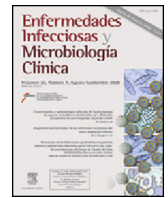




Enfermedades Infecciosas y Microbiología Clínica

www.elsevier.es/eimc



Scientific letter

Prevalence of asymptomatic SARS-CoV-2 infection in children undergoing hospital screening



Prevalencia de infección asintomática por SARS-CoV-2 en el cribado pediátrico previo al ingreso hospitalario

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection has been described in all age groups with children representing only about 2–5% of all cases worldwide.^{1–4} Such low percentages could be explained by a higher number of asymptomatic coronavirus disease 2019 (COVID-19) in children, along with milder symptoms,⁵ so they are less likely to be studied. Moreover, data from countries that have performed universal screening at the community level suggest that children have low overall prevalence, as showed in an Icelandic study where children under 10 years of age tested all negative for the SARS-CoV-2 real-time polymerase chain reaction (RT-PCR).⁶

Otherwise, we yet know that children might be much less important spreaders for SARS-CoV-2 transmission than adults.^{7–9} However, these studies were performed before or during lockdown measures were implemented, and their results should be taken with caution. Detailed epidemiological studies including childhood data will be very useful to guide public health decisions regarding school reopening. We report on cases of asymptomatic SARS-CoV-2 infection among children screened before admission at a reference children's hospital in Barcelona (Catalonia, Spain). We screened asymptomatic adults and children for SARS-CoV-2 by RT-PCR in respiratory samples who had to be admitted for any cause or subjected to a procedure over the airway, from May 4th to June 11th, 2020, once lock-down measures were partially released and children were allowed to go out with their relatives (Fig. 1). Those cases previously confirmed of SARS-CoV-2 were excluded from testing. Patients, or parents or legal tutors of children were asked for symptoms or recent contact with a person with suspected or confirmed COVID-19 disease within the last 14 days.

Nasopharyngeal aspirate specimens were tested for SARS-CoV-2 by using several real-time RT-PCR assays (Allplex™ 2019-nCoV, Seegene, Korea, or Cobas® SARS-CoV-2, Roche Diagnostics, USA) at our Microbiology laboratory. We recorded the demographic features, exposure history, and RT-PCR results.

During the study-period, 3777 RT-PCR tests were performed for universal screening. Among those, 3380 were adults and 397 were children. Infection prevalence rates of SARS-CoV-2 infection were 0.27% (9/3380) among adults, and 1.0% (4/397) among children, significantly higher than adult rate ($p = 0.017$).

Among the 397 asymptomatic children the median [IQR] age was 9 [4–13] years, 58% (230/397) were male. No significant differences were observed for testing positive SARS-CoV-2 by sex ($p = 0.74$) or by age ($p = 0.18$). The four asymptomatic case-patients had an epidemiological link (household contact) with a confirmed adult COVID-19 case.

These findings suggest a very low (1%) prevalence of positive SARS-CoV-2 test results among asymptomatic children under 18

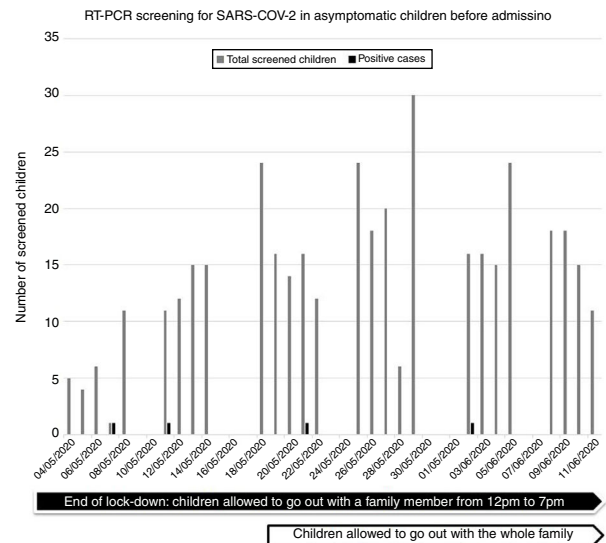


Fig. 1. Timeline of the children screened for SARS-CoV-2 infection at Vall d'Hebron Barcelona Hospital Campus, Barcelona, Catalonia, Spain. Details of the post-confinement measures adopted by the Spanish government are depicted below the curve. RT-PCR: real-time polymerase chain reaction.

