

# Combination of Metformin and Chemotherapy Decreases the Recurrence Rates of Epithelial Ovarian Cancers: A Randomized Clinical Trial

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## Abstract

**Background:** The mainstay of treatment for ovarian cancers is surgical resection and post-operative chemotherapy to minimize the chance for recurrence. Metformin has been evidenced to increase the cytotoxic effects of chemotherapy in malignant cells and tissues by altering several gene expression pathways.

**Objectives:** This study evaluated clinical efficacy of adding metformin to chemotherapy regimen for patients with ovarian cancers.

**Methods:** The patients were divided in two groups; the study group received 500 mg metformin 3 times a day in addition to standard chemotherapy sessions after surgical resection of the primary ovarian cancer. The control group received only the standard chemotherapeutic agents after surgery. The patients were followed for up to 4 years and recurrence rate and their disease free survival after surgical resection statistically were compared between two groups.

**Results:** The recurrence of the primary malignancy occurred in 13.3% of the study cases versus 67.5% in control group. Disease free survival was 48 months in the study group, which was significantly longer than the control group (25.7 months).

**Conclusions:** The results of this study demonstrate that adding metformin to the chemotherapy regimen of patients undergoing surgery for ovarian cancer can clinically improve the outcome of treatment by decreasing the overall rate of recurrence and prolonging the disease free survival in these patients.

**Keywords:** Ovarian Cancer; Metformin; Recurrence; Chemotherapy