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Determining the Role of Biochemical Markers for Prediction of Preeclampsia

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Letter to the Editor

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We have deeply analyzed the article titled "The Role of Biochemical Markers in the Prediction of Preeclampsia" [1].

We sincerely appreciate and recognize the detailed investigation on this crucial and important topic which represents a significant effort in this critical area of maternal health, which deserves recognition and is worthy of appreciation. We validate the primary findings of the article that is to focus on the role of biochemical markers in the prediction of preeclampsia, which may help in early detection and improve outcome of pregnancy. However, there are a few additional elements that could further enrich the article's conclusion.

"First, According to American College of Obstetricians and Gynecologists (ACOG) several studies have evaluated the role of biochemical markers or a combination of biochemical and biophysical markers in the prediction of preeclampsia in the first and second trimesters of pregnancy" [2]. "Regardless of the parameters used, screening for preeclampsia in low-risk women is associated with very low positive

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predictive values ranging from 8% to 33%"[3] "They further highlighted. One model that was previously developed used placental growth factor [PlGF], in addition to uterine artery Doppler and maternal demographics, to attempt to predict preterm preeclampsia "[4] Yet, as noted by the ACOG, the calculated positive predictive value was only 21%. The ACOG statement concluded that biomarkers—with or without other factors—could not be used to accurately predict preeclampsia remote from its development, and their use in that endeavor should remain investigational[2] "In another study, they have found significant associations between maternal serum levels of analytes evaluated early in pregnancy and subsequent adverse pregnancy outcomes in nulliparous gravidas" [5]. "However, the test characteristics for these analytes do not support their use as clinical biomarkers to predict adverse pregnancy outcomes, either alone or in combination with maternal clinical characteristics "[5]. "And a new nested case-control study conducted in which Proteomics using an aptamer-based assay that included 6481 unique human proteins was performed on stored plasma and included both test and validation sets for each model"[6] "In this large case-control study of nulliparous individuals, with detailed clinical data and stored plasma samples available from the first trimester, large-scale proteomics did not identify protein models that allowed good predictive capability of Hypertensive disorders of pregnancy [HDP] and preeclampsia, or even added meaningful discriminatory value to clinical and demographic factors that can be easily obtained. In addition, the author mentioned Doppler ultrasonography as a good adjuvant to biochemical markers in predicting preeclampsia but according to ACOG, biomarkers and ultrasonography cannot accurately predict preeclampsia and should remain investigational" [2].

The authors could have evaluated the robustness of their findings by applying uncertainty analyses. These omissions may introduce bias and restrict the generalizability of the study, affecting its overall reliability and clinical applicability.

CONCLUSION

In conclusion, despite the promising use of Biochemical markers such placental growth factor [PlGF] and ultrasonography, the accuracy of prediction is still limited. To strengthen the findings future studies should consider these limitations by applying sensitivity analyses and exploring models that combine biochemical markers with clinical and demographic information. By considering complementary methodologies and focusing on the most promising pathways, we can advance our understanding and improve clinical outcomes for pregnant women at risk of preeclampsia.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during the writing or editing of this manuscript.

COMPETING INTERESTS

The authors have declared that no competing interests exist.

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