

3.Q. Maternal health

Interventions for preeclampsia prevention: An umbrella review of meta-analyses of randomised trials

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Background

Preeclampsia is a severe pregnancy-associated disease, which is characterized by the occurrence of hypertension and proteinuria in previously healthy women after the 20th weeks of gestation. It is a major cause of maternal and fetal morbidity and mortality worldwide and affects 2-8% of all pregnancies. Preeclampsia is considered to be a risk factor for future cardiovascular disease.

Methods

An umbrella review was performed to identify systematic reviews and meta-analyses of randomized controlled trials for preeclampsia prevention in order to summarize evidence and evaluate the validity of the interventions. We searched PubMed, the Cochrane library and ISI Web of Science from inception to April, 2017. For each meta-analysis we estimated the summary effect size by random-effects and fixed-effects models, the 95% confidence interval, the 95% prediction interval, the between-study heterogeneity expressed by I², evidence of small-study effects and evidence of excess significance bias.

Results

Twenty-nine eligible meta-analyses were identified providing data on 58 associations including 461 primary studies. Twenty-four (41%) associations had nominally statistically significant findings at $P < 0.05$, while only 15 were significant at $P < 10^{-3}$ under the random-effects model. Sixteen associations had large or very large heterogeneity. Evidence for small-study effects and excess significance bias was found in 25 (43%) and 16 (28%) associations, respectively. Only one intervention presented robust evidence for a convincing association: diet and nutrition counseling (RR 0.68, 95% CI: 0.54-0.86). It was supported by > 250 cases, 95% prediction intervals excluding the null, no large heterogeneity, small-study effects, or excess of significance.

Conclusions

Diet and nutrition counseling shows the strongest consistent evidence. The findings from our study highlight the importance of patient education about diet and lifestyle modifications to reduce risk of preeclampsia.

Key messages:

- Diet and lifestyle interventions could lower the risk of preeclampsia based on solid epidemiologic evidence.
- Obesity, pregnancy hypertension and other metabolic risks could be prevented as well.