual of robust case data on women in pregnancy and their babies affected by suspected COVID-19 or confirmed SARS-CoV-2 infection will inform clinical management and preventative strategies in the current pandemic and future outbreaks.

Methods and analysis: The pregnancy and neonatal outcomes in COVID-19 (PAN-COVID) registry are an observational study collecting focused data on outcomes of pregnant mothers who have had suspected COVID-19 in pregnancy or confirmed SARS-CoV-2 infection and their neonates via a web-portal. Among the women recruited to the PAN-COVID registry, the study will evaluate the incidence of: (1) miscarriage and pregnancy loss, (2) fetal growth restriction and stillbirth, (3) preterm delivery, (4) vertical transmission (suspected or confirmed) and early onset neonatal SARS-CoV-2 infection. Data will be centre based and collected on individual women and their babies. Verbal consent will be obtained, to reduce face-to-face contact in the pandemic while allowing identifiable data collection for linkage. Statistical analysis of the data will be carried out on a pseudonymised data set by the study statistician. Regular reports will be distributed to collaborators on the study research questions.

Ethics and dissemination: This study has received research ethics approval in the UK. For international centres, evidence of appropriate local approval will be required to participate, prior to entry of data to the database. The reports will be published regularly. The outputs of the study will be regularly disseminated to participants and collaborators on the study website (https://pan-covid.org) and social media channels as well as dissemination to scientific meetings and journals.

Study registration number: ISRCTN68026880.

Doi: 10.1542/peds.2020-015065

Abstract

Objectives: To describe neonatal and maternal characteristics of the largest prospective cohort of newborns from mothers with coronavirus disease 2019 (COVID-19), the data of which were prospectively collected from the nationwide registry of the Spanish Society of Neonatology.

Methods: Between March 8, 2020, and May 26, 2020, the data of 503 neonates born to 497 mothers diagnosed with COVID-19 during pregnancy or at the time of delivery were collected by 79 hospitals throughout Spain.

Results: Maternal symptoms were similar to that of the general population, with 5% of severe forms. In 45.8% of asymptomatic women at the time of delivery, severe acute respiratory syndrome coronavirus 2 infection was detected because of recommendations established in Spain to perform COVID-19 screening in all women admitted to the hospital for labor. The rate of preterm deliveries was 15.7% and of cesarean deliveries, 33%. The most common diagnostic test was detection of viral RNA by polymerase chain reaction of nasopharyngeal swabs at a median age of 3 hours after delivery (1-12 hours). Almost one-half of neonates were left skin-to-skin after delivery, and delayed clamping of umbilical cords was performed in 43% of neonates. Also, 62.3% of asymptomatic neonates were managed with rooming-in. Maternal milk was received by 76.5% of neonates, 204 of them as exclusive breastfeeding.

Conclusions: The current study indicates that there is no need for separation of mothers from neonates, allowing delayed cord clamping and skin-to-skin contact along with maintenance of breastfeeding in a high percentage of newborns from mothers with COVID-19.

Doi: 10.1007/s00431-021-03968-6

Abstract
Stay-at-home orders, physical distancing, face masks and other non-pharmaceutical interventions (NPIs) do not only impact COVID-19, but also the dynamics of various other infectious diseases. Bronchiolitis is a clinically diagnosed viral infection of the lower respiratory tract, and causes a yearly seasonal wave of admissions in paediatric wards worldwide. We counted 92.5% less bronchiolitis hospitalisations in Antwerp before the expected end of the peak this year (of which only 1 RSV positive), as compared to the last 3 years. Furthermore, there was a >99% reduction in the number of registered RSV cases in Belgium. Conclusion: The 2020 winter bronchiolitis peak is hitherto nonexistent, but we fear a 'delayed' spring/summer bronchiolitis peak when most NPIs will be relaxed and pre-pandemic life restarts.


Doi: 10.1111/apa.15780

Abstract
Acute bronchiolitis is one of the most common health burdens in infants worldwide and leads to frequent hospitalisation, morbidity and mortality (1). Children have been relatively spared by the COVID-19 pandemic, but reports of multisystem inflammatory syndrome (2) and probable long-term COVID (3) effects in children have started to emerge. One major concern was whether the overlap of the pandemic and seasonal bronchiolitis would put substantial pressure on healthcare systems. Bronchiolitis has a predictable seasonal pattern, primarily in autumn and winter, and in France this is between October and February. The second COVID-19 wave in France led to a two-week night curfew from 17 October 2020, followed by a full lockdown on 30 October. However, day care centres and primary and secondary schools remained open.

Doi: 10.1007/s00431-021-03947-x

Abstract

We evaluated the rates of viral respiratory co-infections among SARS-CoV-2-infected children. Twelve percent of SARS-CoV-2-infected children had viral co-infection with one or more common respiratory viruses. This was significantly more frequent than among their SARS-CoV-2-infected adult household contacts (0%; p=0.028). Compared to the same period the previous year, common respiratory viruses were less frequently detected (12% vs 73%, p<0.001). Conclusion: Despite partial lockdown with school and daycare closure, and consequently similar exposure to common viruses between children and adults, SARS-CoV-2-infected children had more frequent viral respiratory co-infections than their SARS-CoV-2-infected adult household contacts. Circulation of common respiratory viruses was less frequent during the SARS-CoV-2 outbreak when compared to the same period last year, showing the impact of partial lockdown on the circulation of common viruses. What is Known: • Viral respiratory co-infections are frequent in children. • SARS-CoV-2 can be identified alongside other respiratory viruses, but data comparing children and adults are lacking. What is New: • Children infected with SARS-CoV-2 are more likely to have viral respiratory co-infections than their SARS-CoV-2-infected adult household contacts, which is surprising in the context of partial lockdown with schools and daycare closed. • When compared to data collected during the same period last year, our study also showed that partial lockdown reduced circulation of common respiratory viruses.


Doi: 10.1080/21645515.2020.1849516

Abstract

Background: SARS-CoV-2 is the new virus, and Streptococcus pneumoniae is one of the most important pathogens affecting humans. However, we do not yet know whether these microorganisms interact. Thus, we aimed to evaluate the relationship between Streptococcus pneumoniae and SARS-CoV-2 in pediatric patients. Methods: This study was conducted retrospectively by means of medical records of pediatric patients who were tested for SARS-CoV-2 between March 11 and June 04, 2020, in the University of Health Sciences, Ankara Educating and Training Hospital and Hacettepe University Faculty of Medicine. Results: We evaluated 829 pediatric patients for S. pneumoniae and SARS-CoV-2 from their nasopharyngeal specimen. Of 115 children positive for SARS-CoV-2, 32.2% had a positive S. pneumoniae test, whereas of 714 children negative for SARS-CoV-2, 14.1% had a positive S. pneumoniae test (p < .01). We compared patients with positive vs. negative SARS-CoV-2 tests according to S. pneumoniae positivity There were no statistically significant differences in terms of gender, underlying disease, fever, cough, leukocytosis, lymphopenia, increased CRP, increased procalcitonin, findings of chest x-ray, severity of disease, and treatment. Conclusion: The nasopharyngeal S. pneumoniae carriage rate in patients with COVID-19 was higher than in non-infected children, while S. pneumoniae carriage did not affect the course of COVID-19 disease. Pneumococcal vaccination is significant, such that we do not know the outcomes of increased pneumococcal carriage for the upcoming months of pandemic.

Doi: 10.1111/apa.15775

Abstract

Aim: To examine how the ongoing COVID-19 pandemic impacts child well-being and family functioning, particularly among children at risk for neurodevelopmental impairments.

Methods: Families of 73 typically-developing children, 54 children born very preterm (VPT), and 73 children with congenital heart disease (CHD) from two prospective cohort studies were assessed prior to (mean age: 10.4 (SD: 1.2) years) and during (mean age: 12.8 (SD: 2.0) years) the pandemic, more specifically, in April/May 2020. Child well-being and family functioning were assessed with validated, parent-reported questionnaires and tested with linear mixed models. Group comparison of child distress and parental concerns related to medical implications of COVID-19 and homeschooling, assessed with 5-point Likert scales, was done with Mann-Whitney U tests.

Results: Children's psychological well-being and family functioning (both, P<0.001) decreased significantly during the pandemic, irrespective of group. Children with CHD were reported to be more concerned about becoming infected with SARS-CoV-2 than were others. Child distress due to homeschooling and parents' concerns about children's academic achievements were significantly higher in VPT and CHD children than in typically-developing peers (all P<0.001).

