

Beneficial role of allicin from garlic in cervical cancer

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Introduction: Cervical cancer remains a global health concern for females. Thus, in order to control cervical cancer, attempts are being made by researchers globally to somehow induce programmed cell death in the said cancerous cells. Wide spectrums of molecules are being probed for its ability to induce apoptosis in cervical cancer cells. Focus has now shifted in exploring natural compounds having antioxidant and anti-inflammatory molecules that may induce apoptosis in cancerous cells. Thus, we have employed allicin from garlic- a natural antioxidant, to probe the above in the present study.

Objective: To probe whether or not allicin from garlic, a natural antioxidant, induces apoptosis in monocytes from patients with cervical cancer.

Results: Allicin (500 ng/ml) reduced cell viability to 27% after 24 hours of treatment. Moreover, allicin-induced apoptosis was ascertained by measuring the activity of caspase-3, caspase-8 and caspase-9-like proteases in allicin treated and untreated monocytes from cervical cancer patients. Monocyte co-cultured with allicin for 24 hrs exhibited higher activity of caspase-3 followed by caspase-8 and caspase-9 like proteases, thereby indicating that the activation of caspase-3 like proteases was associated with reduced cell survival and apoptotic death of allicin-treated cervical cancer monocytes. This was ascertained by pre-treatment of cancer cells with cell permeable inhibitor Z-VAD-FMK (caspase-3 inhibitor), Z-IETD-FMK (caspase-8 inhibitor) and Z-LEHD-FMK (caspase-9 inhibitor) followed by allicin for 24 hrs ($p < 0.001$). In this case, the cell viability assay showed that the presence of Z-VAD-FMK inhibitor blocked the effect of allicin on the viability of cancer monocytes ($p < 0.001$).

Conclusion: Allicin from garlic may act as an adjunct in the chemotherapy of cervical cancer.