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Pediatric Systemic Multi-Inflammatory Diseases in Italy During Sars-Cov-2 Epidemic: From Kawasaki Disease To Kawacovid

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Introduction: Italy was affected by the SARS-CoV-2 epidemic after its outbreak in China. With a 4-weeks delay after the peak in adults, we observed an abnormal number of patients with characteristics of a multi-inflammatory disease and similarities with Kawasaki Disease (KD). Others reported similar cases, defined PIMS-TS or MIS-C.[1,2]
Objectives: To better characterize clinical features and treatment response of PIMS-TS and to explore its relationship with KD.
Methods: We conducted an observational, retrospective, multicenter study. On April 24th-2020 the Rheumatology Study Group of the Italian Pediatric Society launched a national online survey, to enroll patients diagnosed with KD or with a multisystem inflammatory disease between February 1st 2020 and May 31st. The population was then divided into two different groups: 1) Classical and incomplete KD, named Kawasaki Disease Group (KDG); 2) KD-like multi-inflammatory syndrome, named KawaCOVID (KCG). An expert panel of pediatric rheumatologists re-analyzed every single patient to ensure appropriate classification. Data were collected with an online database.
Results: 149 cases were studied, 96 with KDG and 53 with KCG. The two population significantly differed for clinical characteristics (see table 1). Lymphopenia, higher CRP levels, elevated Ferritin and Troponin-T characterized KCG such as lower WBC and platelets (all p values<0,05). KDG received more frequently immunoglobulins (IVIG) and acetylsalicylic acid (ASA) (81,3% vs 66%; p=0.04 and 71,9% vs 43,4%; p=0.001 respectively) as KCG more often received glucocorticoids (56,6% vs 14,6%; p<0.0001). SARS-CoV-2 assay more often resulted positive in KCG than in KDG (75,5% vs 20%; p<0.0001). Short-term follow data on KCG showed minor complications while on KDG a majority of patients had persistence of CAA. Comparing KDG with a KD-Historical Italian cohort (598 patients), no statistical difference was found in terms of clinical manifestations and laboratory data between the two groups
Conclusion: Our study would suggest that SARS-CoV-2 infection might determine two distinct inflammatory diseases in children: KD, possibly triggered by SARS-CoV-2, and PIMS-TS. Older age at onset and clinical peculiarities, like the occurrence of myocarditis, characterize this multi-inflammatory syndrome. Our patients had an optimal response to treatments and a good outcome, with few complications and no deaths.
Consent
I have obtained written consent

Disclosure of Interest
None declared

Table 1 (abstract LB001). See text for description

	KCG	KDG	*p* value
Age at onset	7 (y)	2 (y)	<0,0001
Maculo-papular rash	61,50%	39,60%	0,01
Diarrhea	52,80%	11,50%	<0,0001
Tachypnea	22,60%	4,20%	0,001
Myocarditis	60,40%	3,10%	<0,0001
ICU admission	23,10%	1,10%	<0,0001
HLH	18,40%	1,20%	0,001
Lenght hospitalization	12 days	10 days	0,02
SARS-CoV-2 assay positive	75,50%	20%	<0,0001