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Potential biomarkers for late-onset and term preeclampsia

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Objective

The objective is to systematically analyse the recent literature in order to identify potentially useful biomarkers for predicting late-onset and term preeclampsia with the ultimate goal of improving the efficiency of PE screening.

Methods

The Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for scoping reviews (PRISMA-ScR) was used to guide the study. The following databases were searched for related studies: PubMed, Web of Science, Scopus, and ProQuest. Search terms contain "preeclampsia, " "late-onset, " "term, " "biomarker, " or "marker, " and other synonyms combined as appropriate using the Boolean operators "AND" and "OR. " The search was restricted to articles published in English from 2012 to August 2022. Publications were selected if study participants were pregnant women and biomarkers were detected in maternal blood or urine samples before late-onset or term preeclampsia diagnosis.

Results

The search retrieved 4,257 records, of which 125 studies were included in the final assessment. The results demonstrate that no single molecular biomarker presents sufficient clinical sensitivity and specificity for screening late-onset and term preeclampsia. Multivariable models combining maternal risk factors with biochemical and/or biophysical markers generate higher detection rates, but they need more effective biomarkers and validation data for clinical utility. This review proposes that further research into novel biomarkers for late-onset and term preeclampsia is warranted and important to find strategies to predict this complication.

Conclusion

This study summarized the current predictive biomarkers for late-onset and term PE. Findings emphasize the necessity for further validation and optimization of prediction strategy for late PE through integrating new biomarkers and algorithms.