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Suppressive Effects of Experimental Liver Preneoplastic Lesions by Estrogen Treatment in Male Rats

Ki Dae Park¹, Beom Seok Han¹, Ki Taek Nam¹, Wan Seob Cho¹, Mi Na Choi¹,
Se YI Kim¹, Jin Seok Kang², Byeong Woo Ahn³, Jeong Hwan Che⁴,
Kook yung Lee⁵, Dong Deuk Jang¹ and Ki Hwa Yang¹
*National Institute of Toxicological Research, Korea Food & Drug
Administration¹, Osaka City University², Chungbuk National University³, Agency
for Defense Development⁴, Cheju National University⁵*

The incidence of liver cancer is markedly sex-differentiated epidemiologically, with a much higher frequency in men than in women. In experimental animals, male have higher incidence of liver tumors than female in carcinogen-induced tumors as well as spontaneous ones. Our studies were investigated to examine the modifying effects of sex hormones in the proneoplastic lesions of liver on diethylnitrosamine (DEN) - induced hepatocarcinogenesis. F344 male rats were randomly divided into three groups. For induction of liver tumor, mini-osmotic pump providing a continuous infusion of DEN dissolved in dimethyl sulphoxide (DMSO) was implanted into the abdominal cavity of each animal in group I, II and III at 6 weeks of age. To see the effect of estrogen, pellet containing 1 μ g or 10 μ g of estradiol-3-benzoate (EB) was implanted subcutaneously in the animals of group II or III respectively, one week prior to DEN treatment. 10 animals of each group were euthanized at 10, 14 and 18 weeks after DEN treatment. Number of 5-bromo-2-deoxyuridine(BrdU) labeling cells and indices of glutathion-S-transferase placenta-form (GST-P) positive foci detected by immunohistochemistry were decreased markedly in group II and III than group I at 14 and 18 weeks after treatment of DEN. With these results, we conclude that the modulation of sex hormones by EB

treatment decrease the DEN-induced liver preneoplastic lesion, and it suggested that liver tumors may be inhibited by estrogen effects of suppression on proliferation of cells in preneoplastic lesions of carcinogenesis in liver.