

Exercise versus metformin to improve pregnancy outcomes among overweight pregnant women: A systematic review and network meta-analysis

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Abstract

Being overweight is associated with pregnancy-related disorders such as gestational diabetes mellitus (GDM), hypertensive disorders of pregnancy (HDP), and excessive maternal weight gain (MWG). Exercise and metformin reduce the risk of these disorders. This network meta-analysis (NMA) aims to compare the effect of metformin and different types of exercise (aerobic, resistance and combined) on the risk of GDM, HDP, and MWG among overweight/obese pregnant women. Medline, EMBASE, Web of Science and Cochrane Library were searched from inception to June 2021. Meta-analyses and NMAs were performed. Sixteen randomized controlled trials were included. In the NMA, aerobic exercise showed an effect on GDM (RR = 0.51, 95% CI = 0.26, 0.97), and metformin a reduction in MWG (MWG = -2.93 kg, 95% CI = -4.98, -0.87). No intervention showed any effect on the reduction of HDP. Our study suggests that aerobic exercise may have the greatest effect in reducing the risk of GDM, and perhaps, the MWG. Strategies should be developed to increase adherence to this type of intervention among overweight women without contraindications. Although metformin could reduce MWG, medicalization of pregnancy in healthy women is not justified with the present results. More research is needed on the effect of the intensity and frequency of exercise sessions and the length of interventions. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Author keywords

Exercise; Gestational diabetes mellitus; Metformin; Network meta-analysis; Obesity; Overweight; Pregnancy; Systematic review