

INPLASY

Immune Dysregulation May Cause Long Term Thrombotic and Coagulopathy Complications 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.**INPLASY registration number:** INPLASY202690060

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 13 September 2026 and was last updated on 13 September 2026.

INTRODUCTION

Review question / Objective Review question: What long-term thrombotic and coagulopathy complications occur following COVID-19 infection, and what are their anatomical distribution, vascular origin (arterial vs. venous), and clinical outcomes?

Objective: To systematically review and synthesise evidence on thrombotic and coagulopathy complications persisting or arising ≥ 1 month after COVID-19 infection, characterising their type, location, and outcomes to inform long-term post-COVID monitoring and management.

Condition being studied: Long-term thrombotic and coagulopathy complications following COVID-19 infection.

Rationale This review was undertaken to consolidate this scattered evidence and clarify the long-term thrombotic and coagulopathy burden of

COVID-19, in order to inform more systematic post-COVID surveillance and patient management.

Condition being studied Thrombotic and bleeding events post-COVID infection.

METHODS

Search strategy A comprehensive search of PubMed, Medline, Embase, Scopus, Web of Science, Science Direct, and Cochrane Library was conducted (October 2023) using terms related to 'Long COVID,' with no language or date restrictions. Records were managed in EndNote/Covidence, with duplicate removal and dual independent screening.

Participant or population COVID-19-diagnosed patients of any age, sex, or nationality who developed thrombotic or coagulopathy complications ≥ 1 month post-infection (or

persisting/treated beyond 12 weeks during active infection); patients with pre-existing thrombotic/coagulopathy disorders excluded.

Intervention Not applicable, this is an observational systematic review of reported complications (exposure: COVID-19 infection) rather than an interventional comparison.

Comparator Not applicable, this is an observational systematic review without a predefined comparator. Some individual included studies reported non-COVID-19 control groups, but comparator use was not consistent across the evidence base.

Study designs to be included Case reports, case series, cohort studies (prospective and retrospective), cross-sectional studies.

Eligibility criteria Case reports, case series, retrospective/prospective cohort studies, and cross-sectional studies reporting primary data on long-term thrombotic or coagulopathy complications post-COVID-19.

Information sources PubMed, Medline (Ovid), Embase (Ovid), Scopus, Web of Science, Science Direct, and Cochrane Library, searched October 2023; managed via EndNote and Covidence.

Main outcome(s) Type, number, anatomical distribution, and vascular origin (arterial/venous) of long-term post-COVID-19 thrombotic and coagulopathy/hemorrhagic events, and their clinical outcomes.

Quality assessment / Risk of bias analysis Risk of bias assessed independently by two reviewers using the Newcastle-Ottawa Scale (cohort studies) and the Murad et al. tool (case reports/case series).

Strategy of data synthesis Data synthesis was performed by grouping patients based on the reported post-COVID complications. Two main groups were included; thrombosis and bleeding.

Subgroup analysis The two main groups were further sub-classified based on the anatomical site, and vascular origin (arterial/venous).

Sensitivity analysis No sensitivity analysis was performed, consistent with the narrative (non-meta-analytic) synthesis approach used in this review.

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

Keywords COVID-19, SARS-CoV-2, Thrombosis, Coagulation, Coagulopathy.

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