Effects of lotus extract on acetaminophen-induced hepatic inflammation

Megumi Furukawa¹, Nobuo Izumo², Kazuya Watanabe², Maho Yonezawa², Yasuo Watanabe²


Acetaminophen (APAP) is commonly used as an antipyretic agent, although this side effect, i.e., hepatic injury, is so severe. It has been reported that lotus shows the anti-inflammatory and anti-cytoprotective actions. This study evaluates effects of lotus extract on APAP-induced hepatic inflammation.

Seven-week-old male ICR mice were orally administered lotus extract or saline (10mL/kg) once a day for a week. Twenty-four hours after the last pretreatment, the mice were intraperitoneally injected with 200 mg/kg APAP or saline under fasting conditions. The mice from each group were anesthetized and taken blood sample for plasma analysis 4 h after the injection. The expression levels of inflammatory cytokines in liver were measured by real-time RT-PCR. For histological analysis, the liver lobe was perfused with mildform and embedded in O.C.T compound. Embedded tissues were sectioned at 10 μm. Sections were stained with TUNEL. Pretreatment with lotus extract significantly decreased hepatic GOT/GPT levels and inflammatory cytokines (TNF-α, IL-6 and IL-1β) induced by APAP. As the result of histological analysis and TUNEL staining, anti-inflammation and anti-apoptotic effects were observed with the lotus extract.

These results suggest that the prophylactic treatment of lotus extract protects the APAP-induced hepatic inflammation.