Conclusion: The COVID-19 pandemic substantially impacts the whole family and leads to additional distress in families with children at risk for neurodevelopmental impairments. These families should receive individualized counseling and assistance from health care providers and schools during the pandemic.


Doi: 10.1007/s00408-021-00419-9

Abstract

Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infects both children and adults but epidemiological and clinical data demonstrate that children are less likely to have a severe disease course or die. Furthermore, asthmatic children show less severe disease manifestations when infected with SARS-CoV-2 comparing to adults. This review focuses on SARS-CoV-2 and childhood asthma interaction and aims at summarizing the current knowledge of the potential mechanisms that ameliorate disease symptomatology in asthmatic children.

Doi: 10.1111/apa.15775

Abstract

Aim: To examine how the ongoing COVID-19 pandemic impacts child well-being and family functioning, particularly among children at risk for neurodevelopmental impairments.

Methods: Families of 73 typically-developing children, 54 children born very preterm (VPT), and 73 children with congenital heart disease (CHD) from two prospective cohort studies were assessed prior to (mean age: 10.4 (SD: 1.2) years) and during (mean age: 12.8 (SD: 2.0) years) the pandemic, more specifically, in April/May 2020. Child well-being and family functioning were assessed with validated, parent-reported questionnaires and tested with linear mixed models. Group comparison of child distress and parental concerns related to medical implications of COVID-19 and homeschooling, assessed with 5-point Likert scales, was done with Mann-Whitney U tests.

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Conclusion: The COVID-19 pandemic substantially impacts the whole family and leads to additional distress in families with children at risk for neurodevelopmental impairments. These families should receive individualized counseling and assistance from health care providers and schools during the pandemic.

Doi: 10.1186/s12939-021-01390-w

Abstract

The COVID-19 pandemic has deteriorated key determinants of health and caused major upheavals around the world. Children, although less directly affected by the virus, are paying a heavy price through the indirect effects of the crisis, including poor diet, mental health impact, social isolation, addiction to screens and lack of schooling and health care, particularly among vulnerable groups. This paper is aimed at discussing the potential impact of this pandemic on children's nutrition and lifestyle. Preliminary data from the literature and from our survey show significant disruptions in nutrition and lifestyle habits of children. While undernutrition is expected to worsen in poor countries, obesity rates could increase in middle- and high-income countries especially among precarious groups widening the gap in health and social inequalities. The real impact of the COVID-19 pandemic on children extends well beyond that of a viral infection. This crisis has public health implications that could have life-long consequences on children. It requires effective and targeted measures mainly for vulnerable children and households to guarantee children's basic rights for optimal nutrition, health and development.

Doi: 10.1007/s11136-021-02757-w

Abstract

**Purpose:** As people around the world are facing the Covid-19 outbreak, their perception of oral health problems could be changed. This study aimed to evaluate the immediate effects of the Covid-19 pandemic on oral health-related quality of life (OHRQoL) of adolescents.

**Methods:** A cohort study with schoolchildren from southern Brazil was conducted. Data on adolescents' OHRQoL were collected from December 2019 to February 2020 (T1), before the Brazilian Covid-19 outbreak. Posteriorly, the data were collected again in June and July of 2020 (T2), under the Brazilian Covid-19 outbreak. The OHRQoL was assessed using the Brazilian short version of the CPQ11-14. Demographic and socioeconomic characteristics and the degree of social distancing were also assessed. Changes in OHRQoL between T1 and T2 were evaluated by adjusted Multilevel Poisson regression models for repeated measures.

**Results:** From 290 individuals evaluated at T1, 207 were reevaluated at T2 (response rate of 71.3%). The overall CPQ11-14 mean score was significantly lower during the pandemic, reducing from 10.8 at T1 to 7.7 at T2. This significant reduction was also observed for all CPQ domains, indicating a lower negative impact of oral conditions on adolescents' quality of life during the pandemic. Adolescents from families that had a middle or low degree of social distancing during the pandemic and whose parents were harmed in employment had higher CPQ11-14 scores.

**Conclusion:** Overall and specific-domains CPQ-14 scores were significantly lower during the Brazilian Covid-19 outbreak, indicating a decrease in the perception of oral health problems by adolescents over that period.

Doi: 10.1001/jamaophthalmol.2020.6346

Abstract

Importance: The coronavirus disease 2019 (COVID-19) pandemic has made alcohol-based hand sanitizers (ABHS) widely available in public places. This may warrant determining whether cases of unintentional ocular exposure are increasing, especially in children.

Objective: To describe the epidemiologic trend of pediatric eye exposures to ABHS and to report the severity of the ocular lesions.

Design, setting, and participants: Retrospective case series conducted from April 1, 2020, to August 24, 2020. Cases were retrieved from the national database of the French Poison Control Centers (PCC) and from a pediatric ophthalmology referral hospital in Paris, France. Cases of ocular exposure to chemical agents in children younger than 18 years during the study period were reviewed. Cases of ABHS exposure were included.

Exposures: The following data were collected: age, sex, circumstances of exposure, symptoms, size of the epithelial defect at first examination, time between the incident and re-epithelialization, and medical and/or surgical management.

Main outcomes and measures: Comparison of the number of eye exposures to ABHS in children between April to August 2020 and April to August 2019.

Results: Between April 1 and August 24, 2020, there were 7 times more pediatric cases of ABHS eye exposures reported in the PCC database compared with the same period in 2019 (9.9% of pediatric eye exposures in 2020 vs 1.3% in 2019; difference, 8.6%; 95% CI, 7.4-9.9; P < .001). The number of cases occurring in public places increased in 2020 (from 16.4% in May to 52.4% in August). Similarly, admissions to the eye hospital for ABHS exposure increased at the same period (16 children in 2020 including 10 boys; mean [SD] age, 3.5 [1.4] years vs 1 boy aged 16 months in 2019). Eight of them presented with a corneal and/or conjunctival ulcer, involving more than 50% of the corneal surface for 6 of them. Two cases required amniotic membrane transplant.

Conclusions and relevance: These data support the likelihood of an increasing number of unintentional ocular exposures to ABHS in the pediatric population. To maintain good public compliance with hand disinfection, these findings support that health authorities should ensure the safe use of these devices and warn the parents and caregivers about their potential danger for children.


Doi: 10.1001/jamaophthalmol.2020.6351

Observation

Doi: 10.3201/eid2702.203285

Abstract

We conducted a survey among 735 parents to determine differences in endorsement of misinformation related to the coronavirus disease pandemic between parents of children in cancer treatment and those with children who had no cancer history. Parents of children with cancer were more likely to believe misinformation than parents of children without cancer.

Doi: 10.1177/0194599820987458

Abstract

Objective: To evaluate the role of social isolation during the lockdown due to the SARS-CoV-2 outbreak (severe acute respiratory syndrome coronavirus 2) in modifying the prevalence of otitis media with effusion (OME) and the natural history of chronic OME.

Study design: Retrospective study.

Setting: Tertiary level referral audiologic center.

Methods: We assessed the prevalence of OME among children aged 6 months to 12 years who attended the outpatient clinic for hearing or vestibular disorders during 2 periods before the lockdown, May-June 2019 (n = 350) and January-February 2020 (n = 366), and the period immediately after the lockdown, May-June 2020 (n = 216). We also compared the disease resolution rates between a subgroup of children with chronic OME (n = 30) who were diagnosed in summer 2019 and reevaluated in May-June 2020 and a similar subgroup (n = 29) assessed in 2018-2019.

Results: The prevalence of OME in this clinic population was 40.6% in May-June 2019, 52.2% in January-February 2020, and 2.3% in May-June 2020. Children with chronic OME had a higher rate of disease resolution in May-June 2020 (93.3%) than those examined in May-June 2019 (20.7%, P < .001).

Conclusion: Closure of schools and the physical distancing rules were correlated with a reduction in the prevalence of OME and favored the resolution of its chronic forms among children who attended the outpatient clinic. These data could suggest that in the presence of chronic OME, keeping young children out of group care settings for a period might be beneficial to allow for OME resolution.

Doi: 10.1093/cid/ciaa977

Abstract

**Background:** Healthcare workers (HCWs) have paid a heavy toll during the coronavirus disease 2019 (COVID-19) outbreak. Routes of transmission remain to be fully understood.

**Methods:** This prospective study compared a 1500-bed adult and 600-bed pediatric setting of a tertiary care university hospital located in central Paris. From 24 February until 10 April 2020, all symptomatic HCWs were screened for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on a nasopharyngeal swab. HCWs screened positive were questioned on their profession, symptoms, and occupational and nonoccupational exposures to SARS-CoV-2.

