

Humoral Response in Hemodialysis Patients

Post-SARS-CoV-2 mRNA Vaccination: A Systematic Review of Literature

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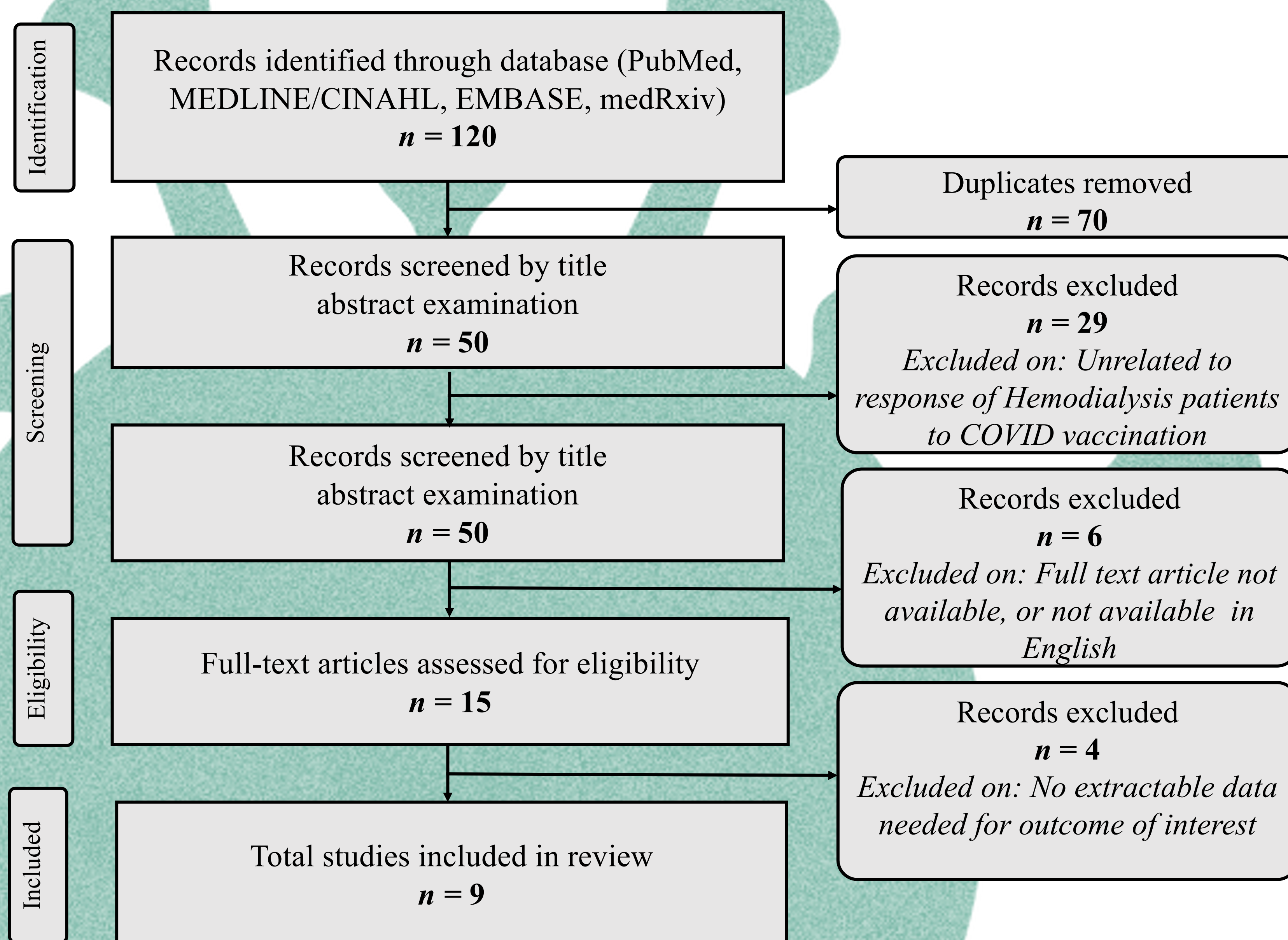
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INTRODUCTION

