

Clinical Trial

Digestion

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Effects of ursodeoxycholic acid on splanchnic and systemic hemodynamics. A double-blind, cross-over, placebo-controlled study in healthy volunteers

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Abstract

Background: Recently, the beneficial effects of ursodeoxycholic acid (UDCA) on the portal hypertensive state have been demonstrated in patients with primary biliary cirrhosis. However, it is not known whether UDCA has direct or indirect effects on the vascular smooth muscles in humans, thereby leading to a change in splanchnic or systemic hemodynamics.

Aims: We therefore evaluated the hemodynamic effects of UDCA as to its established effect on gallbladder motility under fasting and postprandial conditions in healthy volunteers.

Methods: In a double-blind, cross-over study of 20 healthy volunteers, placebo or UDCA (750 mg/d) were randomly administered over 4 weeks with an interim 4-week washout period. Portal blood flow, cardiac output and gallbladder motility were measured using echo-Doppler and b-mode sonography before and after placebo and verum, respectively. ECG, blood pressure, heart rate and blood chemistry were also measured.

Results: UDCA did not significantly change fasting portal flow or meal-induced portal hyperemia. Both fasting and postprandial gallbladder volumes increased (26.5 +/- 6.0 vs. 40.7 +/- 13.8 ml, $p < 0.05$, and 11.2 +/- 6.2 vs. 14.8 +/- 6.7 ml, $p < 0.05$). Diastolic blood pressure decreased under UDCA (71.2 +/- 8.7 vs. 66.5 +/- 6.5 mm Hg, $p < 0.05$). Serum levels of chloride and gamma-glutamyltransferase decreased slightly, while alkaline phosphatase increased.

Conclusions: UDCA affected systemic but not portal hemodynamics. The increase in gallbladder volume is obviously mediated by factors that do not influence the splanchnic vascular bed.

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