**Results:** Among 1344 HCWs tested, 373 were positive (28%) and 336 (90%) corresponding questionnaires were completed. Three hospitalizations and no deaths were reported. Most HCWs (70%) had patient-facing occupational activities (22% in COVID-19 dedicated units). The total number of HCW cases peaked on 23 March, then decreased slowly, concomitantly with a continuous increase of compliance to preventive measures (including universal medical masking and personal protective equipment [PPE] for direct care to COVID-19 patients). Attack rates were of 3.2% and 2.3% in the adult and pediatric settings, respectively (P = .0022). In the adult setting, HCWs more frequently reported exposure to COVID-19 patients without PPE (25% vs 15%, P = .046). Report of contacts with children attending out-of-home care facilities dramatically decreased over the study period.

**Conclusions:** Universal masking, reinforcement of hand hygiene, and PPE with medical masks for patients' care allowed protection of HCWs and containment of the outbreak. Residual transmissions were related to persistent exposures with undiagnosed patients or colleagues and not to contacts with children attending out-of-home care facilities.

Doi: 10.1002/jhrm.21460

Abstract
The provision of health care in the perioperative setting has undergone significant changes due to severe respiratory distress syndrome coronavirus-2 (SARS-CoV-2). Hospital facilities have been tasked with developing and implementing personal protective equipment (PPE) protocols to protect both medical providers and patients. Texas Children's Hospital has created a set of protocols for donning and doffing PPE while managing surgical pediatric patients. These requirements have undergone numerous modifications as a result of our internal infrastructural recommendations and the Centers for Disease Control and Prevention guidance, which has led to more lenient regulations. While these perioperative PPE protocols were less stringent compared to the original guidelines, we were able to create a safe surgical environment without further exposing patients and health care providers to SARS-CoV-2. In this article, we detail the design, distribution, implementation, and modification of our institutional surgical PPE protocols.


Doi: 10.24875/bmhim.20000355

Abstract
Background: The new evere acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is characterized by its high capacity to transmit. Health-care personnel is highly susceptible to becoming infected. This study aimed to determine the characteristics and known risk factors for contagion and severe outcomes of SARS-CoV-2 disease in health-care personnel of a pediatric coronavirus disease (COVID) center in Mexico City.

Methods: In the last week of March 2020 (at the beginning of phase 2 of the Ministry of Health's national campaign in Mexico), a study was conducted on healthcare workers of a pediatric COVID hospital in Mexico City. Using a virtual interview, we evaluated comorbidities, mobility, areas and functions where they carry out the activities, protection measures, contact history, and vaccination. According to their activities, healthcare workers were classified into the following areas: medical, nursing, other health-care personnel (researchers, nutritionists, rehabilitation, imaging, and laboratory), administrative, and other services. We compared the variables between the groups of healthcare workers with the X2 test.

Results: We included 812 participants. The mean age was 41 ± 11 years, and 33% were overweight or obese, 18% were over 60 years old, and 19% had high blood pressure. Medical and nursing personnel presented a higher proportion in the use of standard protection measures.

Conclusions: Among healthcare workers, there are risk conditions for the development of complications in case of SARS-CoV-2 infection. Most medical and nursing personnel use standard protective measures.

Doi: 10.1016/j.rx.2020.11.008

Abstract

Introducción: A mediados de diciembre de 2019 se describió en China una enfermedad infecciosa causada por un nuevo tipo de coronavirus que provocaba infección respiratoria aguda y pronto se extendió por el país y por el resto del mundo. A pesar de que la radiografía de tórax es la prueba de elección inicial ante infecciones respiratorias bajas con o sin disnea, hay pocos artículos que describan los hallazgos radiológicos del niño con COVID-19.

Objetivo: Describir las características clínicas, analíticas y los hallazgos en la radiografía de tórax de la población pediátrica atendida con clínica de infección respiratoria en nuestro hospital durante el mes de marzo. Analizar la frecuencia de COVID-19 frente a otras infecciones respiratorias y sus manifestaciones radiológicas.

Material y métodos: Estudio observacional transversal desde el 1 de marzo al 31 de marzo del 2020 de todos los niños con clínica de infección respiratoria (fiebre, rinorrea, tos y/o disnea) que han precisado radiografía de tórax en nuestro hospital.

Resultados: 231 niños precisaron radiografía de tórax por clínica de infección respiratoria, 90 (38,9%) niñas y 141 (61%) niños; rango de edad 1 mes-16 años, con una mediana de 4 años. La mayoría de los niños presentaron síntomas leves (88,4%). Un 29,9% de los niños presentaba ambiente epidémico familiar positivo con clínica respiratoria similar a la que presentaba el paciente. Se realizó test PCR SARS-CoV-2 a 47 de los niños que acudieron a la urgencia (20,3%), que fue positivo en 3 (6,3% de los testados). Se realizaron determinaciones microbiológicas al 36,8% (85/231), demostraron otros agentes infecciosos diferentes al SARS-CoV-2 en el 35,3% de los pacientes (30/85). Únicamente uno de los pacientes PCR positivo para SARS-CoV-2 presentó infección de orina por Escherichia coli y hemocultivo positivo para Streptococcus viridans. El 73,2% de los pacientes presentó algún tipo de alteración en la radiografía de tórax. Los engrosamientos peribronquiales fueron el hallazgo más común en el 57%. El 38,5% presentó consolidación parenquimatosa, que en un 29,2% fue bilateral y en un 3,3% asoció derrame pleural. Se demostró aumento de la trama intersticial en el 7,3%. El 7,3% se manifestó con opacidades en vidrio deslustrado.

Conclusión: Durante el mes de marzo coexistieron infecciones respiratorias sintomáticas COVID-19 y no COVID-19. El patrón radiológico de las infecciones respiratorias, incluida la COVID-19, no es específico y la radiografía en ningún caso fue suficiente para establecer el diagnóstico. Los niños con clínica respiratoria compatible con COVID-19, con o sin PCR confirmatoria, presentaron síntomas leves y en su mayoría no requirieron ingreso ni ventilación invasiva. En un entorno de transmisión comunitaria, la ausencia de antecedente epidemiológico conocido no debería ser una contraindicación para realizar estudio de PCR para SARS-CoV-2.

Doi: 10.1016/j.echo.2021.01.012


Doi: 10.1007/s12519-020-00404-x

Abstract

Background: This study aimed to reveal the differences between coronavirus disease 2019 (COVID-19) infections and non-COVID-19 respiratory tract infections in pediatric patients.

Methods: Sixty pediatric patients admitted to the hospital between March 11, 2020 and April 15, 2020 with respiratory tract infections were evaluated retrospectively. Among them, 20 patients with reverse transcription-polymerase chain reaction (RT-PCR) tests and chest computed tomography (CT) examinations were included in the study. According to the RT-PCR test results, the patients were divided into the COVID-19 and non-COVID-19 groups. The clinical observations, laboratory results, and radiological features from the two groups were then compared.

Results: According to the RT-PCR test results, 12 patients were assigned to the COVID-19 group and 8 to the non-COVID-19 group. There were no significant differences between the two groups in terms of clinical or laboratory features. In terms of radiological features, the presence of bronchiectasis and peribronchial thickening was statistically significantly higher in the non-COVID-19 group (P = 0.010 and P = 0.010, respectively).

Conclusions: In pediatric cases, diagnosing COVID-19 using radiological imaging methods plays an important role in determining the correct treatment approach by eliminating the possibility of other infections.

Doi: 10.1002/ppul.25255

Abstract

Background: The coronavirus disease 2019 (COVID-19) has caused a new global pandemic and is responsible for millions of infections and thousands of deaths in the world. The lung ultrasound (LUS) is a noninvasive and easily repeatable tool and can be carried out by the pediatrician at the bedside of children with a consequent reduction in the risk of transmission of the virus.

Objective: We hypothesized that ultrasound findings in these patients would (1) be associated with their disease severity and (2) change over time in alignment with clinical outcome.

Methods: The study was made in the emergency department (ED) in a tertiary level pediatric hospital. All patients with swab-confirmed COVID-19 infection were subjected to a LUS within 6 h from admission and after 96 h.

Results: Among a total of 30 children, 18 (60%) were males, 4 reported exertional dyspnea, and only 1 chest pain. The mean oxygen saturation was 98.8 ± 1.0% in ambient air in the ED and no patient needed oxygen therapy during hospitalization. Children with moderate disease presented more B line (p = .03). After 96 h, we had observed ultrasound abnormality only in 20% of the children. We found a statistically significant reduction in pleural irregularities (30% vs. 16.7; p = .001) and in B lines (50% vs. 20%; p = .008).

