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**INTRODUCTION & OBJECTIVES:** The aim of this study was to evaluate whether Tamsulosin, an alpha-blocker, has an effect on relaxation in spontaneous ureteral contractility with or without phenylephrine, an alpha-agonist. Additionally, nifedipine, terpene mixture (Rowatinex®) were tested and compared with each other.

**MATERIAL & METHODS:** We obtained ureteral segments by incising the ureter from renal pelvis to bladder from freshly killed eight-week-old rabbit. Preparation was performed in aerated Krebs buffer (95% oxygen and 5% carbon dioxide) at a constant temperature of 37. All segments were suspended into organ tissue baths containing aerated Krebs buffer (37°C) using stainless steel hangers and clips. The ureter divided into four segments; upper, middle, low and uretero-vesical junction. Each ureteral segment was suspended longitudinally and circularly by opposite corners, respectively. The initial tension was set at 1g, which we had found optimal for this preparation in preliminary experiments. The tissues were allowed to equilibrate in Krebs buffer for 1 hour, during which time the tissue bath content was replaced with fresh buffer. Contractile activity was recorded and analyzed by PowerLab data acquisition system (AD instruments CO., USA). Area under the curve was compared between before and after each drug application for each 5 minutes with or without pheylephrine, 10<sup>-5</sup> M. Statistical analysis was performed using the unpaired Student's t test; p<0.05 was considered statistically different.

**RESULTS:** Ureteral smooth muscle relaxation was significantly increased in all segments over 10<sup>-6</sup>M in Tamsulosin, 10<sup>-7</sup>M in nifedipine and 0.001x3 concentrations in terpene mixture (Rowatinex®) (p®), there was a significant increase in ureteral smooth muscle relaxation in most of segments at 0.01x1 concentrations (p<0.05).

**CONCLUSIONS:** Tamsulosin, nifedipine, and terpene mixture (Rowatinex®) showed the effect on spontaneous ureteral contractility. In particular, terpene mixture (Rowatinex®) might have the most ameliorating effect on ureteral smooth muscle relaxation. Future studies are needed to further assess the effects and mechanism of alpha-receptor antagonists on ureteral peristalsis and clinical ureteral stone passage.