years of age during the post-peak period of the epidemic in Spain, when children have been allowed to enjoy their playing time in the street but not to attend school. As strength, this study shows the prevalence of SARS-CoV-2 infection during a low-incidence period among this population, when restriction of testing was not a dairy challenge due to the limited availability of tests, and hence, no selection bias occurred by focusing laboratory confirmation mainly on those cases with clear symptomatology.

In contrast, asymptomatic children were more likely to have a positive result for SARS-CoV-2 RT-PCR than adults ($p = 0.017$) reinforcing the fact that children have at least the same probability to be infected than adults, as suggested by other authors.^{1–4} SARS-CoV-2 infection children has significantly less probability to present with clinical manifestations, as recently demonstrated in an age-structured mathematical model, were authors stated that interventions aimed at children might have a smaller impact on reducing COVID-19 transmission.¹⁰ Aligned with this, in our data we found that all the positive children had an adult as an epidemiological link.

Our report has some limitations, firstly the sample size of asymptomatic positive cases is relatively small, and secondly the study is limited to a single healthcare center.

In conclusion, despite the low prevalence found in the universal screening, it allowed us to implement preventive and control measures for the new diagnosed cases. These results should be interpreted with caution, as data was collected right after the end of confinement measures, and the epidemiology situation changes over time. However, as children are returning to the new “normality”, screening of asymptomatic SARS-CoV-2-infected cases among

this population seems reasonable to monitor COVID-19 prevalence in children.

Acknowledgments

We thank the nursing team involved in the sample collection.

References

1. Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72 314 cases from the Chinese center for disease control and prevention. *JAMA*. 2020;323:1239–42.
2. Livingston E, Bucher K. Coronavirus disease 2019 (COVID-19) in Italy. *JAMA*. 2020;323:1335.
3. Tagarro A, Epalza C, Santos M, Sanz-Santaefemia FJ, Otheo E, Moraleda C, et al. Screening and severity of coronavirus disease 2019 (COVID-19) in Children in Madrid, Spain. *JAMA Pediatr*. 2020. American Medical Association.
4. Patel A, Jernigan DB, 2019-nCoV CDC Response Team. Initial public health response and interim clinical guidance for the 2019 novel coronavirus outbreak – United States, December 31, 2019–February 4, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69:140–6.
5. Dong Y, Mo X, Hu Y, Qi X, Jiang F, Jiang Z, et al. Epidemiology of COVID-19 among children in China. *Pediatrics*. 2020;145.
6. Gudbjartsson DF, Helgason A, Jonsson H, Magnusson OT, Melsted P, Norddahl GL, et al. Spread of SARS-CoV-2 in the Icelandic population. *N Engl J Med*. 2020;382:2302–15.
7. Danis K, Epaulard O, Bénét T, Gaymard A, Campoy S, Bothelo-Nevers E, et al. Cluster of coronavirus disease 2019 (Covid-19) in the French Alps, 2020. *Clin Infect Dis*. 2020;2019.
8. Posfay-Barbe KM, Wagner N, Gauthey M, Moussaoui D, Loevy N, Diana A, et al. COVID-19 in children and the dynamics of infection in families. *Pediatrics*. 2020. e20201576.
9. Heavey L, Casey G, Kelly C, Kelly D, McDarby G. No evidence of secondary transmission of COVID-19 from children attending school in Ireland, 2020. *Euro-surveillance*. 2020;25, 2000903.
10. Davies NG, Klepac P, Liu Y, Prem K, Jit M, et al., CMMID COVID-19 working group. Age-dependent effects in the transmission and control of COVID-19 epidemics. *Nat Med*. 2020;16:1–7.