Conclusions: The LUS is a useful, feasible, and safe tool for the clinician to complement the clinical evaluation and to monitor the evolution of lung disease in children with COVID-19.

Doi: 10.7334/psicothema2020.287

Abstract

**Background:** Despite being necessary to delay the spread of COVID-19, home confinement could have affected the emotional well-being of children and adolescents. Knowing which variables are involved in anxiety and depressive symptoms could help to prevent young people’s psychological problems related to lockdown as early as possible. This cross-sectional study aims to examine anxiety and depressive symptomatology in Italian, Spanish, and Portuguese children and adolescents in order to determine which variables are related to poorer well-being during the pandemic.

**Method:** The parents of 515 children, aged 3-18 years old, completed an online survey. Children's anxiety symptoms were assessed using the Spence Children's Anxiety Scale-Parent Version, and depressive symptoms were measured with the Short Mood and Feelings Questionnaire-Parent Version.

**Results:** We found differences in anxiety and depression between countries, with higher anxiety scores in Spanish children, and higher depression scores in Spanish and Italian children compared to the Portuguese. Anxiety and depressive symptoms were more likely in children whose parents reported higher levels of stress.

**Conclusions:** These findings are discussed in the light of detecting and supporting affected children as early as possible.
Impact of the COVID-19 pandemic on quality of life and mental health in children and adolescents in Germany.

Doi: 10.1007/s00787-021-01726-5

Abstract

The COVID-19 pandemic has caused unprecedented changes in the lives of 1.6 billion children and adolescents. First non-representative studies from China, India, Brazil, the US, Spain, Italy, and Germany pointed to a negative mental health impact. The current study is the first nationwide representative study to investigate the impact of the COVID-19 pandemic on health-related quality of life (HRQoL) and mental health of children and adolescents in Germany from the perspective of children themselves. A representative online survey was conducted among n = 1586 families with 7- to 17-year-old children and adolescents between May 26 and June 10. The survey included internationally established and validated instruments for measuring HRQoL (KIDSCREEN-10), mental health problems (SDQ), anxiety (SCARED), and depression (CES-DC). Results were compared with data from the nationwide, longitudinal, representative BELLA cohort study (n = 1556) conducted in Germany before the pandemic. Two-thirds of the children and adolescents reported being highly burdened by the COVID-19 pandemic. They experienced significantly lower HRQoL (40.2% vs. 15.3%), more mental health problems (17.8% vs. 9.9%) and higher anxiety levels (24.1% vs. 14.9%) than before the pandemic. Children with low socioeconomic status, migration background and limited living space were affected significantly more. Health promotion and prevention strategies need to be implemented to maintain children's and adolescents' mental health, improve their HRQoL, and mitigate the burden caused by COVID-19, particularly for children who are most at risk.


Doi: 10.3390/ijerph18031062

Abstract

Mitigating the adverse physical health risks associated with COVID-19 has been a priority of public health incentives. Less attention has been placed on understanding the psychological factors related to the global pandemic, especially among vulnerable populations. This qualitative study sought to understand the experiences of children and adolescents during COVID-19. This study interviewed 48 families during the COVID-19 pandemic restrictions, and a national lockdown, to understand its impacts. The study used an Interpretative Phenomenological Analysis (IPA) methodology. Parents and children discussed the negative impact of the restrictions on young people’s wellbeing. Children and adolescents experienced adverse mental health effects, including feelings of social isolation, depression, anxiety, and increases in maladaptive behaviour. Families with children with Autism Spectrum Disorders reported increased mental health difficulties during this period mostly due to changes to routine. The findings highlight the impact of severe restrictions on vulnerable populations' wellbeing and mental health outcomes, including children, adolescents, and those with Autism spectrum disorder (ASD).

Doi: 10.1016/j.pnpbp.2021.110260

Abstract

Background: Preliminary evidence suggests that the COVID-19 pandemic has had a negative impact on children's mental health. Given these problems can have significant impacts throughout the lifespan, preventing the negative repercussions of COVID-19 on children's mental health is essential. Philosophy for children (P4C) and mindfulness-based interventions (MBIs) show promise in this regard.

Objective: The goal of the present study was to compare the impact of online MBI and P4C interventions on mental health, within the context of the COVID-19 pandemic. We used a randomized cluster trial to assess and compare the impact of both interventions on elementary school students' (N = 37) anxiety and inattention symptoms as well as on their basic psychological need satisfaction (BPN).

Results: ANCOVAs revealed a significant effect of the P4C intervention on mental health difficulties, controlling for baseline levels. Participants in the P4C group showed lower scores on the measured symptoms at post-test than participants in the MBI group. Significant effects of the MBI on levels of BPN were also found. Participants in the MBI intervention reported greater BPN satisfaction at post-test than participants in the P4C intervention.

Conclusion: Results from this study suggest that, in the current context of the COVID-19 pandemic, a P4C intervention centered around COVID-19 related themes may be helpful to reduce mental health difficulties, that a MBI may be useful to satisfy BPN, and that both interventions were easy to offer online to elementary school students. Future work including a larger sample size and follow-up measures is warranted.

Public significance: Practice: Philosophy for children (P4C) and mindfulness-based interventions (MBIs) can be used to foster mental health in elementary school students, in the current COVID-19 context. Policy: As we do not anticipate that facilitators will be allowed in schools during the 2020-2021 school year and that children will, most likely, be attending school in the current COVID-19 context, policymakers who want to implement psychological support measures in elementary schools should consider an online modality, which has shown in this study to work well, be feasible, and yield positive results on youth mental health.

Doi: 10.1136/bmjopen-2020-042824

Abstract

Introduction

COVID-19-related social isolation and stress may have significant mental health effects, including post-traumatic stress, anxiety and depression. These factors are thought to disproportionately affect populations at risk of psychopathology, such as adolescents with a history of childhood adversity (CA). Therefore, examining which factors may buffer the impact of COVID-19-related stress and isolation in vulnerable adolescents is critical. The Resilience After the COVID-19 Threat (REACT) study assesses whether emotion regulation capacity, inflammation and neuroimmune responses to stress induced in the laboratory prior to the pandemic predict responses to COVID-19-related social isolation and stress in adolescents with CA. We aim to elucidate the mechanisms that enable vulnerable adolescents to maintain or regain good mental health when confronted with COVID-19.

Methods and analysis

We recruited 79 adolescents aged 16–26 with CA experiences from the Resilience After Individual Stress Exposure study in which we assessed emotion regulation, neural and immune stress responses to an acute stress task. Our sample completed questionnaires at the start of the UK lockdown (‘baseline’; April 2020) and three (July 2020) and 6 months later (October 2020) providing crucial longitudinal information across phases of the pandemic progression and government response. The questionnaires assess (1) mental health, (2) number and severity of life events, (3) physical health, (4) stress perception and (5) loneliness and friendship support. We will use multilevel modelling to examine whether individual differences at baseline are associated with responses to COVID-19-related social isolation and stress.

Ethics and dissemination

This study has been approved by the Cambridge Psychology Research Ethics Committee (PRE.2020.037). Results of the REACT study will be disseminated in publications in scientific peer-reviewed journals, presentations at scientific conferences and meetings, publications and presentations for the general public, and through social media.


Resumen

Introducción: La pandemia del COVID-19 representa un impacto trascendental para la salud mental, lo que es poco abordado por su relativa invisibilidad, lo que puede comprometer especialmente a las personas más vulnerables, entre las que se encuentra la población infantojuvenil.

Objetivo: Examinar los factores que influyen en la salud mental de la población infantojuvenil durante la pandemia del COVID-19.


Resultados: Se consideraron temáticas como estrés, afectación física, distanciamiento y aislamiento social, experiencias adversas, resiliencia, salud mental, impacto psicológico, maltrato infantil, y familia. Las experiencias adversas vividas durante las etapas de desarrollo ocupan un lugar crítico en la conformación de la salud mental.

Consideraciones finales: La salud mental de la población infantojuvenil puede afectarse por las consecuencias adversas de la pandemia de la COVID-19 y estar la persona en pleno desarrollo psicológico. No todas las respuestas psicológicas podrán calificarse como enfermedades, porque la mayoría son reacciones normales ante una situación anormal.

El factor protector por excelencia de los infantes y adolescentes es la familia con la presencia de adultos responsables y estables que puedan ofrecer el apoyo necesario, establecer rutinas y hábitos saludables, y promover la resiliencia.

