Impact of pharmacological Interventions on fertility outcomes in women with polycystic ovary syndrome: a systematic review and meta-analysis of randomised controlled trials

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Abstract

Background: Polycystic ovary syndrome (PCOS) is an endocrine condition associated with sub-fertility, infertility and poor reproductive outcomes. **Objectives:** To review the effectiveness of different pharmacological interventions on fertility outcomes in women with PCOS. **Search Strategy:** We searched PubMed, MEDLINE, Scopus, Embase, Cochrane Library, Web of Science in April 2020 and updated the search in PubMed March 2021. **Selection Criteria:** Two independent reviewers selected studies, and only randomised controlled trials (RCTs) were included. **Data Collection and Analysis:** Thirty-four RCTs that met the eligibility criteria were used to calculate odds ratios (OR) and the 95% confidence interval (95% CI) using the random effect model. **Main Results:** There was a significant increase in pregnancy rate with follicular stimulating hormone (FSH) vs clomiphene citrate (CC)+ metformin (Odd Ratio(OR):4.08; 95%CI:1.12-14.83, I²=79%), Letrozole vs CC (OR: 1.58; 95%CI: 1.34-1.86, I²= 0%), metformin vs placebo(OR: 3.00; 95%CI: 1.95-4.59, I²= 0%) and with CC+ metformin vs CC (OR: 1.48; 95%CI: 1.02-2.16, I²= 39%). There were significant increases in ovulation rate with CC+ metformin vs FSH (OR: 0.09; 95%CI: 0.02-0.37, I² = 75%), CC+ metformin vs CC (OR: 2.04; 95%CI: 1.35-3.08, I² = 63%) and with Letrozole vs CC (OR: 1.60; 95%CI: 1.02-2.52, I²= 88%). A significant increase in live birth with Letrozole vs CC (OR: 1.63; 95%CI: 1.21-2.21, I² = 0%) was observed. **Conclusions:** CC, letrozole alone or either added to metformin, were associated with a significant increase in the pregnancy rate, ovulation rate, and live birth rate in women with PCOS. **Funding:** No fund for the review.

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