CROI 2023 Conference on Retroviruses and Opportunistic Infections

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PERSISTENCE OF SYMPTOMS ONE YEAR AFTER MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN

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BACKGROUND AND OBJECTIVE

Long term evolution of Multisystem Inflammatory Syndrome in children (MIS-C) is poorly understood. In this report, we described the frequency of persistent symptoms and sequels after one-year monitoring in a cohort of MIS-C patients.

METHODS

Prospective observational study in under-18-aged patients diagnosed with MIS-C between October 2020 and April 2021 in a tertiary hospital center. Data from initial episode was obtained from national database EPICO-AEP and medical history. A standardized phone questionnaire was done one year after the acute episode. As controls patients with history of acute COVID-19 and with peritonitis, pared by age and sex, were included. Data was collected using REDCap and analyzed with R. Ethics committee approval was obtained.

Features		All N=48	MIS-C N=16	COVID-19 N=16	Peritonitis N=16	*p*
Days of Admission, (median, RIQ)		6,00 [4,00-11,0]	10,5 [8,00-12,0]	4,00 [3,00-6,00]	5,50 [4,75-10,2]	**0,001**
Inflammatory markers at entry	PCR [N=47]	12,4 [1,98-21,7]	18,8 [14,5-26,9]	0,85 [0,34-5,00]	11,6 [5,57-22,8]	**0,001**
Oxygen therapy	Yes (n, %)	14/48 (29,2%)	9/16 (56,2%)	3/16 (18,8%)	2/16 (12,5%)	**0,018**
	Days of oxygen therapy, [N=14] (median, RIQ)	4,00 [2,00-6,75]	5,00 [2,00-10,0]	2,00 [1,50-4,00]	4,00 [3,50-4,50]	0,629
PICU admission	Yes, (n, %)	17/48 (35,4%)	12/16 (75,0%)	1/16 (6,25%)	4/16 (25,0%)	**<0,001**
	Days of admission to PICU, [N=17] (median, RIQ)	5,00 [3,00-7,00]	4,50 [3,00-7,50]	2,00 [2,00-2,00]	6,00 [5,50-7,75]	0,185
Complications during admission	Yes, (n, %)	22/48 (45,8%)	15/16 (93,8%)	3/16 (18,8%)	4/16 (25,0%)	**<0,001**
	Pleural effusion (n, %)	7/48 (14,6%)	6/16 (37,5%)	0/16 (0,00%)	1/16 (6,25%)	**0,011**
	Cardiological (n, %)	14/48 (29,2%)	13/16 (81,2%)	1/16 (6,25%)	0/16 (0,00%)	**<0,001**
	Renal failure (n, %)	6/48 (12,5%)	5/16 (31,2%)	1/16 (6,25%)	0/16 (0,00%)	0,036
	Other complications (n, %)	6/48 (12,5%)	2/16 (12,5%)	1/16 (6,25%)	3/16 (18,8%)	0,859

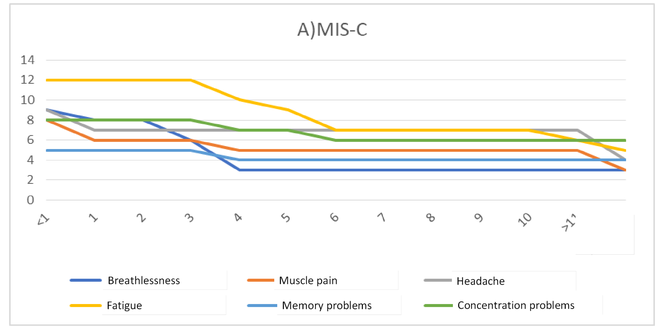
Table 1. Summary characteristics during acute episode

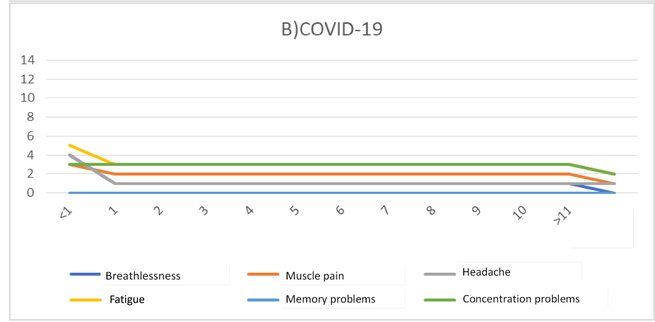
Most of MIS-C patients have persistent symptoms one year after acute episode, even with the resolution of cardiological complications

RESULTS

A total of 48 patients were included in the study, 16 in each group. Average age at hospitalization was 11,2 years old [IQR: 6,6-14,4] and 52% (23/48) were male. MIS-C patients presented high frequently 94% (15/16) cardiological complications during hospitalization, in contrast with 19% (3/16) of acute COVID-19 patients and 25% (4/16) of peritonitis group (p<0.01). All of them resolved after a year except the ones associated to hypoxic ischemic encephalopathy in a patient with MIS-C that need ECMO assistance. Summary characteristics during acute episode are shown in Table 1.

After one-year follow-up, 88% MIS-C patients suffered one or more symptoms, more frequently: headache (44%), fatigue (38%), insomnia (38%) and concentration problems (38%). A total of 56% of COVID-19 patients presented persisted symptoms, mainly fatigue and concentration problems (19%), and 31% in peritonitis group (19% loss of appetite and abdominal pain), (p<0.001) (Fig 1). MIS-C patients visited more frequently the medical professionals due to emotional change, behaviour or interpersonal relationships after the disease [4/16 (25%) in MIS-C vs. 0/16 (0%) in both control groups, p= 0.028].





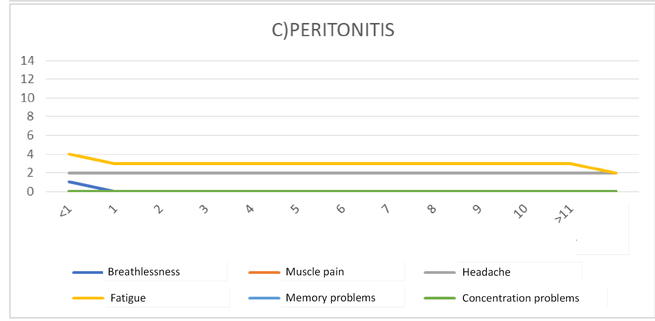


Figure 1. Yearly evolution of the symptoms with statistically significant differences .The X axis represents the time in months. On the Y axis, the number of patients with each symptom. Each symptom is represented by a different colored line.

CONCLUSIONS

Most of MIS-C patients have persistent symptoms one year after acute episode, even with the resolution of cardiological complications. Frequency in MIS-C patients is significantly higher than in COVID-19 hospitalized and than in a control group of surgical peritonitis patients.

ADDITIONAL KEY INFORMATION

EPICO-AEP Working Groups funding: “This study has been funded by Instituto de Salud Carlos III (ISCIII) through the project EPICO “20/00995” and co-funded by the European Union” and Asociación Española de Pediatria

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