INPLASY

Solid Organ Transplants Caused by COVID-19 Infection and the Outcome of Transplantation Post-COVID-19: A Systematic Review (Protocol)

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ADMINISTRATIVE INFORMATION

Support - This research received no external funding.

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 30 November 2024 and was last updated on 30 November 2024.

INTRODUCTION

Review question / Objective Our study aims to take a holistic approach towards exploring the etiology behind COVID-19 inducing organ damage, as well as whether previous COVID-19 infection would negatively impact outcomes in patients following organ transplant. This approach enabled us to categorize the data of organ transplants into 3 groups based on whether the donor or the recipient was affected by COVID-19, and whether or not organ damage in the recipient was caused by COVID-19.

Rationale COVID-19 caused several types of complications mainly due to the unregulated inflammatory response. It is important to understand how the immune system will respond to the transplanted organs post-COVID-19 infection and whether a higher rate of organ rejection or post-operative complications may occur due to the previous COVID-19 infection.

Condition being studied The study focuses on the reported cases of organ transplant conducted after COVID-19 infections based on 3 different scenarios:
1- Organ damage is caused by COVID-19
2-Organ damage was not caused by COVID-19 and the recipient had COVID-19 prior to organ transplantation
3- Organ damage was not caused by COVID-19 and the donor had COVID-19 prior to organ donation.

METHODS

Participant or population No restrictions were made on population in terms of age, gender or ethnicity.
We focused on any reported cases of solid organ transplants post-COVID-19 infection.

Intervention Organ transplantation.

Comparator NA.

Study designs to be included Case reports, case series, cohort studies, observational autopsy study.

Eligibility criteria No restrictions were made based on gender, age or country. Duplicates were removed and any articles that were not in English or did not have primary data, such as review articles, were excluded. We excluded any conference abstracts and the studies were included only if the full article was published in a peer reviewed journal. During the full text screening, any studies that reported a solid organ transplant following COVID-19 infection were included. This applies to solid organ transplants conducted for recipients who previously had COVID-19 whether the organ damage was caused by COVID-19 or not. Furthermore, we also included any studies that reported a solid organ transplant when the donor previously had COVID-19.

Information sources This study is part of a large project that investigates the long term and severe complications of COVID-19. We conducted a comprehensive search through our institutional information professional who prioritized sensitivity to retrieve all relevant studies. 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. No language or date restrictions were used. All database search results were imported into EndNote (version 19) and exported to Covidence, where duplicates were removed prior to initial screening. An appendix will be submitted with the manuscript as a supplementary material with the full details of database search.

Main outcome(s) The study looks at the outcomes of organ transplantation in terms of the following (depending on data availability in each study):
1- survival or death
2- transplant rejection
3- Post-operative complications
4- Post-operative hospital stay.

Quality assessment / Risk of bias analysis The Newcastle-Ottawa Quality Assessment Scale was used to assess the cohort studies (NOS). The scale developed by Murad et al. was used to assess the case reports and case series.

Strategy of data synthesis Solid transplants were categorized in our study into three main categories:
1- The recipient previously had COVID-19 and the organ damage was not caused by COVID-19
2- The donor previously had COVID-19
3- The recipient previously had COVID-19 and the organ damage was caused by COVID-19.

Subgroup analysis Each of the above categories was subdivided based on the type of transplanted organ.

Sensitivity analysis NA as the study does not include meta-analyses.

Country(ies) involved Authors have different nationalities but they are all currently based in and affiliated to institutions located in either Qatar or the USA.

Keywords COVID-19, SARS-CoV-2, "post-COVID sequelae", "organ transplant", lung, liver, heart, kidney.

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