

# Kawasaki disease in children from Dubai, United Arab Emirates (2012–2020): a single-centre retrospective clinical case series

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## ABSTRACT

Kawasaki disease (KD) is most common among East Asian children. There is a lack of data from Middle Eastern countries. We conducted a retrospective study of 27 paediatric patients with KD in Dubai, United Arab Emirates, 2012–2020. The majority of the patients were male, Asian, aged 1–5 years and presented with typical (complete) KD. Timely high-dose intravenous immunoglobulins were administered to 18 patients. Twelve patients did not develop any cardiac complications, 12 had a coronary artery aneurysm and 2 patients developed serious cardiac complications. No patient experienced non-cardiac complications or died. Paediatric patients with KD in Dubai were similar to those from other countries.

Kawasaki disease (KD) is an acute systemic vascular disease predominantly affecting children aged 6 months to 5 years.<sup>1</sup> Incidence of KD in children <5 years is reported to be higher in East Asian children (eg, Japan 218.6/100 000; South Korea 113.1/100 000) compared with North American (19.0/100 000) and European (UK 8.4/100 000) children.<sup>1</sup> The majority of KD research has focused on East Asian, European and North American populations. There is a dearth of clinical data for the Middle East region.

We conducted a retrospective case series of all paediatric patients with KD (n=27) admitted to a private tertiary care hospital in Dubai (United Arab Emirates; UAE) between 01 January 2012 and 31 December 2020. The American Heart Association guidelines for KD<sup>2</sup> were used to classify (1) Typical (complete) or atypical (incomplete) KD<sup>3</sup> and (2) Cardiac abnormalities based on echocardiography performed on all patients by a paediatric cardiologist (see [table 1](#) for cut-offs). Twenty-seven patients with KD were admitted over the 9-year study period (see online supplemental table 1). Male to female ratio was 2.9:1 and the median age for all patients with KD was 2.0 years (male 2.0 years; female 3.0 years). Majority of the patients were

either Asian (n=10) or Middle Eastern (n=7), typical (complete) KD presentation was most common (n=23) and KD hospital admissions were most frequent during the winter (n=11). High-dose intravenous immunoglobulins (IVIG) alone or in combination was the most common initial treatment prescribed (n=18); however, eight patients did not initially receive IVIG and this may have been due to a delay in KD diagnosis ([table 1](#)). Twelve patients had no coronary artery abnormalities (CAA) and 12 patients had mild CAA ([table 1](#)).

**Table 1** Treatment and outcomes of 27 patients with Kawasaki disease in a tertiary-care hospital, Dubai, United Arab Emirates (2012–2020)

	Number
<b>Initial treatment received</b>	
IVIG	11
Aspirin	7
IVIG + aspirin	6
IVIG + corticosteroids	1
Infliximab	1
Missing	1
<b>Cardiac complications*</b>	
None	12
Mild CAA	12
Moderate CAA	2
Severe CAA	0
Missing	1
<b>Non-cardiac complications</b>	0

\*Cardiac abnormalities based on American Heart Association guidelines for Kawasaki disease, that is, mild (small CAA <5 mm), moderate (medium CAA 5–8 mm), severe (large CAA >8 mm). CAA, coronary artery abnormalities; IVIG, intravenous immunoglobulin.

**Table 2** Sociodemographic and clinical characteristics of patients with Kawasaki disease (KD) from Saudi Arabia and Jordan

Country	Setting (N)	Time period	Sex ratio	Median age	Ethnicity (N)	Typical (complete) KD (N)	Coronary artery involvement (N)
<b>Saudi Arabia</b> <sup>4</sup>	Single site, University Hospital, Al Khobar (n=35)	1992–2012	1.9:1.0	15 months	Saudi (25) Middle Eastern (7) Asian (3)	32	12
<b>Jordan</b> <sup>5</sup>	Single site, University Hospital, Amman (n=34)	1997–2010	3.9:1.0	19 months	Not available	22	20

Male predominance (ie, 2.9:1) is consistent with other studies conducted in the Middle East region (Saudi Arabia 1.9:1;<sup>4</sup> Jordan 3.9:1; [table 2](#))<sup>5</sup> and East Asia (Japan 1.3:1).<sup>1</sup> Median age of presentation (ie, 2.0 years) was identical to England and Ireland, slightly higher than in the USA (1.5 years), and lower than in Italy and Canada (3.0 years and 3.3 years, respectively).<sup>1</sup> Asian was the most common ethnicity among our sample, possibly reflecting the UAE population structure. However, previous research reported Asian ethnicity as a KD risk factor in Hawaii (50.4/100 000 children <5 years of age)<sup>1</sup> and in other Asian populations worldwide.<sup>6</sup> In line with previous work, we observed that most patients presented with typical (complete) KD<sup>7</sup> and there were a higher number of cases in winter similar to seasonal peaks in Japan,<sup>1</sup> Saudi Arabia<sup>4</sup> and the USA.<sup>1</sup> Cardiac involvement is the most important feature of KD and CAA developed in ~25% of untreated patients.<sup>1</sup> Fourteen patients (52%) developed mild or moderate CAA which was similar to a study in Jordan (41%).<sup>5</sup> Twelve patients did not develop any cardiac complications (one patient with missing data) and there were no non-cardiac complications or deaths ([table 1](#)). This is most likely due to prompt identification and treatment which prevented progression to further complications, especially non-cardiac complications.

Study strengths were the inclusion of all patients with KD over a 9-year period in the cosmopolitan city of Dubai. However, this was a retrospective single-site study and findings may not accurately represent KD epidemiology across the whole city of Dubai or the entire UAE. Missing data limited our ability to explore the potential role of family history. Our study suggests that the clinical presentation of KD in the UAE is similar to that of other patients in the Middle East ([table 2](#)) and also from East Asian, European and North American countries. The recently proposed KD Arab Initiative (Kawarabi) should provide future data to help improve the diagnosis, care and outcomes of children with KD across different Arab nations and ethnicities.<sup>7</sup>

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