자유연제 1-2

Increased Cyclooxygenase-2 Expression in Human Squamous Cell Carcinomas of the Head and Neck and Inhibition of Proliferation by Nonsteroidal Anti-inflammatory Drugs

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Cyclooxygenase-2 (COX-2) has been found to be involved in carcinogenic process in colorectal carcinoma.

The aim of this study was to examine the expression of COX-2 in human squamous cell carcinoma of the head and neck (SCCHN), and to investigate the effects of COX-2 inhibitors on growth of cultured cells. We examined the effect of indomethacin and NS-398 at various concentrations on growth of SCCHN cell lines using cell proliferation assay, cell cycle analysis, and quantification of apoptosis.

Immunostaining revealed a significantly increased COX-2 expression in tumor tissues compared with normal controls ($p<0.05$). Western blotting analysis using a COX-2 antibody indicated that seven SCCHN cell lines tested constitutively expressed COX-2 protein. Treatment of head and neck cancer cells with NS-398 (10−200 μM) or indomethacin (50−1000 μM) for 72h showed a significant dose-dependent inhibition of cell growth ($p<0.01$) and a significant increase in the number of cells in the G0/G1 phases of the cell cycle with a concomitant reduction at the S phase in a dose-dependent manner ($p<0.05$). NS-398 was more powerful in cell cycle arrest and growth inhibition than indomethacin ($p<0.05$) and induced significant apoptosis in two of three SCCHN cell lines tested at the concentration of 100 μM.

Our study showed that COX-2 could be a participant in carcinogenesis of SCCHN and COX-2 inhibitors would be a potential tool for the prevention and treatment of SCCHN.