Doi: 10.1093/cid/ciaa710

Abstract
A time series analysis of 871,543 pediatric emergency visits revealed that the coronavirus disease 2019 (COVID-19) lockdown and school closures were associated with a significant decrease in infectious diseases disseminated through airborne or fecal-oral transmission: common cold, gastroenteritis, bronchiolitis, and acute otitis. No change was found for urinary tract infections.


Doi: 10.1111/apa.15771

Abstract
The COVID-19 pandemic requires exceptional measures, such as national lockdowns. Several studies have shown important reductions in pediatric emergency department (PED) visits during lockdowns and an Irish study reported that changes in PED attendance continued after restrictions were eased. Better knowledge about how our PED was used during lockdown and as services started reopening can help decision-makers choose restrictions and adapt care services. Our aims were to describe the evolution of PED visits since the French lockdown, shortly after COVID-19 was declared a pandemic, and to compare this to the estimates produced by predictive models that were based on data from before the pandemic.


Doi: 10.1542/peds.2020-036871

Doi: 10.1177/1740774520984860

Abstract

The COVID-19 pandemic has highlighted the challenges of evidence-based health policymaking, as critical precautionary decisions, such as school closures, had to be made urgently on the basis of little evidence. As primary and secondary schools once again close in the face of surging infections, there is an opportunity to rigorously study their reopening. School-aged children appear to be less affected by COVID-19 than adults, yet schools may drive community transmission of the virus. Given the impact of school closures on both education and the economy, schools cannot remain closed indefinitely. But when and how can they be reopened safely? We argue that a cluster randomized trial is a rigorous and ethical way to resolve these uncertainties. We discuss key scientific, ethical, and resource considerations both to inform trial design of school reopenings and to prompt discussion of the merits and feasibility of conducting such a trial.


Doi: 10.1093/cid/ciab035

Abstract

Background: The benefits of school reopening must be weighed against the morbidity and mortality risks and the impact of enhancing spread of COVID-19. We investigated the effects of school reopening and easing of social distancing restrictions on the dynamics of SARS-CoV-2 infections in Israel, between March-July 2020.

Methods: We examined the nationwide agewise weekly incidence, prevalence, SARS-CoV-2 PCR tests, their positivity, COVID-19 hospitalizations and associated mortality. Temporal differences in these parameters following school reopening, school ending, and following easing of restrictions such as permission of large scale gatherings, were examined.

Results: The incidence of SARS-CoV-2 infections gradually increased following school reopening in all age groups, with a significantly higher increase in adults compared to children. Higher relative ratios (RRs) of sample positivity rates 21-27 days following school reopening relative to positivity rates prior to openings were found for the age groups 40-59 (RR: 4.72, 95% CI: 3.26 - 6.83) and 20-39 years (RR: 3.37 [2.51 - 4.53]), but not for children aged 0-9 (RR: 1.46 [0.85 - 2.51]) and 10-19 years (RR: 0.93 [0.65 - 1.34]). No increase was observed in COVID-19 associated hospitalizations and deaths following school reopening. In contrast, permission of large-scale gatherings was accompanied by increases in incidence and positivity rates of samples for all age groups, and increased hospitalizations and mortality.

Conclusions: This analysis does not support a major role of school reopening in the resurgence of the COVID-19 curve in Israel. Easing restrictions on large scale gatherings was the major influence on this resurgence.


Abstract

Background: Italy was the first country in Europe affected by COVID-19: the emergency started on February 20, 2020, culminating with national lockdown on March 11, which terminated on May 4, 2020. We describe how the pandemic affected Emergency Department (ED) accesses in a tertiary children’s hospital, composed by two different pediatric centers, one located in Rome’s city center and the second, Palidoro (regional COVID-19 center), in its surrounding metropolitan area, both in the Lazio region, analyzing the profile of admitted patients during the pandemic period in terms of their general characteristics (at presentation in the ED's) and urgent hospitalizations compared to prepandemic period.

Methods: The study compare the period between the 21st of February and the 30th of April 2020, covering the three phases of the national responses (this period will be referred to as the pandemic period) with the same period of 2019 (prepandemic period). The study analyzes the number of ED visits and urgent hospitalizations and their distribution according to selected characteristics.

Results: The reduction of ED visits was 56 and 62%, respectively in Rome and Palidoro centers. The higher relative decline was encountered for Diseases of Respiratory System, and for Diseases of the Nervous System and Sense Organs. A doubling of the relative frequency of hospitalizations was observed, going from 14.2 to 24.4% in Rome and from 6.4 to 10.3% in Palidoro. In terms of absolute daily numbers the decrease of urgent hospitalizations was less sharp than ED visits. For pathologies such as peritonitis, tumors or other possible life-threatenning conditions we did not observe a significative increase due to delayed access.

Conclusions: In the pandemic period there was a general reduction in the number of children referred to ED, such reduction was greater in low-acuity levels. The reduction for respiratory tract infections and other communicable diseases during school closure and the national lockdown must make us reflect on the possible impact that these conditions may have on the health system, in particular the ED, at the reopening of schools. The major problem remains the fear for possible diagnostic delays in life-threatening or crippling diseases; our study doesn't demonstrate an increase in number or significant delay in some serious conditions such as tumors, peritonitis, diabetic ketoacidosis, ileo-colic intussusception and testis/ovary torsion. A continuous, deep re-organizational process step by step of the ED is neccessary in the present and upcomming pandemic situation.

Doi: 10.1371/journal.pone.0246326

Abstract

Background: The overall global impact of COVID-19 in children and regional variability in pediatric outcomes are presently unknown.

Methods: To evaluate the magnitude of global COVID-19 death and intensive care unit (ICU) admission in children aged 0-19 years, a systematic review was conducted for articles and national reports as of December 7, 2020. This systematic review is registered with PROSPERO (registration number: CRD42020179696).

Results: We reviewed 16,027 articles as well as 225 national reports from 216 countries. Among the 3,788 global pediatric COVID-19 deaths, 3,394 (91.5%) deaths were reported from low- and middle-income countries (LMIC), while 83.5% of pediatric population from all included countries were from LMIC. The pediatric deaths/1,000,000 children and case fatality rate (CFR) were significantly higher in LMIC than in high-income countries (HIC) (2.77 in LMIC vs 1.32 in HIC; p < 0.001 and 0.24% in LMIC vs 0.01% in HIC; p < 0.001, respectively). The ICU admission/1,000,000 children was 18.80 and 1.48 in HIC and LMIC, respectively (p < 0.001). The highest deaths/1,000,000 children and CFR were in infants < 1 year old (10.03 and 0.58% in the world, 5.39 and 0.07% in HIC and 10.98 and 1.30% in LMIC, respectively).

Conclusions: The study highlights that there may be a larger impact of pediatric COVID-19 fatality in LMICs compared to HICs.


Doi: 10.1093/jpepsy/jsaa131

Abstract

Objectives: To highlight the role of implicit bias in contributing to existing health disparities among pediatric populations during the coronavirus disease 2019 (COVID-19) pandemic and recommend strategies to reduce its impact.

Methods: A topical review of the recent literature on implicit bias describing its potential impact in key areas of pediatric health care within the context of COVID-19 was conducted.

Results: Pediatric provider implicit bias has been found to be similar to the general population and can negatively influence clinical decision-making and outcomes for marginalized youth and families, particularly under stressful conditions such as the COVID-19 pandemic. Implicit bias can be mitigated through strategies proposed at the individual, institutional/organizational, educational, and scientific/research levels.

Conclusions: The additional strain on provider resources, staff, and supplies created by COVID-19 may exacerbate providers’ susceptibility to implicit bias and contribute to health disparities. Pediatric psychologists are encouraged to recognize implicit biases in themselves and colleagues and promote identified strategies to reduce the impact of implicit bias on perpetuating health disparities in marginalized youth and families.

Doi: 10.1136/archdischild-2020-321008

Abstract

Objectives: To determine the indirect consequences of the COVID-19 pandemic on paediatric healthcare utilisation and severe disease at a national level following lockdown on 23 March 2020.

Design: National retrospective cohort study.

Setting: Emergency childhood primary and secondary care providers across Scotland; two national paediatric intensive care units (PICUs); statutory death records.

Participants: 273 455 unscheduled primary care attendances; 462 437 emergency department attendances; 54 076 emergency hospital admissions; 413 PICU unplanned emergency admissions requiring invasive mechanical ventilation; and 415 deaths during the lockdown study period and equivalent dates in previous years.

Main outcome measures: Rates of emergency care consultations, attendances and admissions; clinical severity scores on presentation to PICU; rates and causes of childhood death. For all data sets, rates during the lockdown period were compared with mean or aggregated rates for the equivalent dates in 2016-2019.

