Human cytochrome P450 monooxygenase system is suppressed by propofol. 1995;74: 558-562.

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摘要

Abstract

We have studied the effect of propofol on the cytochrome P450-dependent mono-oxygenase system in human liver microsomes by assaying mono-oxygenase activities toward specific cytochrome P450 isoform test substrates, aniline, 7-ethoxycoumarin, benzphetamine and benzo(a) pyrene. Propofol inhibited benzo(a)pyrene hydroxylation to a greater extent than the oxidative metabolism of the other test substrates, even at 0.05 mmol litre-1. The degrees of inhibition of benzphetamine N-demethylation and 7-ethoxy-coumarin O-de-ethylation were similar, while aniline hydroxylation was least affected by propofol. Spectral analysis showed that propofol competed with carbon monoxide for binding to the haem moiety of haemoprotein in the P450 enzyme. The variable inhibition observed may be caused by the differential binding of propofol to P450 isoforms. Propofol 0.05-1.0 mmol litre-1 exhibited a concentration-dependent inhibitory effect on human cytochrome P450 2E1, 2B1 and 1A1. These inhibitory actions of propofol on human liver microsomal enzymes in vitro suggest that potential drug interactions may exist between propofol and other drugs administered clinically.