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Nephrotoxicity of Jerusalem artichoke

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Objectives: The extracts or decoction water of Jerusalem artichoke are promoted in Korea for potential role of glucose lowering effect in diabetes mellitus patients. However, the nephrotoxicity of Jerusalem artichoke has not been evaluated through animal experiments until now.

Methods: To evaluate the nephrotoxic effect of Jerusalem artichoke, we randomly divided 7-weeks-old female mice into five groups, which consisted of one control group and four Jerusalem artichoke groups (decoction water for 2 and 4-weeks, and grinded form 2 and 4-weeks).

Results: There were significant differences in serum creatinine level between the control group and the 4-weeks of decoction water group (0.32 mg/dL vs. 0.2 mg/dL, $P<0.05$). Irrespective of the administration method, tubular damage was prominent in the groups in which Jerusalem artichoke was administered over 2 weeks and 4 weeks. Although there was no statistical significance, the mRNA expression of GPX-1, NOX-1, BCL-2, IL-10, IL-6, TGF-β, αSMA, and Col-IV tended to be increased in the Decoction 4 weeks group, and Krt -18 mRNA was significantly higher than the control group ($P<0.05$). The grinded group also tended to increase injury mRNA markers compared to the control group, but there was no statistical significance.

Conclusions: The Jerusalem artichoke injestion possibly causes significant renal dysfunction with compatible renal histologic changes and elevations of various markers for oxidative stress, inflammation and fibrosis in *in vivo* experiments.