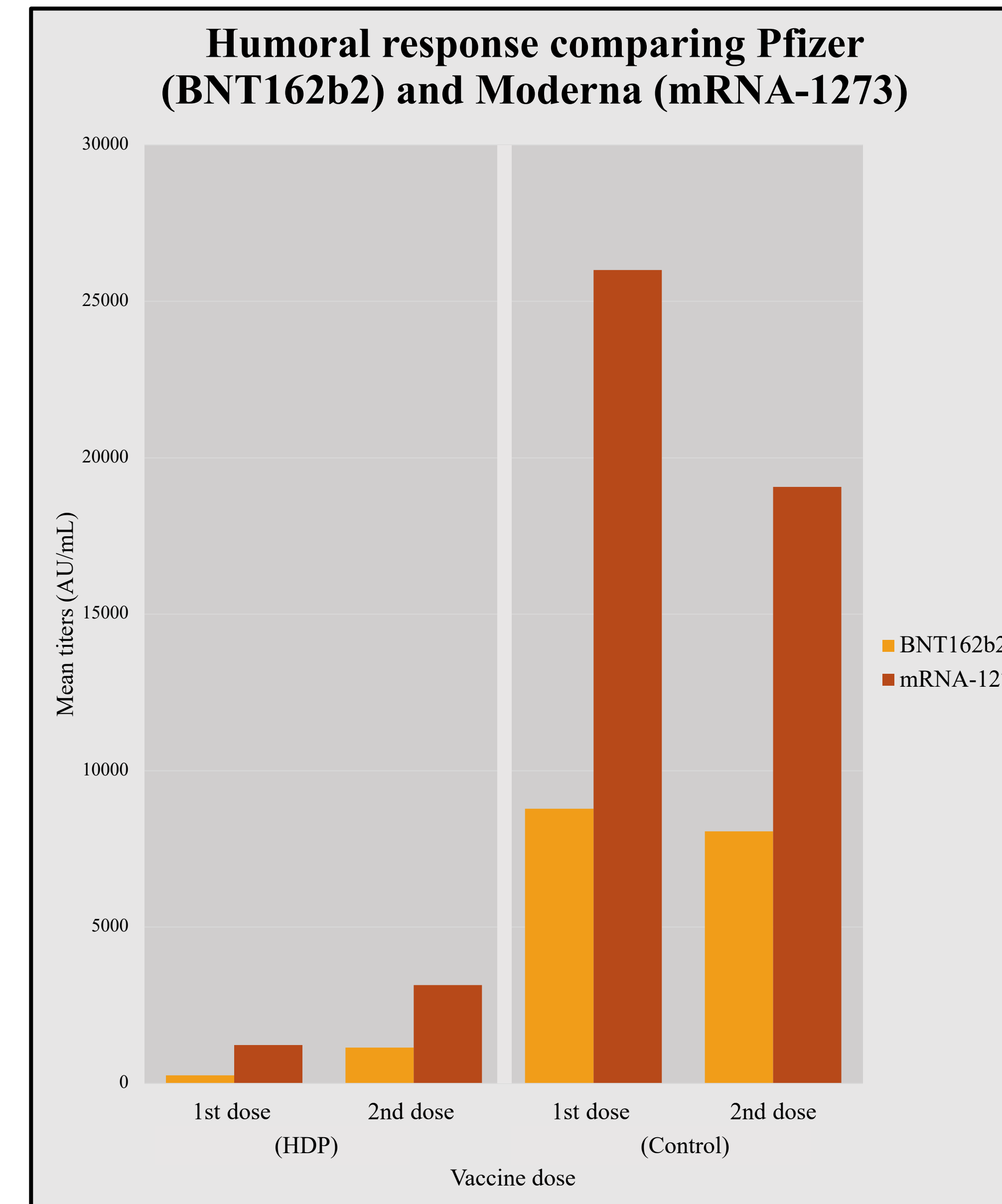
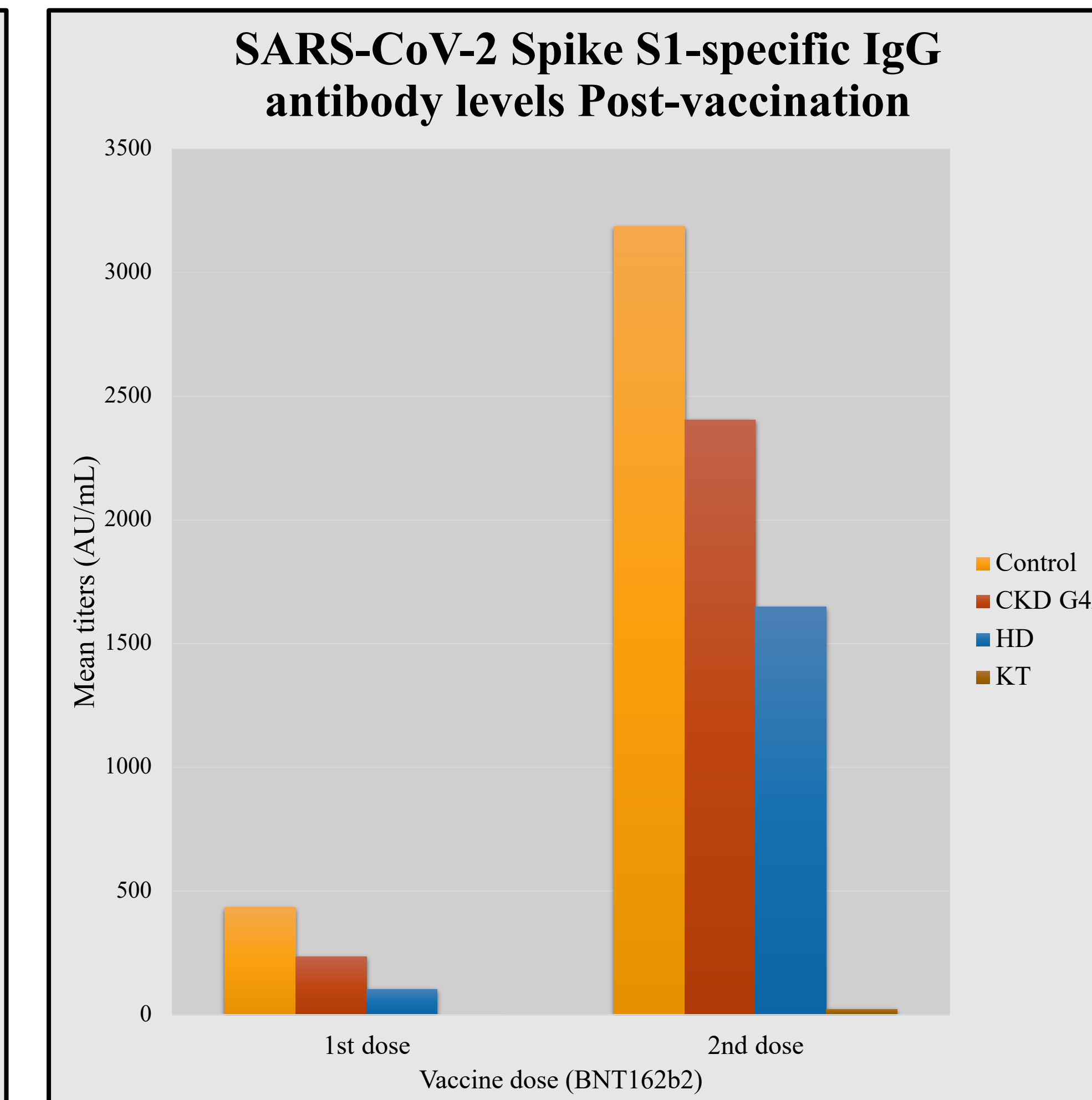
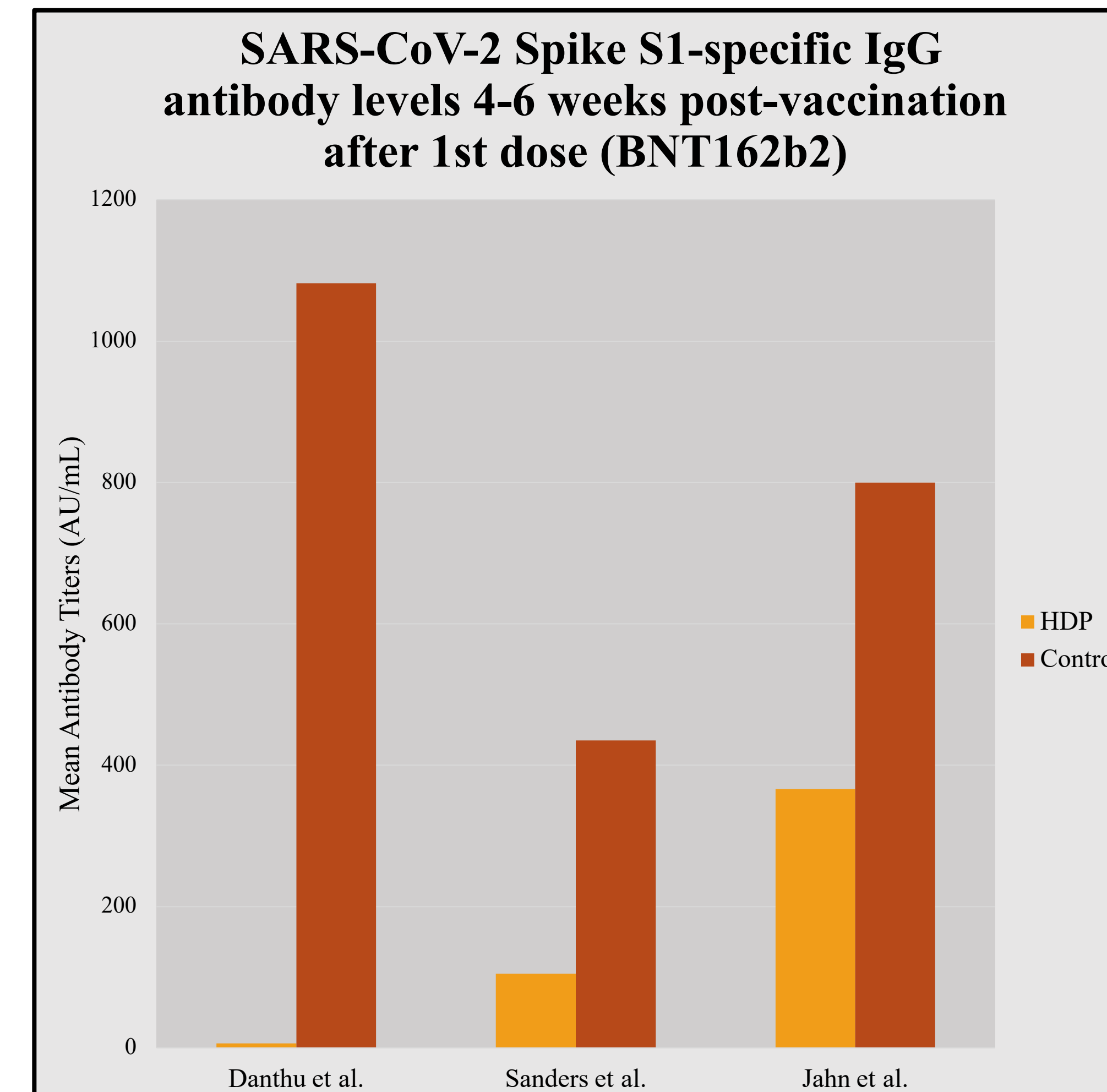
- Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has infected 600 million individuals and caused nearly 7 million deaths worldwide.
- Hemodialysis patients (HDP) are among those most adversely affected, with an increased predisposition to SARS-CoV-2 infection and death.
- This systematic 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



RESULTS & DISCUSSION



Methodological quality (Newcastle-Ottawa Scale - NOS)

Study	Representative of the exposed cohort	Selection of nonexposed cohort	Ascertainment of exposure	Outcome of interest	Main Factor	Additional factor	Assessment of outcomes	Sufficient follow-up	Adequacy of follow-up
Bensouna et al. 2022	+		+	+			+	+	+
Bertrand et al. 2021									
Danthu et al. 2022	+		+	+			+	+	+
Duarte et al. 2021	+		+	+			+	+	+
Jahn et al. 2021	+		+	+			+	+	+
Sanders et al. 2021	+		+	+			+	+	+
Van Praet et al. 2021	+		+	+			+	+	+
Wang et al. 2022	+		+	+			+	+	+
Zitt et al. 2021	+		+	+			+	+	+

- 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
- 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
- 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

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

