Anti-inflammatory and analgesic effects of the total conjugated cholic acid extracted from Pulvis Fellis Suis

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Background: Pulvis Fellis Suis is commonly used in folk medicines in China for the treatment of various painful and inflammatory conditions. The aim of the present study was to investigate the analgesic and anti-inflammatory properties of the total conjugated cholic acid (TCCA) extracted from Pulvis Fellis Suis.

Methods: Three doses (100, 200 and 400 mg/kg orally) of TCCA were evaluated for analgesic and anti-inflammatory activities using acetic acid-induced writhing test, hot-plate test, dimethylbenzene-induced ear edema in mice, and carrageenan-induced paw edema in rats. The anti-inflammatory effect of TCCA was also investigated via assaying of the serum levels of tumor necrosis factor-alpha (TNF-alpha) and interleukin-1beta (IL-1beta) in rats by enzyme-linked immun assay. In addition, the acute oral toxicity of TCCA was also studied in mice.

Results: TCCA possessed significant antinociceptive and anti-inflammatory activities. It inhibited the writhing response in mice, increased reaction time of mice in the hot-plate test, reduced dimethylbenzene-induced ear edema in mice and suppressed carrageenan-elicited paw edema in rats. Administration of TCCA effectively diminished TNF-alpha and IL-1beta levels dose-dependently (P<0.05, P<0.01), but the level of IL-1beta did not change significantly at small dose of TCCA. No death of mice was observed when TCCA (5.0 g/kg) was administered orally.

Conclusions: These results clearly demonstrated that TCCA has evident analgesic and anti-inflammatory activities. It may have therapeutic value in painful and inflammatory conditions. Furthermore, TCCA also shows a favorable safety.