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Nephrotoxicity of Inonotus Obliquus

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Objectives: The extracts or mushroom decoction water of Inonotus Obliquus (IO), the chaga-mushroom, are promoted in Korea for potential of anti-cancer, anti-diabetes, anti-viral/anti-parasitic activities, and antioxidant role. However, the nephrotoxicity of IO decoction water has not been evaluated through animal experiments until now.

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

Results: There were significant differences in serum blood urea nitrogen and serum creatinine level between the control group and the 6-week group. In the 2-week group of IO administration, inflammatory cell infiltration and partial tubular damage were observed around the glomeruli and tubules, and in the 4-week group, widespread sloughing of tubular epithelial cells was observed. In the 6-week group, more frequent tubular damage and interstitial fibrosis were observed. As the administration period accumulated, mRNA expression related to nephrotoxicity increased. The TGF-β, αSMA, and collagen IV mRNA expression were significantly increased in the 2, 4, 6-week groups, respectively.

Conclusions: The IO decoction water 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.