Official journal
of the Spanish Society
of Chemotherapy

Revista Española de Quimioterapia
doi:10.37201/req/170.2021 - Advance Access published May 31, 2022

Letter to the Editor

María Fernández Miaja[1]
Ana Vivanco Allende[1]
Sara Delgado-Nicolás[1]
Mª Eugenia Llaneza-Velasco[2]
Javier Fernández Domínguez[2,3,4,5]

The importance of an early gastroenteritis diagnosis to discard MIS-C during SARS-CoV-2 pandemic

[1]Department of Pediatric Medicine, Hospital Universitario Central de Asturias, Oviedo, Spain
[2]Department of Clinical Microbiology, Hospital Universitario Central de Asturias, Oviedo, Spain
[3]Traslational Microbiology Group, Instituto de Investigación Sanitaria del Principado de Asturias (ISPA), Oviedo, Spain.
[4]Research & Innovation, Artificial Intelligence and Statistical Department, Pragmatech AI Solutions, Oviedo, Spain
[5]CIBER de Enfermedades Respiratorias (CIBERES), Instituto de Salud Carlos III, Madrid, España

Article history
Received: 17 December 2021; Revision Requested: 21 April 2022; Revision Received: 22 April 2022; Accepted: 10 May 2022; Published: 31 May 2022

Sir,

It is important to highlight the clinical significance of rapid microbiological tests such as those based on polymerase chain reaction which provide an early diagnosis, avoid unnecessary tests and therapies and discard worse-prognosis diseases such as multisystem inflammatory syndrome in children (MIS-C) [1].

In this respect, we describe four cases of children aged between five- and eight-years old presenting with fever and gastrointestinal symptoms (abdominal pain, vomiting and non-bloody diarrhea) during SARS-CoV-2 pandemic in the Hospital Universitario Central de Asturias, northern Spain (Table 1). They all presented tachycardia but had good general condition although affected by pain. Abdominal examination was anodyne except in one of them. Laboratory tests showed an elevated C-reactive protein (all patients), lymphopenia (three patients), high procalcitonin values (two), high fibrinogen levels (two) and hypertransaminasemia (one). In a single case the analytical study was extended and an elevation of D-dimer and B-type natriuretic peptide was observed. The latter one had been contacted with SARS-Co V-2 patient in the previous two weeks while another one had past confirmed CoV-2 infection two months before and had IgG antibodies. All cases were initially considered as suspected MIS-C. Nevertheless, a stool sample was early sent to the clinical microbiology laboratory, the FilmArray Gastroinstestinal Panel (BioFire Diagnostics) was performed and a *Campylobacter jejuni* was informed in all of them within the first two hours after admission.

The Centers for Disease Control and Prevention (CDC) published a case definition for MIS-C which included fever, multi-organ involvement and laboratory data of inflammation [2]. This definition was meant to be sensitive but no so specific [3]. Fever and gastrointestinal are the most common symptoms in MIS-C but also from many other diseases. Although the CDC definition includes multi-organ involvement, this may not be present at the beginning and might develop later. A recent exposure to SARS-CoV-2 could help to guide the diagnosis, but this is not always proven and IgG is usually positive but not universally [3].

In our center, when MIS-C is suspected, a basic analysis is initially performed and depending on its results and the patient evolution, further investigations included some blood inflammatory markers tests and SARS-CoV-2 serology. In the aforementioned cases, tests were carried out in a staggered way since patients were stable, they were admitted under observation, monitored and in addition, the stool results were obtained early. In addition to provide a prompt diagnosis, rapid stool results can avoid unnecessary diagnostic tests and IVIG administration, which is not harmless and entails risks such as anaphylaxis, thrombosis, and hemolysis [4].

FUNDING

None to declare.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

Correspondence:
María Fernández Miaja,
Servicio de Pediatría, Hospital Universitario Central de Asturias, Avenida Roma s.n., 33011 Oviedo, Spain
E-mail: mfmiaja@gmail.com

Table 1 | **Patient characteristics and laboratory findings**

Characteristics	Case 1	Case 2	Case 3	Case 4
Demographic				
Sex	Male	Male	Male	Female
Patient age (years)	8	4	6	5
SARS-CoV-2				
Exposure	Yes (2 weeks)	No	No	Unknown
Infection	No	No	No	Yes (2 months)
Presenting symptoms				
Days of fever at presentation	3	1	4	2
Abdominal pain	Yes	Yes	Yes	Yes
Vomiting	Yes	Yes	No	Yes
Diarrhea	No	No	Yes	Yes
Admission laboratory values				
WBC (x 10^3/mcL)	11.37	8.64	10.78	6.86
Hgb (g/dL)	14.3	11.7	12.9	12.2
Platelets (x 10^3/mcL)	253	213	254	359
Neutrophils (cells/mm^3)	9,000	6,890	8,450	3,970
Lymphocytes (cells/mm^3)	930	1,070	950	2,260
CRP (mg/dl)	2.9	6.7	3.2	6.8
Procalcitonin (ng/ml)	0.3	0.77	0.42	10.3
SARS-CoV-2 RT-PCR	Negative	Not done	Negative	Negative
SARS-CV-2 antibody	Negative	Not done	Negative	Positive
Stool studies (Filmarray GI)	*Campylobacter*	*Campylobacter*	*Campylobacter*	*Campylobacter*, Enteropathogenic *E. coli*
Stool studies (Culture)	*C. jejuni*	*C. jejuni*	*C. jejuni*	*C. jejuni*

REFERENCES

1. Bauer KA, Perez KK, Forrest GN, Goff DA. Review of rapid diagnostic tests used by antimicrobial stewardship programs. Clin Infect Dis 2014;59 (Suppl 3):S134-45
2. Centers for Disease Control and Prevention. CDCHAN-00432, May 14, 2020. Multisystem inflammatory syndrome in children (MIS-C) associated with coronavirus disease 2019 (COVID-19). 2020. Available at: https://emergency. cdc.gov/han/2020/han00432.asp. Accessed November 28, 2020.
3. Feldstein LR, Rose EB, Horwitz SM, et al. Multisystem Inflammatory Syndrome in U.S. Children and Adolescents. N Engl J Med 2020;383: 334-46
4. Stiehm ER. Adverse effects of human immunoglobulin therapy. Transfus Med Rev. 2013 Jul;27(3):171-8. doi: 10.1016/j.tmrv.2013.05.004.