POSSIBLE ROLE OF CYCLO-OXYGENASE-2 IN SCHISTOSOMA AND NON-SCHISTOSOMA ASSOCIATED BLADDER CANCER

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Cyclo-oxygenase (COX) is an angiogenic factor, strongly related to inflammatory diseases and the development and metastasis in several cancers. It is over-expressed in a variety of premalignant and malignant conditions, including urinary bladder cancer.

To determine the prognostic significance of COX-2 marker, we investigated and compared the expression of COX-2 enzyme in patients with bladder cancer, chronic cystitis and normal bladder, and correlated results to tumor stage and grade.

Samples were taken from 50 cases with bladder cancer (31 bilharzial associated and 19 non-bilharzial associated), 20 from chronic cystitis (7 non-specific and 13 bilharzial cystitis) and 5 from normal bladder as control. The specimens were stained by streptavidin biotin immunohistochemistry protocol, with COX-2 monoclonal antibody. Although no notable expression of COX-2 in normal bladder, it was slightly expressed in chronic cystitis notably in areas of dysplasia and squamous metaplasia, significant increase was in COX-2 (P<0.001) with moderate to strong granular cytoplasmic expression in all malignant histological types. The COX-2 reactivity was higher in transitional cell carcinoma (TCC) than in squamous cell carcinoma (SCC) (P<0.001). COX-2 expression was significantly higher in schistosomal than in non-schistosomal TCC (P<0.05). Statistically significant positive correlation was found between COX-2 expression and tumor grade (P=0.0052). Being higher in Grade 3 bladder TCC than in Grade 1 and 2 (P<0.05, P<0.01 respectively), the correlation between COX-2 expression and progression of bladder TCC was observed (P=0.001), there was significant difference in COX-2 expression level between the bladder TCC at different clinical stages (P<0.01).

COX-2 is over-expressed in schistosoma-associated bladder cancer. COX-2 might be of significance to development and proliferation of bladder TCC, consistent with a potential role for COX-2 inhibitors in prevention and management of the disease.