Results: The rates of emergency presentations to primary and secondary care fell during lockdown in comparison to previous years. Emergency PICU admissions for children requiring invasive mechanical ventilation also fell as a proportion of cases for the entire population, with an OR of 0.52 for likelihood of admission during lockdown (95% CI 0.37 to 0.73), compared with the equivalent period in previous years. Clinical severity scores did not suggest children were presenting with more advanced disease. The greatest reduction in PICU admissions was for diseases of the respiratory system; those for injury, poisoning or other external causes were equivalent to previous years. Mortality during lockdown did not change significantly compared with 2016-2019.

Conclusions: National lockdown led to a reduction in paediatric emergency care utilisation, without associated evidence of severe harm.

Doi: 10.1097/inf.0000000000002967

Abstract

We report findings on abdominal imaging in critically ill children admitted with MIS-C. On sonography, hepatomegaly, nephromegaly, gallbladder wall edema, ascites, intestinal inflammation and mesenteric lymphadenopathy were seen, while CT showed fluid-filled small bowel loops, mural thickening of the terminal ileum, diffuse lymphadenopathy, and moderate ascites.


Doi: 10.5546/aap.2021.eng.e26

Abstract

Multisystem inflammatory syndrome in children related to COVID-19 is defined as the presence of persistent fever, inflammation, and organ dysfunction, with evidence of past or recent severe acute respiratory syndrome coronavirus 2 infection, and excluding other microbial causes. It overlaps with other inflammatory diseases (Kawasaki disease and toxic shock syndrome) and shares some features with hypercytokinemia conditions (hemophagocytic lymphohistiocytosis and macrophage activation syndrome). It differs from these and severe acute COVID-19 in its clinical presentation and laboratory parameters. It has a potentially severe course and may occur with cardiovascular failure; mortality is low (2 %). Here we provide an update on this syndrome and describe the presentation of two clinical cases with cardiovascular dysfunction who required vasoactive support and invasive ventilation. Serum lab tests showed inflammation parameters. Both patients were treated with intravenous immunoglobulin and systemic corticosteroids and had a favorable course.

Doi: 10.1038/s41584-020-00566-y

Abstract
Multisystem inflammatory syndrome in children (MIS-C) is a rare complication of SARS-CoV-2 infection that can result in serious illness in the paediatric population but our understanding of this syndrome is in its infancy. Translational studies in 2020 leveraging immune profiling have laid the foundation to enable further discovery in MIS-C.


Doi: 10.1093/tropej/fmaa127

Abstract
Till date, there is paucity of published literature on clinical manifestations of Coronavirus disease 2019 (COVID-19) in children from low-middle-income countries (LMIC). Most of the reports are from Europe, USA or China. Our study aimed to capture data on varied and unusual clinical presentation and management of MIS-C (Multisystem Inflammatory Syndrome in Children) with COVID-19 and compare the MIS-C and non-MIS-C children. This was a single-centre cohort study of 41 COVID positive children 0-12 years age hospitalized between 1 April 2020 and 31 July 2020. Data were entered into standardized WHO Case Report Form and analysed using strata 15.0 statistical software. Twenty out of 41 children fulfilled the criteria of MIS-C. Male-to-female ratio in the cohort was 1.73:1. In MIS-C cases, predominant clinical manifestation was fever (100%), neurological manifestations (80%), lower respiratory tract infection (50%), rash (35%) and acute gastroenteritis (25%). They were categorized into Acute Encephalitis-like illness in 35%, Kawasaki-like disease, Toxic Shock-like syndrome and Comorbidity with systemic complications in 20% each. Ninety percent of MIS-C cases required oxygen supplementation with odds ratio (OR) 18 (3.22-100.48), whereas 65% required mechanical ventilation with OR 37.14 (4.08-338.10). Most of them had raised inflammatory markers and hepatic enzymes derangement. Steroids, Intravenous immunoglobulin and supportive therapy were mainstay of management for MIS-C group. Most MIS-C group children had multisystem involvement with predominant neurological manifestations at time of presentation. Delay in diagnosis and referral may have adversely affected the prognosis and outcome.

Doi: 10.1016/j.rcreu.2020.11.004

Abstract

Background: Kawasaki disease (KD) is an acute vasculitis with multisystem involvement. Recently, the increasing incidence of a condition that closely resembles KD in many cases, named multisystem inflammatory syndrome in children (MIS-C), has set off alarms amid the current worldwide coronavirus disease-19 (COVID-19) pandemic. Hence, the aim is to conduct a systematic review of the literature about KD in Colombia and contrast it with COVID-19-related MIS-C.

Materials and methods: A search was carried out in both international and Latin American electronic databases for publications concerning patients with KD in the Colombian population. Records were then screened by titles and/or abstracts, assessed for eligibility, and reviewed. Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines were followed. The search included studies reporting MIS-C associated with COVID-19, and compared these patients with our findings of KD in Colombia.

Results: Out of 36 publications retrieved, 17 were included, representing 120 individuals. Male to female ratio was 1.6, and most patients (90.4%) were aged 5 years or less. Among the main features of KD, fever was the most frequent (96.2% of the patients), while cervical lymphadenopathy was present in only 40.6%. Intravenous immunoglobin was administered in 91.4% cases and 6.2% were resistant. Cardiac involvement was found in around 30%, and 20% had coronary artery lesions. Comparison between MIS-C associated with COVID-19 and KD in Colombia indicates that patients affected by MIS-C were older (72.2% of MIS-C patients > 5 years), had higher rates of cardiac involvement, and required critical care more often.

Conclusions: Our findings of KD in Colombia are consistent with the available descriptions of KD in the scientific literature. Given the increasing rate of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection in Colombia and Latin America, our study raises awareness about MIS-C in paediatric patients with COVID-19 and its relationship with KD.


Letter

Doi: 10.1111/dth.14820

Doi: 10.1172/jci144554

Abstract

Multisystem inflammatory syndrome associated with the SARS-CoV-2 pandemic has recently been described in children (MIS-C), partially overlapping with Kawasaki disease (KD). We hypothesized that: 1) MIS-C and pre-pandemic KD cytokine profiles may be unique and justify the clinical differences observed; 2) SARS-CoV-2-specific immune complexes (IC) may explain the immunopathology of MIS-C. Seventy-four children were included: 14 MIS-C; 9 patients with positive SARS-CoV-2-PCR without MIS-C (COVID); 14 pre-pandemic KD and 37 healthy controls (HC). Thirty-four circulating cytokines were quantified in pre-treatment serum or plasma samples and the presence of circulating SARS-CoV-2 IC was evaluated in MIS-C patients. Compared to HC, MIS-C and KD groups showed most cytokines to be significantly elevated, with IFN-γ-induced response markers (including IFN-γ, IL-18, IP-10) and inflammatory monocytes activation markers (including MCP-1, IL-1α, IL-1RA) being the main triggers of inflammation. With linear discriminant analysis, MIS-C and KD profiles overlapped; however, a subgroup of MIS-C patients (MIS-Cplus) differentiated from the remaining MIS-C patients in IFN-γ, IL-18, GM-CSF, RANTES, IP-10, IL-1α and SDF-1 and incipient signs of macrophagic activation syndrome. Circulating SARS-CoV-2-IC were not detected in MIS-C patients. Our findings suggest a major role of IFN-γ in the pathogenesis of MIS-C, which may be relevant for therapeutic management.


Doi: 10.1007/s40272-020-00435-x

Abstract

Although data on the incidence and severity of new coronavirus disease 2019 (COVID-19) due to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection showed more significant disease among adults and the elderly, a clinical manifestation characterized by a multisystem inflammatory syndrome was described in children (MIS-C). It was initially thought to be specific to children, but recent reports have shown that it can also occur in adults. MIS-C is characterized by a number of multisystemic manifestations resembling other known previously described illnesses, mainly Kawasaki disease, especially in cases with shock, toxic shock syndrome, and macrophage activation syndrome. Available literature shows that our knowledge of MIS-C is largely incomplete. Its development in strict relation with SARS-CoV-2 infection seems documented and, in most cases, can be considered a post-infectious manifestation secondary to an abnormal immune response for some aspects, similar to that seen in adults several days after SARS-CoV-2 infection. However, in a minority of cases, a clinical picture with symptoms fulfilling criteria for MIS-C diagnosis develops during the acute phase of SARS-CoV-2 infection. It is highly likely that the criteria currently used to diagnose MIS-C are too broad, meaning that children with different diseases are included. As clarity on the pathogenesis of MIS-C is lacking, different therapeutic approaches have been used, but no specific therapy is currently available. Further studies are urgently needed to improve our definition of MIS-C, to define the real impact on child health, and to elucidate the best clinical and therapeutic approach and true prognosis.

