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**Obstetrics Gynecology 2020: Effect of metformin use on the risk and prognosis of ovarian cancer: an updated systematic review and meta-analysis -Min-zhen LU, The second clinical medical college**

**ABSTRACT**

**OBJECTIVE:**

Emerging evidences suggest that metformin has a potential antitumor effect both in vitro and in vivo. Increasing epidemiological studies indicate that diabetic patients receiving metformin therapy have lower incidences of cancer and have better survival rates. However, there are limited and inconsistent studies available about the effect of metformin therapy on ovarian cancer (OC). Thus, we conducted this meta-analysis to study the effect of metformin therapy on OC. Meanwhile, we systematically reviewed relevant studies to provide a framework for future research.

**RESEARCH DESIGN AND METHODS:**

We conducted a systematic literature search on PubMed, Web of Science, Springerlink, CNKI, VIP, SinoMed, and Wanfang up to the period of October 2018. A random-effects meta-analysis model was used to derive pooled effect estimates.

**RESULTS:**

A total of 13 studies were retrieved of which 5 studies explained the prevention and 8 studies explained the treatment for OC. Our pooled results showed that metformin has a potential preventive effect on OC in diabetic women [pooled odds ratio (OR) 0.62, 95% confidence interval (95% CI) 0.34, 1.11;  $P < 0.001$ ]. In addition, metformin can also significantly prolong progression-free survival (PFS) [pooled hazard ratio (HR) 0.49, 95% CI 0.34, 0.70;  $P = 0.002$ ], and overall survival (OS) [HR 0.71, 95% CI 0.61, 0.82;  $P < 0.001$ ] in patients with OC, compared with the control group whether they had diabetes.

## CONCLUSIONS:

The use of metformin can potentially reduce the risk of OC among diabetics, and it can significantly improve PFS and OS in patients with OC. A further large clinical investigation would be needed to adopt our finding in practice, however, our systematic review provides an insight for future study designs.

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Min-zhen LU,

The second clinical medical college of Southern Medical University, Guangzhou

Email: luminzhen000@i.smu.edu.cn

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