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Title- **Multisystem Inflammatory syndrome following COVID-19 vaccination- ignored and underdiagnosed**

Running title- MIS-V following COVID-19 vaccine

Type- Letter to Editor

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Keywords- COVID-19, vaccine, MIS-V, Myocarditis

Funding-None declared.

Conflict of interest. None declared.

313 words, 4 references

Dear Editor,

We read with interest the article by Kono et al.[1] which is a rare documentation of interstitial lung disease (ILD) post COVID-19 vaccination. However, the diagnosis of ILD in this case warrants ruling out important underlying differentials including myocarditis which may have been caused by Multisystem Inflammatory Syndrome following COVID-19 vaccination (MIS-V)

- The patient in the article by Kono et al.[1] developed fever and malaise post 2nd dose of COVID-19 vaccination. This was followed by dyspnoea and refractory type I respiratory failure. The investigations reveal raised C-reactive protein and D-dimer levels concordant with MIS.[2]
- The computed tomography revealed bilateral ground glass opacities with an apparent cardiomegaly in the Figure 1 which shows dramatic recovery in both these findings in Figure 2. An underlying myocarditis only can explain such a rapid and complete reversal. There is no mention of any electrocardiogram and echocardiograph done in the patient which may have helped to narrow down the diagnosis. The patient was also extubated within two days of mechanical ventilation, which is unlikely for any interstitial lung disease.
- The diagnosis of MIS-V is difficult and often relies on the existing diagnostic criteria for MIS in adults (MIS-A).[2] Dysregulated hyperimmune response has been postulated as a probable underlying mechanism. Cardiac involvement along with mucocutaneous involvement are most commonly involved organs, besides gastrointestinal, musculo-skeletal, pulmonary and renal,.[3] The mainstay of treatment is steroids which leads to a rapid response. The patient had myalgia and respiratory failure for which musculoskeletal and cardiac evaluation is essential. Even if there was isolated myocarditis, which has increasingly been reported with messenger RNA (m-RNA) vaccines throughout the world[4], the treatment essentially remains steroids only.

To conclude, an early and appropriate diagnosis of vaccine related adverse events is essential for definite therapy. A high index of suspicion must be kept for MIS-V and COVID-19 vaccine related myocarditis to reduce morbidity and have a favourable outcome.

Funding-None declared.

Conflict of interest. None declared.

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