

# Metformin as an Adjuvant Treatment in Non-Diabetic Metastatic Breast Cancer

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## Highlights

- Radiological response was significantly better in the metformin group than the control group (overall P = 0.002).
- Metformin did not significantly prolong OS (HR = 0.57, CI 0.24–1.3); however, OS was better in the metformin vs. control group (5.3 vs. 5.8 months).
- Metformin did not significantly prolong PFS (HR = 0.311, CI 0.063–1.5); however, OS was better in the metformin vs. control group (4.4 vs. 5.1 months).

**Background:** Mounting evidence suggests that metformin halts cancer spread and acts as an antimetastatic drug.

**Patients and Methods:** Fifty women diagnosed with stage IV breast cancer were allocated randomly into two groups. The control group received chemotherapy and the metformin group received metformin plus chemotherapy for 3 months. Main outcome included measuring changes in tumors using Response Evaluation Criteria in Solid Tumors (RECIST) to evaluate disease progression before and after 3 months, whereas secondary outcomes included, overall survival (OS) and progression free survival (PFS).

**Results:** The control group had a significantly worse RECIST response rate than the metformin group. The metformin group had a slightly longer OS and higher PFS than the control group, but this difference was not statistically significant. Hazards of mortality and disease progression were reduced with metformin use.

**Conclusion:** Metformin use significantly improved the radiologic response rate in nondiabetic patients with metastatic breast cancer but did not significantly prolonged OS or PFS. Our results suggest that randomized clinical trials in patients with metastatic breast cancer are warranted.

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**Key words:** Metformin, Stage IV breast cancer, Radiological Response

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