Doi: 10.1093/rheumatology/keab026

Abstract

Objective: To better define the clinical distinctions between the new severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)-related paediatric inflammatory multi-system syndrome (PIMS) and Kawasaki disease (kDa).

Methods: We compared three groups of patients: group 1, cases from our national historic kDa database (kDa-HIS); group 2, patients with kDa admitted to an intensive care unit (kDa-ICU) from both our original cohort and the literature; and group 3, patients with PIMS from the literature.

Results: kDa-HIS included 425 patients (male to female ratio 1.3, mean age 2.8 ± 2.4 years), kDa-ICU 176 (male to female ratio 1.3, mean age 3.5 ± 3.1 years), and PIMS 404 (male to female ratio 1.4, mean age 8.8 ± 3.7 years). As compared with kDa-HIS patients, kDa-ICU and PIMS patients had a higher proportion of cardiac failure and digestive and neurological signs. They also had lower frequency of typical mucocutaneous signs, lower platelet count, higher C-reactive protein level, and lower sodium level. As compared with kDa-HIS and kDa-ICU patients, PIMS patients were older and more frequently had myocarditis. They had fewer coronary abnormalities and lower sodium level. Unresponsiveness to intravenous immunoglobulins was more frequent in kDa-ICU than kDa-HIS and PIMS patients.

Conclusion: On clinical grounds, regular kDa, kDa-ICU and PIMS might belong to a common spectrum of non-specific pathogen-triggered hyperinflammatory states. The causes of increasing inflammation severity within the three entities and the different effects on the heart remain to be determined.
Abstract

This study was conducted to assess the clinical spectrum, management, and outcome of SARS-CoV-2-related multisystem inflammatory syndrome in children (MIS-C). We reviewed medical records of children with MIS-C diagnosis seen at the Children’s Hospital of Michigan in Detroit between April and June 2020. Thirty-three children were identified including 22 who required critical care (group 1) and 11 with less intense inflammation (group 2). Children in group 1 were older (median 7.0 years) than those in group 2 (median 2.0 years). Abdominal pain was present in 68% of patients in group 1. Hypotension or shock was present in 17/22 patients in group 1. Thirteen (39.4%) had Kawasaki disease (KD)-like manifestations. Five developed coronary artery dilatation; All resolved on follow-up. Intravenous immunoglobulin (IVIG) was given to all patients in group 1 and 7/11 in group 2. Second-line therapy was needed in 13/22 (group 1) for persisting inflammation or myocardial dysfunction; 12 received infliximab. All patients recovered.

Conclusion: MIS-C clinical manifestations may overlap with KD; however, MIS-C is likely a distinct inflammatory process characterized by reversible myocardial dysfunction and rarely coronary artery dilatation. Supportive care, IVIG, and second-line therapy with infliximab were associated with a favorable outcome.

What is Known: • Multisystem inflammatory syndrome in children (MIS-C) manifestations include fever, gastrointestinal symptoms, shock, and occasional features of Kawasaki disease (KD). • Treatment includes immunomodulatory agents, most commonly IVIG and corticosteroids.

What is New: • Spectrum of MIS-C varies from mild to severe inflammation and coronary artery dilatation occurred in 5/22 (23%) critically ill patients. • IVIG and infliximab therapy were associated with a favorable outcome including resolution of coronary dilatation; only 2/33 received corticosteroids.

Doi: 10.1111/petr.13972

Abstract

Background: COVID-19 is caused by a novel form of coronavirus known as SARS-CoV-2. Patients can present with a wide variety of symptoms from fever to severe respiratory distress. Immunocompromised patients, including solid organ transplant recipients, may present with atypical symptoms, making the diagnosis of COVID-19 more difficult to make. New reports have been emerging about the management of COVID-19 disease in adult renal transplant recipients. However, very little is known in pediatric renal transplant recipients.

Methods: Here, we describe a case report of four pediatric renal transplant recipients who presented with mild-to-moderate COVID-19 disease.

Results: All patients presented with upper respiratory infection symptoms, with one requiring hospitalization for hypoxia. Patients were treated mostly with supportive care. Two of the patients developed AKI which resolved four to eight weeks after illness. All four patients developed COVID IgG antibodies one to two months after becoming infected.

Conclusion: This case series demonstrates that immunocompromised renal transplant recipients have comparable outcomes compared with immunocompetent children.

Doi: 10.1111/ajt.16501

Abstract

There are limited data on the impact of COVID-19 in children with a kidney transplant. We conducted a prospective cohort study through the Improving Renal Outcomes Collaborative (IROC) to collect clinical outcomes data about COVID-19 in pediatric kidney transplant patients. Twenty-two IROC centers that care for 2732 patients submitted testing and outcomes data for 281 patients tested for SARS-CoV-2 by PCR. Testing indications included symptoms and/or potential exposures to COVID-19 (N=134, 47.7%) and/or testing per hospital policy (N=154, 54.8%). Overall, 24 (8.5%) patients tested positive, of which 15 (63%) were symptomatic. Of the COVID-19 positive patients, 16 were managed as outpatients, 6 received non-ICU inpatient care and 2 were admitted to the ICU. There were no episodes of respiratory failure, allograft loss, or death associated with COVID-19. To estimate incidence, sub-analysis was performed for thirteen centers that care for 1686 patients that submitted all negative and positive COVID-19 results. Of the 229 tested patients at these 13 centers, 10 (5 asymptomatic) patients tested positive, yielding an overall incidence of 0.6% and an incidence among tested patients of 4.4%. Pediatric kidney transplant patients in the U.S. had a low estimated incidence of COVID-19 disease and excellent short-term outcomes.

Doi: 10.1097/mop.0000000000000978

Abstract

Purpose of review: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the novel coronavirus that causes coronavirus disease 2019 (COVID-19), has caused substantial morbidity and mortality. Operation Warp Speed aims to accelerate the development of a safe and effective vaccine by early 2021. Multiple vaccine candidates with reassuring safety and efficacy profiles have advanced to phase 3 clinical trials in adults. The purpose of this review is to describe the burden of COVID-19 in children, to update pediatricians about adult COVID-19 vaccine clinical trials, to discuss the importance of COVID-19 vaccine trials in children and to instill confidence in the established vaccine development and licensure processes.

Recent findings: Children of all ages are at risk for SARS-CoV-2 infection and severe disease manifestations. Children are also susceptible to downstream effects of COVID-19, including social isolation and interruption in education. Developing a pediatric COVID-19 vaccine could prevent disease, mitigate downstream effects and enable children to re-engage in their world.

Summary: Children could benefit both directly and indirectly from vaccination. In light of the safety and immunogenicity results from recent adult COVID-19 vaccine clinical trials, children should have the opportunity to be included in clinical trials in parallel to ongoing adult phase 3 clinical trials in a manner that is careful, methodical and transparent.


Perspective

Doi: 10.1056/nejmp2034765

Doi: 10.1016/j.jpeds.2021.01.021

Abstract

Whether children should be vaccinated against COVID-19 (or other infectious diseases such as influenza) and whether some degree of coercion should be exercised by the state to ensure high uptake depends, among other things, on the safety and efficacy of the vaccine. For COVID-19 these are currently unknown for children, with unanswered questions also on children's role in transmission of the virus, the extent to which the vaccine will reduce transmission, and the expected benefit (if any) to the child. Ultimately, deciding whether to recommend that children receive a novel vaccine for a disease which is not a major threat to them, or to mandate the vaccine, requires precise information on risks, including disease severity and vaccine safety and effectiveness, and comparative evaluation of the alternatives, and of the levels of coercion associated with each. But the decision also requires balancing self-interest with duty to others, and liberty with utility. Separate to ensuring vaccine supply and access, we outline three requirements for mandatory vaccination from an ethical perspective: (1) whether the disease is a grave threat to the health of children and to public health; (2) positive comparative expected utility of mandatory vaccination and (3) proportionate coercion. We also suggest that the case for mandatory vaccine in children may be strong in the case of influenza vaccination during the COVID-19 pandemic.
SARS-CoV-2 Vaccines and the Growing Threat of Viral Variants

In November 2019, a bat coronavirus made its debut in the human population. Since that time, the virus has continued to adapt, resulting in variants of viral variants. The question that the world faces in early 2021 is whether these new variants will escape recognition by vaccine-induced immunity.

