



Antitumor Effect of a Combination of Lysine, Proline, Arginine, Ascorbic Acid, and Green Tea Extract on Pancreatic Cancer Cell Line MIA PaCa-2

M.W.Roomi, V. Ivanov, T. Kalinovsky, A. Niedzwiecki, M. Rath
International Journal of Gastrointestinal Cancer 2005, 35(2): 97-102.

Pancreatic cancer is associated with a very poor prognosis and the five-year survival rate of is less than 5%. Since pancreatic cancer has vague symptoms, it is diagnosed at an advanced stage and therefore inoperable in most cases. Pancreatic cancer does not respond well to either chemotherapy or radiotherapy.

Matrix metalloproteinases (MMP) enzymes are key enzymes promoting the spread of cancer. We used a combination of micronutrients; vitamin C, lysine, proline, EGCG (green tea extract) and others to evaluate their efficacy in inhibiting MMP enzymes and other growth parameters of pancreatic cancer cells.

The results indicate that the combination of micronutrients was effective in completely (100%) blocking the secretion of MMP enzymes. This combination also strengthened the extracellular connective tissue and inhibited its destruction resulting in a dramatic decrease of cancer cells invasion by up to 87%. Additionally, the micronutrients were also effective in reducing the growth of cancer cells up to 62% compared to control.

Considering the toxic side effects of available treatments for pancreatic cancer, these results provide a possible hope for pancreatic cancer by attacking the critical processes in metastasis.