Paediatric Inflammatory Multisystem Syndrome Temporally Associated with SARS-CoV-2 (PIMS-TS): An Australian case report

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Objective

To describe a case of PIMS-TS and add to the limited Australian literature of this rare condition.

Clinical Features

- partially immunised 2-year old male [as per Immunisation Schedule Queensland]
- history of tonsilitis and COVID-19 infection 3-months prior
- presented to hospital with 4 days of fevers, coryzal symptoms and vomiting
- examined as tachypnoeic [respiratory rate = 36] with mildly enlarged tonsils and bilateral submandibular lymphadenopathy
- investigations showed elevated CRP, white cells and neutrophils

→**initial diagnoses: incomplete Kawasaki Disease (KD) *or* lower respiratory tract infection**

Case Progress

Day 1 of admission: IV benzylpenicillin initiated

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Day 2-4: Changed to IV cefotaxime due to ongoing systemic features: cervical lymphadenitis, intermittent rash, fevers [see graph 1 below]

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Day 4: IV immunoglobulin 2g/kg administered for suspected incomplete KD

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Day 5: Pharmacist recommends daily aspirin and ibuprofen cessation as per KD guidelines

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Day 6: Inadequate response to immunoglobulin;
PIMS-TS considered as differential diagnosis;
IV methylprednisolone administered

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Day 7: Further investigations show elevated d-dimer, triglycerides, ferritin, platelet count and SARS-CoV-2 IgG reactive.
Transferred to paediatric specialist hospital for diagnostic clarification.

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Day 8: Cardiology, oncology, rheumatology and infectious diseases input

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Day 8-10: Further IV methylprednisolone doses, then stepdown to oral prednisolone

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Day 14: Formally diagnosed with PIMS-TS
Discharged on aspirin, a weaning course of oral prednisolone and omeprazole

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Week 12: Good recovery at follow-up, no evidence of coronary artery aneurysm

PIMS-TS Case definition[5]

Clinical
Children and adolescents (up to 18 years of age) with fever ≥3 days
AND two of the following:

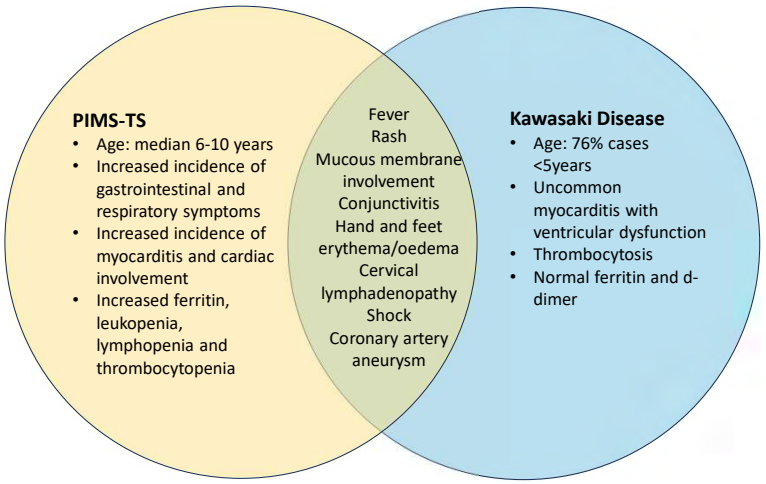
- rash / bilateral non-purulent conjunctivitis / muco-cutaneous inflammation signs (oral, hands or feet)
- age-specific hypotension or "shock" within first 24 hours of presentation
- features of myocardial dysfunction, pericarditis, valvulitis or coronary abnormalities
- evidence of coagulopathy
- acute gastrointestinal problems

AND elevated inflammatory markers
AND exclusion of other infectious causes of inflammation

Laboratory
AND evidence of SARS-CoV-2 infection / confirmed contact with a person with SARS-CoV-2 infection / confirmed positive SARS-CoV-2 serology

186 PIMS-TS cases in Australia
as at 16/10/23 [5]

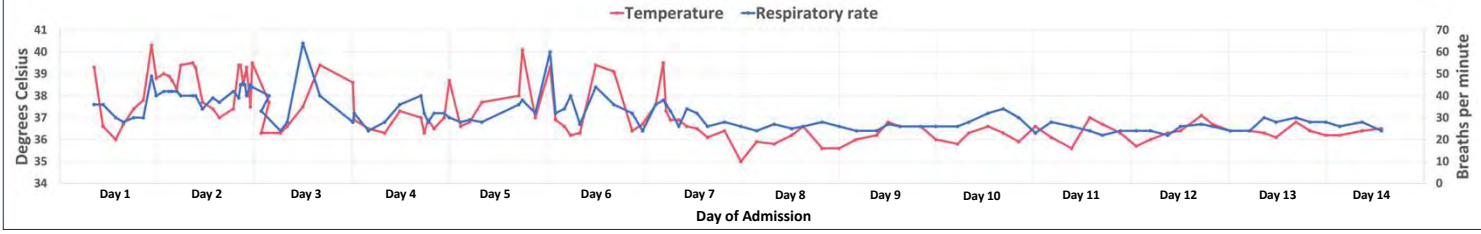
Figure 1: Overlap of clinical features of PIMS-TS and KD[6]



Discussion

This case reflects the diagnostic difficulty of PIMS-TS and its significant overlap with clinical features of KD. Pharmacists are able to provide valuable input to the medical management of PIMS-TS, KD and vaccination advice after immunoglobulin administration.

Graph 1: Ongoing fevers and tachypnoea for the first 7 days of admission [note: 4 days of fevers prior to hospital presentation]



Literature review

Robust guidelines describe the significant overlap in features of PIMS-TS and KD. Although separate entities, management of both conditions is similar. International case numbers and published literature are numerous, however Australian publications are limited to 3 case reports and 1 case series involving 18 children.[1-4]

References

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