Protection against coronavirus disease 2019 (COVID-19) is mediated in large part by an immune response directed against the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spike (S) protein. The S protein is responsible for virus cell binding and is the target for virus-neutralizing antibodies (NAbs). Although it is not entirely proven, most vaccine researchers believe that NAbs induced by vaccination are protective against COVID-19. NAbs bind to the S protein at a few sites, usually in the near the receptor-binding domain (RBD) region. NAbs prevent the virus from attaching to the ACE2 receptor on human cells.

Variants in the S protein that increase the amount of virus shed from an infected person or that increase its affinity for the ACE2 receptor are likely to increase virus transmission, an important problem in the context of a pandemic. Furthermore, the same or similar alterations can change the shape of the S protein and impair or even destroy NAbs binding sites. Hence, by extrapolation, vaccine efficacy might be compromised.

These “escape mutations” typically arise when the virus is put under selective pressure by antibodies that limit but do not eliminate viral replication.

These “escape mutations” typically arise when the virus is put under selective pressure by antibodies that limit but do not eliminate viral replication. Under those conditions, the virus might then find a way to escape this pressure and restore its ability to reproduce more efficiently. The scenario of virus evolution in the face of suboptimal immunity is one reason extending the interval between the first and second dose of a SARS-CoV-2 vaccine might be problematic.

Evolutionary biology is now occurring across the globe. The first major shift in the properties of SARS-CoV-2 took place early in the pandemic—around March and April 2020, when the original strain was replaced worldwide by a new variant called D614G. The reinfection in this variant, which is located in the S protein, has been shown to increase the replication efficiency and transmissibility of the virus. Although this variant did not escape recognition by NAbs, it was a warning of what could happen.

In August 2020 another variant started to spread in the UK (where surveillance for such events is particularly thorough), and its contribution to the pandemic in that country increased rapidly from November 2020 through January 2021. Often called the “UK strain” but more formally known as B.1.1.7, this variant has now been detected in many countries, including the US. The key sequence change in the S protein is called N501Y, which appears to increase the transmissibility of SARS-CoV-2, although its mechanism is still under study. Two of the N501Y changes make it unlikely to interfere much with the RBD binding sites on the RBD. For example, recently released data show that sera from half of the patients of the Pfizer-BioNTech and Moderna mRNA vaccines are equally effective at neutralizing viruses that contain or lack the N501Y change.43

A more transmissible variant now circulating in southern California, CAL.20C, has an RBD sequence change called L452Y that is thought to act similarly to N501Y. Its sensitivity to vaccine sera remains to be determined.

There is now, however, a more troubling new variant identified in South Africa, the 501Y.V2 variant (also B.1.351). A close relative to N501Y/V2 with similar properties has now also been identified in Brazil (P.1), but much less is known about this variant. The 501Y.V2 strain has many more sequence changes than both the D614G and B.1.1.7 variants, and those sequence changes are more worrisome because they are located in or close to the RBD; those sequence changes also affect another NAb target, the N-terminal domain.

The number and position of these mutations immediately raised concerns among vaccine researchers. New data show that those concerns were not misplaced. Rockefeller University researchers have shown that the relevant N501Y/V2 sequence changes within the RBD modestly reduce the efficiency with which mRNA vaccines induced antibodies neutralized test viruses in the laboratory.1 In addition, a National Institutes of Health study now shows that NAbs induced by the Moderna mRNA vaccine were about 6-fold less active against the N501Y/V2 (B.1.351) strain.4

It remains unclear whether the reduction in the neutralization sensitivity of the N501Y/V2 variant to vaccine-induced antibodies is enough to seriously reduce vaccine efficacy. First, mRNA vaccines also induce specific help T cells and cytotoxic T cells, both of which might be involved in protection against
Guía práctica para la rehabilitación respiratoria, muscular y neurosensorial del paciente con alta tras infección moderada a severa por COVID-19.

VIATRIS

Otros protocolos en Fisioterapia y Rehabilitación se pueden encontrar en:

https://www.cofpv.org/es/covid.asp
Actualización epidemiológica: Variantes de SARS-CoV-2 en las Américas.
26 de enero de 2021

Aspectos destacados
- Se ha documentado recientemente que las personas infectadas con la variante VOC 202012/01 tienen un mayor riesgo de fallecer que las personas infectadas con otras variantes.
- Estudios preliminares sugieren que la variante 501Y.V2 está asociada con una carga viral más alta, lo que podría sugerir un potencial de mayor transmisibilidad.
- Se registró un aumento de la variante P.1 linaje B.1.1.28 en Manaus, constituyendo el 52,2% (n = 35/67) de los casos fijados de SARS-CoV-2 en diciembre de 2020 y en enero de 2021, esta proporción aumentó a 85,4% (n = 41/48).

Introducción
La aparición de mutaciones es un evento natural y esperado dentro del proceso de evolución de los virus. Desde la caracterización genómica inicial del SARS-CoV-2, este virus se ha dividido en diferentes grupos genéticos o clados.

De hecho, algunas mutaciones específicas definen los grupos genéticos virales (también denominados linajes) que circulan actualmente a nivel global (Tabla 1 y Figura 1). Por diversos procesos de microevolución y presiones de selección, pueden aparecer algunas mutaciones adicionales, generando diferencias al interior de cada grupo genético (denominadas variantes). Es importante mencionar, que la denominación de clado, linaje, variante, etc., son arbitrarias y no corresponden a una jerarquía taxonómica oficial.
Sputnik V COVID-19 vaccine candidate appears safe and effective

Denis Logunov and colleagues report their interim results from a phase 3 trial of the Sputnik V COVID-19 vaccine in The Lancet. The trial results show a consistent strong protective effect across all participant age groups. Also known as Gam-COVID-Vac, the vaccine uses a heterologous recombinant adenovirus approach using adenovirus 26 (Ad26) and adenovirus 5 (Ad5) as vectors for the expression of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spike protein. The use of two varying serotypes, which are given 21 days apart, is intended to overcome any pre-existing adenovirus immunity in the population. Among the major COVID-19 variants in development, to date, only Gam-COVID-Vac uses this approach; others, such as the Oxford-AstraZeneca vaccine, use the same material for both doses. The earlier vaccine for Ebola virus disease, also developed at Gamaleya National Research Centre for Epidemiology and Microbiology (Moscow, Russia), was similar, with Ad5 and vesicular stomatitis virus as the carrier vectors, and the general principle of prime boost with two different vectors has been widely used experimentally.

The recombinant adenovirus route to protection is shared with the Oxford-AstraZeneca vaccine, which uses a chimpanzee adenovirus (ChAdOx1), the Johnson & Johnson vaccine that uses only Ad26 whose detailed results are expected soon, and the ConShiBio-Beijing Institute of Biotechnology Ad5-based vaccine whose phase 3 trial began in September, 2020. The earlier viruses are modified and cannot initiate a productive infection; they enter cells, express the spike protein, and then stop (because they cannot continue the normal virus lifecycle), although a high-sensitivity analysis also showed that a few Ad genes were expressed, albeit at a low level. The vaccine-infected cells are eventually destroyed by the body, and immunity they are designed to elicit. Recombinant adenoviruses have been used widely as vaccine vectors because they can accommodate large genetic payloads and, although unable to replicate, they trigger the innate immunity sensors sufficiently to elicit robust immune system engagement. Consequently, they do not need an adjuvant and can provide immunity after just a single dose. "Their physical robustness is thought to allow storage at temperatures around -18°C, which is feasible for many supply chains. The downside of recombinant adenovirus-based vaccines is that large doses are required, typically 10⁷ or 10⁸ particles, which makes large demands on the manufacturing and quantitation required for rollout on a global scale."

What then of the Sputnik V COVID-19 vaccine data published here? The earlier phase 1/2 data published in September, 2020, showed promising safety results and gave an indication that the immune response was at a level consistent with protection. Recipients generated robust antibody responses to the spike protein, which included neutralizing antibodies, the proportion of the total immunoglobulin that inhibits the virus binding to its receptor. They also showed evidence of T-cell responses, consistent with an immune response that should not quickly wane. The interim report of the phase 3 data now presented includes results for more than 20,000 participants, 75% of whom were assigned to receive the vaccine, and the follow-up for adverse events and infection. With a planned study power of 85%, those recruited were aged 18 years and older, were about 60% male, and were almost all white. Comorbidities, a known risk for COVID-19 severity, were present in about a quarter of those who entered the trial. 62 (1.3%) of 4902 individuals in the placebo

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