

Effect of Polygonum Aviculare L. on Nephrolithiasis Induced by Ethylene Glycol and Ammonium Chloride in Rats

Saremi, J (Saremi, Jamileh)^[1]; Jahromi, HK (Jahromi, Hossein Kargar)^[2]; Pourahmadi, M (Pourahmadi, Mohammad)^[1]

Abstract

Purpose: Nephrolithiasis is a common urinary tract disease, in addition to the pain and treatment costs, there may be significant complications resulting from the stones. This study intended to investigate the effects of Polygonum Aviculare L. aqueous extract (PAE) on urolithiasis induced by ethylene glycol (EG) and ammonium chloride (AC) in rats.

Materials and methods: Sixty-four male Wistar rats were randomly divided into eight groups (n = 8). Rats in the normal control group (I) received no treatment. The sham groups (III and IV) were given PAE at 100 and 400 mg/kg by gavage for 28 days. The disease control group (II), the prevention groups (V and VI), and the therapeutic groups (VII and VIII), received 1% EG and 25% AC in their drinking water for 28 days. The prevention groups (from the start of EG administration), and the therapeutic groups (from the 14th day of EG administration), received PAE at 100 and 400 mg/kg by gavage. At the end of the experiment, kidneys were examined for CaOx deposits and tubulointerstitial changes.

Results: The number of CaOx crystals and tubulointerstitial changes increased significantly in group II rats compared to groups I, III, and IV (P < .001). The number of CaOx crystals (P < .001) and tubulointerstitial changes (P < .001) in the prevention groups, and the number of CaOx crystals (P < .05) and interstitial changes (P < .05) in the therapeutic groups declined significantly compared to group II.

Conclusion: Results show aqueous extract of Polygonum Aviculare L. is effective in the prevention and treatment of kidney stones.

Keywords: ammonium chloride; calcium oxalate; ethylene glycol; nephrolithiasis; Polygonum aviculare; urolithiasis