

Clinical characteristics and outcomes of Multisystem Inflammatory Syndrome in Children (MIS-C):

A national multicenter cohort in Saudi Arabia.

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ABSTRACT

Background: In children, Coronavirus Disease 2019 (COVID-19) is usually mild. However, children can be seriously impacted in rare situations, and clinical manifestations may differ from those seen in adults. One rare consequence associated with Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) in children is a Multisystem Inflammatory Syndrome (MIS-C). We sought to describe the clinical, laboratory and radiological characteristics, as well as the outcomes of children with MIS-C.

Methods: A multicenter, retrospective cohort study was conducted in seven pediatric intensive care units spanning four regions in Saudi Arabia, from April to December 2020. Patients under 14 years of age who met MIS-C diagnostic criteria were included consecutively.

Results: Among 54 patients, 55.6% were boys, 40.7% were 2-5 years old, and 75.9% were Arab. Only four (7.4%) had some comorbidity. The median BMI was 15.6 kg/m². Contact with another COVID-19 case was reported by 31.5%, and 87% had recent SARS-CoV-2 infection confirmed by RTPCR. Serology was performed in 53.7%, but only positive in three patients (5.3%). Gastrointestinal symptoms were present in 63%. Severe respiratory symptoms were apparent in 48%, but 92.6% of the patients had an abnormal chest X-ray and 83.3% had abnormal echocardiographic findings. Almost all patients (92.6%) received immunoglobulin, but only 37% needed invasive mechanical ventilation, with a median duration of ventilation-free days of 28 days (IQR 9.75-28). The median duration of the PICU stay was seven days, during which nine deaths occurred (16.7%).

Conclusion: Most of the current MIS-C patients had characteristics similar to other, previously reported cohorts. Several factors, we believe, played a role in the higher than expected rate of mortality, including high PRISM scores and presentation with acute COVID19 symptoms in many patients, and most being under five years old. There also is no standardized national protocol for MIS-C therapy in Saudi Arabia.