

Clinical characteristics of 58 children with a paediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) disease pandemic (otherwise known as COVID-19) was first reported on 31 December 2019 by the China World Health Organization country office following a cluster of pneumonia cases in Wuhan City, Hubei Province, China. SARS-CoV-2 has since been confirmed as the causative agent of COVID-19. From March through May 2020, paediatricians in the UK and elsewhere noted hospitalisations of children who developed fever and multisystem inflammation. Some of these children were critically ill with shock and multiorgan failure and required intensive care, while some had characteristics that were similar to Kawasaki disease (KD) or KD shock syndrome. The clinical evidence suggested the emergence of a paediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS).

The purpose of this study was to describe the clinical and laboratory characteristics of patients who met the criteria for PIMS-TS, and to compare the characteristics with other paediatric inflammatory disorders. The case series included 58 hospitalised children, a subset of whom required intensive care, and met definitional criteria for PIMS-TS, including fever, inflammation and organ dysfunction. All had fever and nonspecific symptoms such as abdominal pain, rash and conjunctival injection. Half of the children (50%; $n=29$) developed shock and required inotropic support or fluid resuscitation, 13 (22%) met diagnostic criteria for KD and 8 (14%) had coronary artery dilatation or aneurysms.

All patients had evidence of a marked inflammatory state with increased C-reactive protein, neutrophils and ferritin. Twenty-nine children developed shock, often associated with evidence of left ventricular dysfunction on echocardiography (62%; $n=18/29$) and with elevation of troponin (66%; $n=19/29$), and *N*-terminal pro-B-type natriuretic peptide (NT-proBNP) (100%; $n=11/11$ tested).

This case series demonstrated that there is a wide spectrum of presenting signs, symptoms and disease severity in PIMS-TS. The comparison with patients with KD and KD shock syndrome provides insights into this syndrome, and suggests that this disorder differs from other paediatric inflammatory entities.

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1. Whittaker E, Bamford A, Kenny J, et al. Clinical characteristics of 58 children with a pediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2. *JAMA* 2020;324(3):259-269. <https://doi.org/10.1001/jama.2020.10369>