Humoral Response in Hemodialysis Patients
Post-SARS-CoV-2 mRNA Vaccination: A Systematic Review of Literature

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INTRODUCTION
Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has infected 600 million individuals and caused nearly 7 million deaths worldwide.

Hemodialysis patients (HDP) are among those most adversely affected, with an increased predisposition to SARS-CoV-2 infection and death.

This systematic review aimed to pool evidence assessing the humoral response of HDP post-SARS-CoV-2 mRNA vaccination

METHODOLOGY
Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Flow Diagram

Records identified through database (PubMed, MEDLINE/CINAHL, EMBASE, medRxiv) n = 120

Duplicate removed n = 70

Records screened by title abstract examination n = 50

Records excluded n = 29

Excluded: Unrelated to response of Hemodialysis patients to SARS-CoV-2 vaccination

Records screened by title abstract examination n = 50

Records excluded n = 6

Excluded: Full text article not available, or not available in English

Full-text articles assessed for eligibility n = 15

Records excluded n = 4

Excluded: No extractable data needed for outcome of interest

Total studies included in review n = 9

RESULTS & DISCUSSION
Humoral response comparing Pfizer (BNT162b2) and Moderna (mRNA-1273)

CONCLUSION

In this systematic review, humoral response in hemodialysis patients post-SARS-CoV-2 mRNA vaccination was found to be significantly lower when compared with the general population.

Potential risk factors such as older age, use of immunosuppressive therapy and type of vaccine were identified.

Preliminary evidence shows Moderna vaccine elicits a more effective immune response than Pfizer vaccine.

Robust vaccination strategies are needed in this vulnerable population.

REFERENCES

1. CKD stage 4/5 patients mount higher immune response than HDP due to factors affecting HDP: age older 65, nonresponse to hepatitis B vaccination, low serum albumin, lymphocytosis, IgG levels, use of immunosuppressants, high dialysis inadequacy, dialysis vintage, and high intravenous iron dose

2. KT patients have less immune response compared to HDP and CKD stage 4/5 due to the need for high doses of corticosteroids during the past 12 months, or the use of immunosuppressive medications, such as mycophenolate, antimetabolites or mTOR inhibitors

3. Presence of a higher mRNA dose in Moderna (100 µg) than in Pfizer (30 µg) vaccine is the most plausible explanation for the higher immune response