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CORRESPONDENCE

Severity and Cardiac Involvement in Multisystem Inflammatory Syndrome in Children: Authors' Reply

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To the Editor: We would like to thank the author of the correspondence for showing interest in our study [1]. The WHO-MIS-C case definition requires the absence of any obvious cause of inflammation. We did not enrol patients with definitive evidence of infections (positive antigen/PCR/blood culture) and typical clinical findings, including scrub typhus and typhoid, in our study. Dengue particularly poses a challenge as its clinical presentation may mimic MIS-C. Four of our subjects had equivocal/positive dengue-IgM titers but were NS1-antigen/PCR negative. This may be considered a nonspecific antibody elevation [2]. One subject was NS1-antigen positive, but had coronary ectasia and negative dengue-IgM-ELISA. We excluded these 5 patients. The 7-y-old boy with DKA (pH - 7, HCO_3 - 5 mmol/L, RBS - 450 mg/dL) had a documented COVID infection (positive RT-PCR) 3 wk prior. He presented with fever, rashes, respiratory failure, myocarditis [ECG - elevated ST, ejection fraction (EF) - 40%], and elevated markers (proBNP > 10000 pg/mL, CRP - 197 mg/dL, D-dimer - 2600 ng/mL). Few case reports have described the association of MIS-C and DKA, purporting the hypothesis that COVID-19 infection may trigger new-onset childhood diabetes [3].

The classification of MIS-C severity is not well defined. We used the objective criteria described by Jonat et al. based on the vasoactive infusion score (VIS), degree of respiratory support, and other signs of organ injury [4]. In our study group, mild cases largely constituted those without a vasoactive requirement and/or minimal respiratory support. All satisfied the WHO-MIS-C criteria. The PRISM score was significantly higher in the severe group compared to others [median 17 (12–24) vs. 6 (2–9); $p < 0.0001$].

The spectrum of cardiac involvement seen included isolated elevated cardiac markers (20%), pericarditis (13%), valvulitis (6.7%), coronary abnormalities (33%), and low EF (36.7%). VIS rather than EF was used to classify cardiovascular severity [4]. In the severe group, 47.8% patients had EF < 50%, and the median VIS score was 40 (20–60). These features, along with the low incidence of coronary aneurysms, suggest that the type of cardiac involvement in severe MIS-C is variable. More epidemiological studies are needed to further our understanding of cardiac and severity determinants in MIS-C.

Declarations

Conflict of Interest None.

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