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Long Term Complications of Multisystem Inflammatory Syndrome in Children and Adults Post-COVID-19: A Systematic Review

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 September 2025 and was last updated on 10 September 2025.

INTRODUCTION

Review question / Objective This systematic review aims to explore the clinical presentations of MIS in both children and adults recovering from COVID-19 or during active infection and analyze the current understanding of its pathogenesis, presentation, and management strategies.

Condition being studied Long-term complications of multi-system inflammatory syndrome (MIS) post-COVID-19 infection in children and adults.

METHODS

Search strategy This study is part of a comprehensive project looking at the long term and severe complications of COVID-19. A comprehensive search was conducted by an information professional, and sensitivity was prioritized to retrieve all relevant studies.

Participant or population No restrictions were made based on country, age or gender.

Intervention NA.

Comparator NA.

Study designs to be included Any clinical study reporting cases of MIS in adults or children post-COVID-19, mainly those reporting long-term complications including Case reports, case series, cohort studies, etc.

Eligibility criteria During the full text screening, any studies that reported long term MIS complications post-COVID-19 in children or adults were included. The inclusion criteria related to this point included any patients who developed MIS after recovering from COVID-19 or those who developed MIS during the active infection and lasted for more than 12 weeks.

Information sources Mainly peer reviewed published research articles. The following databases were searched in October 2023: PubMed, Medline (Ovid, 1946 – Current), Embase (Ovid, 1974 -2021), Scopus, Web of Science, Science Direct and Cochrane Library. The search was designed around keywords and controlled vocabulary that focused on "Long Covid" and variants (see Appendix I for full search details).

Main outcome(s) The study focused on patients who developed MIS after recovering from COVID-19. If the disorder was diagnosed after at least a month after COVID-19 diagnosis or if the study reports that anti-SARS-CoV-2 Immunoglobulin G (IgG) but not Immunoglobulin M (IgM) antibodies were detected, the study was included. The studies that reported any related diagnosis during the active COVID-19 infection were included only if the symptoms lasted for more than 12 weeks after COVID-19 diagnosis, if the patients received a treatment for the disorder for at least 12 weeks after COVID-19 diagnosis or if the patient died before 12 weeks. Any cases of MIS that were diagnosed during the active infection of COVID-19 and fully recovered within less than 12 weeks were excluded. Patients who had a history of MIS for any reason were excluded.

Quality assessment / Risk of bias analysis The quality of the included studies was assessed using different methods depending on the type of study. The Newcastle-Ottawa Quality Assessment Scale was used to assess the cohort studies (NOS) and the scale developed by Murad et al. was used to assess the case reports and case series. Quality assessment was conducted by two independent reviewers.

Strategy of data synthesis The MIS reported by the included studies were classified in adults and children or adolescence.

Subgroup analysis NA.

Sensitivity analysis NA (no meta-analysis was conducted).

Country(ies) involved Different nationalities. All authors affiliated to Weill Cornell Medicine-Qatar.

Keywords COVID-19; SARS-CoV-2; post-COVID-19 sequelae; long-COVID; COVID-19 complications; multisystem inflammatory syndrome; MIS-C; MIS-A.

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