Antoni Soriano-Arandes^{a,b,c}, Pere Soler-Palacin^{a,b,c},
Blanca Borrás-Bermejo^{d,*}, Andrés Antón^{c,e}

^a Pediatric Infectious Diseases and Immunodeficiencies Unit, Vall d'Hebron Hospital Universitari, Barcelona, Spain

^b Infection in the Immunocompromised Child Research Group, Vall d'Hebron Institut de Recerca (VHIR), Vall d'Hebron Hospital Universitari, Barcelona, Spain

^c Universitat Autònoma de Barcelona, Bellaterra, Spain

^d Servei de Medicina Preventiva i Epidemiologia, Vall d'Hebron Hospital Universitari, Barcelona, Spain

^e Servei de Microbiologia, Vall d'Hebron Hospital Universitari, Barcelona, Spain

* Corresponding author.

E-mail address: bborras@vhebron.net (B. Borrás-Bermejo).

<https://doi.org/10.1016/j.eimc.2020.10.004>

0213-005X/ © 2020 Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica. Published by Elsevier España, S.L.U. All rights reserved.

Compromiso renal en sífilis secundaria: a propósito de un caso



Kidney disease in secondary syphilis: a case report

La sífilis es una enfermedad infecciosa causada por el *Treponema pallidum* (*T. pallidum*). Ha sido considerada históricamente como una de las grandes simuladoras dentro de la medicina, en especial en su estadio secundario¹. Esta enfermedad sigue siendo un desafío para la salud pública, con 6,3 millones de casos nuevos al año en el mundo² y por ello siempre debe considerarse en los diagnósticos diferenciales de un sinnúmero de entidades clínicas, entre ellos, algunos síndromes nefrológicos.

Se presenta el caso de una mujer de 24 años que consulta por 4 días de edema facial, náuseas y disminución de diuresis. Se presenta afebril y con edema bpalpebral sin compromiso de extremidades. Al laboratorio destaca creatinina 2,5 mg/dL, hemograma normal, con velocidad de eritrosedimentación (VSG) de 87 mm/h. La proteína C reactiva fue de 9 mg/L (normal <5 mg/L) y el examen de orina evidenció proteinuria sin hematuria, con microalbuminuria 30 mg/dL. Se indica prednisona 5 mg/día, sospechando un fenómeno de etiología autoinmune, disminuyendo en una semana el edema facial y la creatinina a 1,9 mg/dL, manteniendo proteinuria. La VHS aumenta a 104 mm/h y aparecen máculas eritematosas no confluentes en tronco y extremidades superiores (fig. 1), sin compromiso palmo-plantar. Se indica prednisona 20 mg/día, evolucionando sin edema. Las lesiones cutáneas se hiperpigmentan, la hemoglobina cae a 9,9 g/dL, creatinina disminuye a 1,5 mg/dL, con orina completa normal y proteinuria de 24 horas en 1,5 gramos. La ecografía renal fue normal. Los análisis reumatológicos evidenciaron factor reumatoideo, anticuerpos antinucleares y anticitoplasma de neutrófilos negativos, además de complemento C3 y C4 normales y Coombs directo negativo. El estudio infectológico constató VIH y VHB negativos, con VDRL reactivo en título 1/64 y MHA-TP (+).

La paciente contaba con estos últimos exámenes hace un año negativos y negó conductas de riesgo. Se diagnostica sífilis secundaria con compromiso renal, iniciándose penicilina benzatina 2,4 millones UI por 3 semanas. Control posterior a terapia mostró ausencia de síntomas y signos, creatinina de 1,0 mg/dL, microalbuminuria de 2,6 mg/dL, orina completa normal, VHS 50 mm/h y hemoglobina



Figura 1. Lesiones cutáneas maculares violáceas en ambas extremidades superiores, sin compromiso palmar.