A TYPICAL PRESENTATION OF AN ATYPICAL CONDITION: A CASE OF MULTISYSTEM INFLAMMATORY SYNDROME IN ADULTS ASSOCIATED WITH SARS-CoV-2

M. Carolina Musri MD, Fabián Rodriguez MD

INTRODUCTION

- Multisystem Inflammatory Syndrome in Adults (MIS-A) associated with SARS-CoV-2 is a rare but serious condition of the post-COVID-19 era.
- Although initially described in the pediatric population (MIS-C) with subsequent creation of management guidelines by the American College of Rheumatology (ACR), there is still much to investigate in the adult population.
- The present case is about a young male who developed MIS-A, was promptly diagnosed and treated, preventing progression of complications and resulting in syndrome resolution.

CASE PRESENTATION

- A 23-year-old male with previous asymptomatic SARS-CoV-2 infection without vaccination presented with fever, headache and photophobia.

Physical examination:
- Fever 39.5°C (103.1°F)
- Tachycardia 132 bpm, tachypnea 26 rpm and normotension
- Rigors, present jolt accentuation and absent nuchal rigidity/Kernig/Brudzinski

Remarkable initial laboratory studies:
- Platelets 79x10⁹/μL
- LDH 192 IU/L
- INR 1.5 and PT 17.3 seconds

Further work-up and initial management:
- He was initially treated empirically for bacterial meningitis/herpes meningoencephalitis with vancomycin, ceftriaxone, acyclovir and dexamethasone.
- Lumbar puncture was non-infectious with unremarkable cerebrospinal fluid (CSF) and serum infectious serology, except for positive serum SARS-CoV-2 IgG and negative viral respiratory panel (including SARS-CoV-2 PCR).

CASE PRESENTATION CONTINUED

Hospital course:
- After three days, he developed chest pain, hypotension, troponin elevation 544 ng/ml, diffuse ST elevations on EKG, right and left heart failure and was consequently started on vasopressors.
- Developed leukocytosis with neutrophilia, worsened thrombocytopenia, abnormal coagulation studies, increased inflammatory markers (ferritin, ESR, CRP, haptoglobin, LDH, D-dimer and fibrinogen) and lactic acid.
- Blood, CSF and stool cultures remained negative.

Consulting services:
- Cardiology recommended Cardiac Care Unit upgrade for viral myocarditis potentially requiring extracorporeal membrane oxygenation.
- Infectious Disease and Rheumatology suspected MIS-A given the clinical decline as the dexamethasone was excreted.

Management:
- Methylprednisolone 1g IV daily for three days and IVIG 2g/kg split in four doses.
- His symptoms resolved, laboratory studies improved, vasopressors were stopped, cardiac magnetic resonance imaging showed improvement of function (Image 1) and he was discharged on a steroid taper.

DISCUSSION

- MIS-A is a recently recognized entity by the CDC (October 2021), resulting from the 2020 SARS-CoV-2 pandemic (see QR code).
- The patient was diagnosed by presenting with fever, myocarditis, new onset heart failure within three days of hospitalization (primary clinical criteria), meningeal signs, shock, thrombocytopenia (secondary clinical criteria), elevated inflammatory markers and positive SARS-CoV-2 test (laboratory evidence).
- The prompt recognition and treatment of MIS-A based on the MIS-C ACR guidelines (April 2021) positively impacted symptom resolution, complications and mortality.
- Literature describes predominance in healthy males with median age 21 years, elevated inflammatory markers, past or current SARS-CoV-2 infection and management with anticoagulation, corticosteroids, IVIG, tocolizumab and anakinra. MIS-A should be considered in critically ill patients to prevent delay of life saving treatment.

CONCLUSION

Although MIS-A is rare, the associated dreadful complications and high mortality in young individuals requires further research regarding risk factors, early recognition and therapeutic options.

REFERENCES