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Toxicodendron vernicifluum extract ameliorate renal injury in unilateral ureteral obstruction mice.

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Objectives: *Toxicodendron†vernicifluumis* used as a traditional herbal medicine in Asia. The physiological properties and antioxidative effects of *Toxicodendron vernicifluum* extract (TV) have been demonstrated in several experimental studies. The physiological properties and antioxidative effects of Toxicodendron vernicifluum extract (TV) have been demonstrated in several experimental studies. This study evaluated the possible renoprotective effects of TV on UUO induced tubular damage, as well as the mechanism through which it exerts antioxidative and antiapoptotic effects against UUO induced cell death.

Methods: Male Sprague–Dawley rats weighing 180–200 g each were assigned to one of two groups. The first group (UUO+TV) of rats drank TV for 2 weeks before surgery. The second group (UUO) of rats drank water for 2 weeks. Three days later, a morphologic evaluation of renal injury was conducted using hematoxylin and eosin and TUNEL staining. The renal protein expression of PCNA, caspase3,
Nrf2, catalase, and phosphorylated p38 as markers of autophagy was determined by immunoblotting.

Results: Obstruction injury caused marked apoptosis and oxidative stress in the UUO group. It also increased the level of phosphorylated p38 and decreased the level of PCNA, suggesting delayed recovery from damage. The number of TUNEL positive cells, which were detected based on DNA fragmentation, was increased in the UUO group. Notably, there was a significant relationship with increased expression of cleaved caspase3, which was counteracted by TV treatment. Moreover, a comparison with the UUO group revealed that TV significantly enhanced the regulation of autophagy and autophagic flux.

Conclusions: Taken together, our findings suggest that the induction of autophagy protects against UUO induced apoptotic damage via ROS and a p38 regulated pathway in this in vivo model.