

CORRESPONDENCE



Editorial response to Cosentino and Marino RE: detection of SARS-CoV-2 IgA and IgG in human milk and breastfeeding infant stool 6 months after maternal COVID-19 vaccination

© The Author(s), under exclusive licence to Springer Nature America, Inc. 2023

Journal of Perinatology (2023) 43:828–829; <https://doi.org/10.1038/s41372-023-01660-1>

TO THE EDITOR:

We would like to begin our response by thanking Drs. Cosentino and Marino for their commentary regarding our recent publication, Detection of SARS-CoV-2 IgA and IgG in human milk and breastfeeding infant stool 6 months after maternal COVID-19 vaccination [1]. Our manuscript focused on mother/infant dyads wherein we assessed the durability of SARS-CoV-2 specific IgA and IgG antibody expression within human breast milk and plasma 6 months post first maternal mRNA COVID-19 vaccination. This, together with our evaluation seeking to identify the presence of such antibodies within the stool of breastfed infants.

We respectfully disagree with the term “flawed” in terms of our studies. Indeed, as noted in the manuscript’s prose, we were extremely careful in presenting the limitations of this study and in the wording of our conclusions. Our conclusions were also cautious in our recommendations that any findings should be confirmed in future studies.

In regard to specifics, due to the small sample size and unbalanced number of assessments, we did not adjust for multiple comparisons to reduce the potential for type II error. Instead, we attempted to present findings that may be of clinical relevance. Despite such limitations, which we freely noted, our pilot data demonstrates the clear expression of neutralizing SARS-CoV-2 specific antibodies within the breastmilk of vaccinated mothers, thereby suggesting a transfer of those antibodies from the milk to their infants.

Drs. Cosentino and Marino also state that “unintended exposure of infants to vaccine RNA and/or to the resulting S protein is at present a matter of concern,” which is based largely on an opinion article published by their group. With full respect to such, we would posit that speculation and conjecture regarding the production and clearance of the S protein after vaccination is beyond the scope of our article, one that focused on mother/infant dyads. However, it is well established that vaccination in pregnancy for the primary prevention of communicable diseases, like influenza or whooping cough, has proven one of the most effective public health interventions in recent decades, leading to significant reductions in maternal and perinatal morbidity and mortality [2]. Additionally, the INTERCOVID MULTINATIONAL COHORT STUDY, which includes thousands of pregnant women, demonstrated a consistent and substantial increase in severe

maternal morbidity and mortality, and neonatal complications among symptomatic and unvaccinated women, initially with alpha and more recently with omicron as a variant of concern [3, 4]. Finally it has been shown that COVID-19 vaccination in pregnant and lactating individuals does not cause significant vaccine-related adverse events or obstetrical and neonatal outcomes, and is effective in preventing COVID-19 disease [5]. We hope and believe our publication will, over time, be seen as an important contribution to this evolving story regarding the impact of the COVID-19 pandemic on human health.

Lauren Stewart Stafford ^{1,8}, Vivian Valcarce ^{2,8}, Matthew Henry², Josef Neu², Leslie Parker³, Martina Mueller ⁴, Valeria Vicuna¹, Taylor Gowen², Emilee Cato⁵, Ivan Kosik⁶, Jonathan Wilson Yewdell⁶, Mark Atkinson⁷, Nicole Cacho², Jonathan Wilson Yewdell⁶, Mark Atkinson⁷, Nicole Cacho², Nan Li² and Joseph Larkin III ¹✉

¹Department of Microbiology and Cell Science, University of Florida, Gainesville, FL, USA. ²Department of Pediatrics, University of Florida, Gainesville, FL, USA. ³College of Nursing, University of Florida, Gainesville, FL, USA. ⁴College of Nursing, Medical University of South Carolina, Charleston, SC, USA. ⁵Emerging Pathogens Institute, University of Florida, Gainesville, FL, USA. ⁶Laboratory of Viral Diseases, National Institutes of Health/National Institute of Allergy and Infectious Diseases, Bethesda, MD, USA. ⁷Department of Pathology, Immunology and Laboratory Medicine, College of Medicine, University of Florida Diabetes Institute, Gainesville, FL, USA. ⁸These authors contributed equally: Lauren Stewart Stafford, Vivian Valcarce. ✉email: jlarkin3@ufl.edu

REFERENCES

- Stafford LS, Valcarce V, Henry M, Neu J, Parker L, Mueller M, et al. Detection of SARS-CoV-2 IgA and IgG in human milk and breastfeeding infant stool 6 months after maternal COVID-19 vaccination. *J Perinatol* 2022. Published online January, 2023;1–7. <https://doi.org/10.1038/s41372-022-01581-5>.
- Mackin DW, Walker SP. The historical aspects of vaccination in pregnancy. *Best Pr Res Clin Obstet Gynaecol*. 2021;76:13 <https://doi.org/10.1016/j.bpobgyn.2020.09.005>.
- Villar J, Ariff S, Gunier RB, Thiruvengadam R, Rauch S, Kholin A, et al. Maternal and Neonatal Morbidity and Mortality Among Pregnant Women With and Without COVID-19 Infection: The INTERCOVID Multinational Cohort Study. *JAMA Pediatr*. 2021;175:817–26. <https://doi.org/10.1001/JAMAPEDIATRICS.2021.1050>.
- Villar J, Conti CPS, Gunier RB, Ariff S, Craik R, Cavoretto PI, et al. Pregnancy outcomes and vaccine effectiveness during the period of omicron as the variant of concern, INTERCOVID-2022: a multinational, observational study. *Lancet*. 2023;0. [https://doi.org/10.1016/S0140-6736\(22\)02467-9](https://doi.org/10.1016/S0140-6736(22)02467-9).
- Fu W, Sivajohan B, McClymont E, Albert A, Elwood C, Ogilvie G, et al. Systematic review of the safety, immunogenicity, and effectiveness of COVID-19 vaccines in pregnant and lactating individuals and their infants. *Int J Gynecol Obstet*. 2022;156:406–17. <https://doi.org/10.1002/ijgo.14008>.

Received: 2 February 2023 Revised: 15 March 2023 Accepted: 21 March 2023
Published online: 6 April 2023

AUTHOR CONTRIBUTIONS

LSS, VV (Valcarce), JN, LP, MM, IK, JWY, MA, and JL contributed to the writing and editing of this rebuttal letter. LSS, VV (Valcarce), MH, JN, LP, MM, VV (Vicuna), TG, EC, IK, JWY, MA, NC, NL, and JL contributed to the discussion for this rebuttal letter.

COMPETING INTERESTS

The authors declare no competing interests.

ADDITIONAL INFORMATION

Correspondence and requests for materials should be addressed to Joseph Larkin III.

Reprints and permission information is available at <http://www.nature.com/reprints>

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.