

Influence of phenethyl isothiocyanate on xenobiotic metabolizing enzymes and cell kinetics in hamsters treated with *N*-nitrosobis(2-oxopropyl) amine

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The effects of phenethyl isothiocyanate (PEITC) on xenobiotic metabolizing enzymes and cell kinetics in the target organs for *N*-nitrosobis (s-oxopropyl) amine (BOP)-tumorigenicity were investigated in female Syrian golden hamsters in order to gain the mechanistic insights into the chemopreventive action of PEITC against BOP-initiated lung and pancreatic carcinogenesis in hamsters. Hamsters were given BOP s.c. and/or PEITC administration, animals were sacrificed for analyzing P450 isoenzymes, glutathione (GSH), glutathione S-transferase (GST) and cell kinetics. The PEITC pretreatment significantly reduced the hepatic P450 isoenzyme levels such as CYP2B1 and CYP1A1 which were significantly increased by the BOP treatment. However, PEITC did not affect the CYP levels in the pancreas and lung. Interestingly, the PEITC pretreatment rather lowered the hepatic GST and GSH levels, regardless of BOP administration. Proliferation cell nuclear antigen (PCNA)-labeling indices were dose-dependently decreased by PEITC in the pancreas acini and ducts, bronchioles, and renal tubules in which the cell replication was signified by BOP. These results thus suggest that PEITC exerts the chemopreventive effects in hamsters by influencing xenobiotic metabolizing phase I enzymes in the liver and regulation cell kinetics in the target organs.