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Potential Nephrotoxicity of Phellinus Linteus

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Objectives: In Korea, as the prevalence of chronic illness and degenerative diseases increases related to rapid aging, interest in various health supplements is higher than in any other country. The extracts or mushroom decoction water of *Phellinus linteus* (PL), the Sanghwang-mushroom, are promoted in Korea for potential anti-cancer, anti-inflammatory, immunomodulatory, antioxidative, and neuroprotective effect. So far, the nephrotoxicity of PL has not been evaluated through animal experiments. The purpose of this study was to determine the nephrotoxicity of PL decoction water.

Methods: To evaluate the toxic effect of PL decoction water, we randomly divided 7-weeks-old female mice into four groups, which consisted of control group and PL groups (2-week, 4-week, and 6-week models).

Results: There were no significant differences in serum blood urea nitrogen, serum creatinine, and urine protein/creatinine ratio between the groups. In histological findings, inflammatory cell infiltration was observed at the cortex and corticomedullary junction in 2-week and 4-week group. In 6-week group, parietal epithelial cell hypertrophy of Bowman capsule was observed. In the 2-week group, mRNA expression of bcl-2, NOX-1, IL-6 and α SMA was increased, and collagen IV and ketatin-8 mRNA expression was significantly increased in the 4-week group. The protein expression of bcl-2, NOX-1, α SMA, fibronectin, and collagen IV were significantly increased in 4-week or 6-week groups compared to the control. *In vitro* cell viability test was performed using HK2 cells, and PL decoction water itself did not affect viability. Compared to PL treatment after H₂O₂ treatment, viability showed a tendency to decrease more when H₂O₂ treatment was performed after PL treatment.

Conclusions: PL decoction water did not cause significant renal dysfunction, but was associated with mild renal histologic changes and elevations of various markers for oxidative stress, inflammation and fibrosis in *in vivo* experiments.