

# Metabolic characteristics and enflurane defluorination of cytochrome P450-dependent monooxygenases in human hepatocellular carcinoma.

陳大樑

Chen TL;Hou WY;Sun WZ;Wu GJ;Wang KC;Peng WL and Lin CJ

摘要

Abstract

**BACKGROUND:** Xenobiotic metabolism and defluorination capacity of microsomal monooxygenases were investigated in vitro through the surgical specimens of liver resected from patients with hepatocellular carcinoma and patients of extrahepatic pathology as control. **METHODS:** In microsomes of hepatocellular carcinoma tissues, the activities of cytochrome P450-dependent monooxygenase isoenzymes 1A1, 2B1, and 2E1 were evaluated in vitro by reacting with the specific marker substrates benzo(a)pyrene, benzphetamine and aniline, respectively, in the generating incubation system. The distant normal liver tissues and tissues from control patients with extrahepatic lesion were also investigated for comparison. The ability of enflurane defluorination was assessed by Orion combined for detection of free fluoride ion production. **RESULTS:** Concentrations of P450 total content, cytochrome b5, and NADPH-cytochrome c reductase showed parallel and marked reduction in tumor tissues when compared with its distant normal regions or normal livers. The monooxygenase functions displayed significant decreases within the tumor tissues as benzo(a)pyrene hydroxylation > or = benzphetamine demethylation > aniline hydroxylation in magnitude. Defluorination of enflurane also markedly decreased in tumor tissues comparing with normal livers. **CONCLUSIONS:** These marked reductions in the compositions and in vitro metabolic activities, including defluorination of anesthetics, in the cytochrome P450-dependent monooxygenases within the tumor tissues characterize the unique pattern of xenobiotic metabolism in patients with hepatocellular carcinoma.