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Short Note

Latest Updates in Science and Medicine

Samah Kotb Nasr Eldeen*

Chemistry Department, Tanta University, Egypt

***Corresponding author**

Samah Kotb Nasr Eldeen, Chemistry Department, Tanta University, Egypt, Email: science_samah@yahoo.com

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SHORT NOTE

Cancer continues to represent the largest cause of mortality in the world, the second leading cause of death worldwide next to cardiovascular disease. The current searching for effective non-toxic, inexpensive, and suitable neoadjuvant therapy with methotrexate (MTX) to decrease MTX dosage without lowering its chemotherapeutic efficacy, in this study we investigated the antitumor effect of trehalose (TRE) on mice bearing Ehrlich ascites carcinoma (EAC) and checked whether TRE can enhance the anticancer potential of MTX. In addition, an effective specific medication in the management and treatment of cancer. As, TRE, was previously found to have (antitumor) activities, the present study was conducted to evaluate the antitumor activity of TRE with and without MTX against EAC in mice.

Antitumor activity of TRE was monitored by measuring the survival time, counting total number of tumor cells, monitoring autophagic activity at the cellular level by flowcytometery , monitoring autophagic and apoptotic regulated genes (Caspase 3, Bec1 and Bcl2 genes) by real time PCR , as well as the biochemical parameters as hepatic enzymes activities in serum , oxidative stress markers in liver homogenate, in addition to complete blood picture (CBC) and histological studies of all groups.

Autophagy is a highly conserved degradation pathway that discards damaged cellular components and is morphologically characterized by the double membrane autophagosomes formation. Sequestration of impaired organelles or unwanted cellular components by autophagy facilitates their delivery to lysosomes for degradation and recycling. Autophagy participates in the etiopathogenesis of many important human diseases, such as cancer, and metabolic disorders. Autophagy is an important mechanism for cell survival, in particular when cells are under stress conditions such as oxidative stress and starvation.