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## Targeting sphingosine kinase 1 and apoptosis by Metformin to decrease tumor resistance to Adriamycin

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Solid Ehrlich carcinoma is a transplantable tumor model used in tumor studies. Adriamycin is a cytotoxic anthracycline antibiotic used in treatment of many types of cancer. Metformin is anti-diabetic drug and is under investigation for treatment of cancer. The aim of this work was to study the effect of each of adriamycin and metformin alone and in combination on solid Ehrlich tumor in mice. One hundred albino mice were divided into five equal groups: Control untreated group, SEC, SEC+adriamycin, SEC+metformin, SEC+adriamycin+metformin. Tumor volume, survival rate, tissue catalase, tissue reduced glutathione, tissue malondialdehyde, tissue sphingosine kinase 1 activity, tissue caspase 3 activity and tissue tumor necrosis factor alpha were determined. A part of the tumor was examined for histo-pathological and immune-histochemical study. Adriamycin or metformin alone or in combination induced significant increase in the survival rate, tissue catalase, reduced glutathione and tissue caspase 3 activity with significant decrease in tumor volume, tissue malondialdehyde, tissue sphingosine kinase 1 activity and tumor necrosis factor alpha and alleviated the histopathological changes with significant increase in p53 expression and apoptotic index compared to SEC group. The combination of adriamycin and metformin has a better effect than each of adriamycin or metformin alone against transplantable tumor model in mice.

### Biography

Ahmed M Kabel had the PhD degree in Pharmacology in 2013 from Faculty of Medicine, Tanta University, Egypt. He is involved in teaching undergraduate and postgraduate students as well as supervised one master student and one PhD student in Egypt. He has published more than 21 research articles in reputable international peer reviewed journals. His areas of research interests are pharmacy practice, oncology and pediatric pharmacology.

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