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Effect of Diindolylmethane on BBN-Induced Bladder Carcinogenesis in Rats

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Abstract : Cancer results from a multistage, multi-mechanism carcinogenesis process that involves mutagenic, cell death and epigenetic mechanisms, during the three distinguishable but closely allied stages: initiation, promotion, and progression. Chemoprevention is promising in the realm of cancer prevention and it has been shown to reduce the risk of development of carcinoma in highly susceptible individuals such as those with known genetic mutations or high level of risk factors. The present study is aimed at the need of early detection of bladder cancer in order to improve performance in the treatment of this disease. Consumption of certain natural products like DIM is associated with a reduction in cancer incidence in humans. The study showed the protective effects of Diindolylmethane in N-Butyl-N-(4-hydroxybutyl) nitrosamine treated rats. Results of the study had shown the changes in the tumor markers, biomarkers and histopathological alterations in experimental rats when compared to control rats. The protective effects of DIM were shown from the results of cell proliferation, apoptotic markers and histopathological findings when compared with experimental control animals. Hence, our results speculate that the tumor markers, apoptotic markers, histopathological changes and cell proliferation index measured as PCNA serves as an indicator suggestive of protective effects of DIM in BBN induced urinary bladder carcinogenesis.

Keywords : bladder cancer, N-Butyl-N-(4-hydroxybutyl) nitrosamine, diindolylmethane, histopathology
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