

Metformin prevents nerve growth factor-dependent proliferative and proangiogenic effects in epithelial ovarian cancer cells and endothelial cells

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© The Author(s), 2018. Background: Epithelial ovarian cancer (EOC) is characterized by exacerbated angiogenesis regulated by proangiogenic and growth factors. Nerve growth factor (NGF) is overexpressed in EOC where it promotes proliferation as well as survival and is considered a proangiogenic factor. Metformin, a drug commonly used in the treatment of diabetes, is attributed to antineoplastic effects, but the underlying mechanisms remain unknown. Given that current therapies yield modest results in EOC patients, the aim of this study was to determine the effects of metformin on NGF-enhanced proliferation of EOC cells and the angiogenic potential of endothelial cells. Methods: A2780 (EOC), HOSE (human ovarian surface epithelial) and EA.hy926 (endothelial) cells were treated with NGF and metformin. Cell viability, cell proliferation and cell cycle were evaluated in all three cell lines, and the angiogenic potential in endothelial EA.hy926 cells. Results: NGF enhanced cell proliferation