

Antenatal dietary interventions in obese pregnant women to restrict gestational weight gain to Institute of Medicine recommendations: a meta-analysis

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CRD summary

The authors concluded that antenatal dietary interventions in overweight and obese pregnant women could reduce maternal weight gain during pregnancy without an effect on newborn birth weight. Potential biases in the review process, together with uncertain quality of the included trials, means that the reliability of this conclusion is unclear.

Authors' objectives

To evaluate whether antenatal dietary interventions can restrict maternal weight gain in obese pregnant women without compromising the birth weight of newborns.

Searching

PubMed and the Cochrane Register of Controlled Trials (CENTRAL) were searched with no language restrictions up to March 2011. Some search terms were reported. Reference lists of relevant studies were handsearched.

Study selection

Randomised controlled trials (RCTs) that evaluated antenatal dietary interventions for pregnant women who were overweight (body mass index 25 or above) or obese (body mass index 30 or above) at booking were eligible for inclusion. Abstracts were excluded. Trials that contained women of all weight categories at booking or where outcomes for overweight and obese women could not be separated were also excluded. The primary outcome of interest was gestational weight gain (the difference between body weight at enrolment and just prior to delivery) using Institute of Medicine recommendations (6.8 to 11.3 kg gain in overweight women; 4.9 to 9 kg gain in obese women). The secondary outcome of interest was birth weight of the newborn baby.

The included interventions were various dietary programmes with energy intake restriction, educational materials, food diaries, and counselling. Included comparators were no intervention or standard prenatal care.

It appeared that two reviewers assessed a subset of trials in the process of study selection.

Assessment of study quality

The authors did not state that they assessed the methodological quality of the included trials.

Data extraction

Data were extracted to calculate mean differences (MD) and 95% confidence intervals (CI).

The authors did not state how many reviewers were involved in the extraction of data.

Methods of synthesis

Mean differences were pooled in fixed-effect or random-effects (DerSimonian and Laird) meta-analyses, depending on the level of statistical heterogeneity (measured by X^2 and I^2). Inverse variance weighting was used (fixed-effect model).

To explore the influence of individual trials, sensitivity analysis was carried out by removing one trial at a time.

Publication bias was evaluated using a funnel plot with trim-and-fill method, followed by Begg's and Egger's tests.

Results of the review

Four RCTs (471 women) were included in the review.

A significant reduction in total gestational weight gain was reported in the intervention groups (WMD - 6.46kg, 95% CI -7.55 to -5.37; four RCTs; $I^2=89.3%$). There was no significant effect on neonatal birth weight (WMD 8.49g, 95% CI -84.88 to 101.86; four RCTs; no significant heterogeneity).

There was no evidence of publication bias.

Authors' conclusions

Antenatal dietary interventions in overweight or obese pregnant women could reduce maternal weight gain in pregnancy without an effect on newborn birth weight.

CRD commentary

The review question was clear, and inclusion criteria were sufficiently detailed to allow replication. Two relevant databases were searched, and attempts were made to minimise language bias. The review process was potentially subject to error and bias at the study selection stage; the process of data extraction was unclear.

The absence of any reported quality assessment of included trials meant that their reliability was uncertain. Trial details were presented. High statistical heterogeneity was evident for the primary outcome (total gestational weight gain). The results of the planned sensitivity analysis were not reported. This meant that it was unclear whether statistical pooling of these trials was appropriate.

The authors' conclusion reflects the evidence presented, but the reliability of their conclusion is unclear.

Implications of the review for practice and research

Practice: The authors stated that it might be effective for overweight and obese women to gain less weight than that advised in the 2009 Institute of Medicine recommendations.

Research: The authors did not state any implications for research.

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Bibliographic details

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<http://onlinelibrary.wiley.com/doi/10.1111/j.1471-0528.2010.02540.x/abstract>

Other publications of related interest

Dodd JM, Grivell RM, Crowther CA, Robinson JS. Antenatal interventions for overweight or obese pregnant women: a systematic review of randomised trials. *BJOG. An International Journal of Obstetrics and Gynaecology* 2010;117(11):1316-1326.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.