Response to ‘Correspondence on ‘Paediatric multisystem inflammatory syndrome temporally associated with SARS-CoV-2 mimicking Kawasaki disease (Kawa-COVID-19): a multicentre cohort’ by Pouletty et al’ by Pino et al

In their correspondence, Pino et al1 reported a cohort of 12 children with Kawasaki disease (KD) during the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) epidemic in Barcelona, Spain. Among them, six had a positive SARS-CoV-2 infection confirmed by RT-PCR or serology while six had not. Interestingly, in line with our findings2 and reports from other settings,3,5 patients with multisystem inflammatory syndrome temporally associated with SARS-CoV-2 infection mimicking KD (Kawa-COVID-19) exhibited several differences as compared with classical KD, such as older age, higher inflammatory parameters, more frequent cytopenia and cardiac involvement, including myocarditis, often requiring haemodynamic support.1,2 These important discrepancies led to consider Kawasaki syndrome associated with SARS-CoV-2 infection as a distinct entity (Kawa-COVID-19),2 or multisystem inflammatory syndrome in children (MIS-C) associated with COVID-19,3,8 or paediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS). However, the possibility of a common pathway shared with classic KD has led to administer similar therapeutics to KD, including intravenous immunoglobulins (IVIG) and corticosteroids.2,5 If a substantial proportion of children were resistant to the first dose of IVIG, the large majority had a favourable short-term evolution with a second dose of IVIG±corticosteroids, as described by Pino et al and in our cohort.1,2

The prognosis of KD is gravely by its cardiac involvement,10 especially with coronary aneurysms, which are specific of KD and could occur several weeks after onset of disease. Therefore, a close surveillance is recommended during the months following KD diagnosis.10 Although only dilatations without aneurysms have been described at diagnosis by Pino et al and in our study, such complications have been described elsewhere in Kawa-COVID-19.3,11 This coronary involvement may be more frequent in patients with first-line IVIG resistance,10,12 raising concerns on the evolution of children with Kawa-COVID-19. To date, the middle-term evolution of these patients is unknown.

In table 1, we described the clinical, biological and cardiac evolution of eight children, who developed a Kawa-COVID-19 in our tertiary hospital located in Paris, France. SARS-CoV-2 infection was confirmed in all of them either by nasopharyngeal SARS-CoV-2 RT-PCR or by SARS-CoV-2 serology (table 1). They had initial severe presentation with six myocarditis and required haemodynamic support in five cases. One month after the diagnosis, clinical and biological assessments were normal in all cases, without any persistent inflammatory syndrome, and all had normal cardiac ultrasounds (table 1).

These preliminary findings need to be confirmed with larger multicentre cohorts and a more prolonged follow-up, but suggest that despite an initial severe presentation with potentially life threatening cardiac involvement, the middle-term evolution of this specific entity may be reassuring. Finally, one of the main challenges of Kawa-COVID-19 may be the need for a long-term follow-up and cardiac assessment to better evaluate incidence and risk factors of coronary involvement and/or other cardiac dysfunctions and maybe deciphering physiological pathways responsible for this specific organ failure.

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Table 1 Evolution of children with Kawa-COVID-19 1 month after disease onset in one Great Paris Region tertiary centre, n=8

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age (years)</th>
<th>Sex</th>
<th>Type of Kawasaki disease</th>
<th>SARS-CoV-2 nasopharyngeal RT-PCR</th>
<th>SARS-CoV-2 serology</th>
<th>Cardiac involvement</th>
<th>Haemodynamic support</th>
<th>Ferritinaemia at diagnosis (microG/L)</th>
<th>Maximal CRP level (mg/L)</th>
<th>Treatments</th>
<th>Evolution after 1 month</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15</td>
<td>Male</td>
<td>Incomplete</td>
<td>Negative</td>
<td>IgG+</td>
<td>Myocarditis</td>
<td>Yes</td>
<td>1221</td>
<td>309</td>
<td>IVIG+mPDN</td>
<td>Clinical assessment &lt;=10</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>Female</td>
<td>Incomplete</td>
<td>Positive</td>
<td>IgG+</td>
<td>Myocarditis</td>
<td>No</td>
<td>2500</td>
<td>258</td>
<td>IVIG+mPDN</td>
<td>Clinical assessment &lt;=10</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>Male</td>
<td>Incomplete</td>
<td>Positive</td>
<td>IgG+</td>
<td>Myocarditis</td>
<td>No</td>
<td>768</td>
<td>179</td>
<td>IVIG+mPDN</td>
<td>CRP level (mg/L) &lt;=10</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>Female</td>
<td>Complete</td>
<td>Positive</td>
<td>IgG+</td>
<td>Myocarditis</td>
<td>No</td>
<td>118</td>
<td>119</td>
<td>IVIG+mPDN</td>
<td>CRP level (mg/L) &lt;=10</td>
</tr>
<tr>
<td>5</td>
<td>13</td>
<td>Female</td>
<td>Complete</td>
<td>Positive</td>
<td>IgG+</td>
<td>Myocarditis</td>
<td>Yes</td>
<td>1208</td>
<td>352</td>
<td>IVIG+mPDN</td>
<td>CRP level (mg/L) &lt;=10</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Male</td>
<td>Complete</td>
<td>Positive</td>
<td>IgG+</td>
<td>Myocarditis</td>
<td>Yes</td>
<td>222</td>
<td>369</td>
<td>IVIG+mPDN</td>
<td>Cardiac ultrasound &lt;=10</td>
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<tr>
<td>7</td>
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<td>Negative</td>
<td>IgG+</td>
<td>Myocarditis</td>
<td>Yes</td>
<td>207</td>
<td>316</td>
<td>IVIG+mPDN</td>
<td>Cardiac ultrasound &lt;=10</td>
</tr>
<tr>
<td>8</td>
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<td>Myocarditis</td>
<td>Yes</td>
<td>917</td>
<td>444</td>
<td>IVIG+mPDN</td>
<td>Cardiac ultrasound &lt;=10</td>
</tr>
</tbody>
</table>

CRP, C-reactive protein; IVIG, intravenous immunoglobulins; mPDN, methylprednisolone; RT-PCR, real-time PCR; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.
Correspondence response

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Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

Ethics approval The study protocol followed ethics guidelines (CPP no. CO-10-002) and was approved by the Advisory Committee on Information Processing in Research in the Field of Health (no. 10.155bis) and the National Commission of Informatics and Freedom (CNIL No 2014908).

Provenance and peer review Commissioned; internally peer reviewed.

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Received 24 July 2020
Accepted 27 July 2020

http://dx.doi.org/10.1136/annrheumdis-2020-218538

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REFERENCES


