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ANTI-CANCER EFFECT OF CURCUMIN ON SURVIVAL AND EXPRESSION OF DNMT1 AND CDH1 GENES IN CELL LINE MIAPACA2

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ABSTRACT

Introduction: Pancreatic cancer is a deadly sinister cancer and the fourth leading reason for death worldwide. DNMT1 is essential for the conservation of the methylation landscape due to its ability to recognize hemimethylated DNA and conserve methylation during somatic cellular division.Ecad play a role in cellular connectivity through extracellular domains, Loss of Ecad Protein, lead to loss of Intercellular Connections, Provides Cell Metastasis. The pharmacological effects of curcumin include inducing apoptosis, anti-cell proliferation, antioxidant and anti-angiogenesis are proved and this compound has the potential to be used in cancer prevention.

Objectives: The current study was performed in order to explore in vitro antitumor activity of curcumin in human pancreatic carcinoma cell line MIAPaCa2.DNMT1 and CDH1 genes expression were examined by quantitative real-time PCR. Finally, the effects of curcumin on viability and DNMT1 gene and CDH1 gene expression status were evaluated.

Method: MiaPaca-2cell line was cultured in monolayers. The cells were treated with curcumin using different concentrations of 2,5, 10, 20, 40, 80 µM for 24, 48 and 72 hours. Viability was checked by MTT assay and DNMT1 and CDH genes expression was evaluated by RT-PCR.

Results: Our results indicate that the level of DNMT1 mRNA expression was decreased after treatment. Expression level of CDH1 mRNA were increased. Data obtained from MTT revealed antiproliferative effects of curcumin for 20,40,80 µM concentrations.

Conclusions: We conclude that cell viability and level of DNMT1 mRNA was decreased after curcumin treatment, and level of CDH1 mRNA was increased. So, These observations suggest that curcumin , a molecule with varied actions, as a supplementary could be developed into an effective chemopreventive and chemotherapeutic agent for pancreatic cancer treatment.