

MP34-17 OXALATE CONCENTRATIONS IN HUMAN GASTROINTESTINAL FLUID

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INTRODUCTION AND OBJECTIVES: Animal models have shown that oxalate is both absorbed and secreted within the intestine. Gastrointestinal oxalate absorption has been demonstrated in humans but there are limited data regarding secretion and the conformation of oxalate within the human alimentary tract. The objective of this study was to measure the amount and conformation of oxalate in the stomach and small intestine of adults undergoing upper G.I. endoscopy.

METHODS: Eight adults undergoing endoscopy of the stomach or both the stomach and the small bowel participated in this study. None of the patients had end stage renal disease. All fasted for a minimum of 8 hours. Aspirates from fluid and material within these areas were obtained. Oxalate was measured by ion chromatography. The limit of detection of this technique is 1.5 micro-molar. A determination of the soluble and insoluble components of oxalate was made by centrifugation of the sample and subsequent acidification of the resultant pellet.

RESULTS: Only one of eight gastric samples had detectable oxalate, 4.9 micro-molar. There was no insoluble oxalate in the gastric samples. In contrast, two of six small intestinal samples contained oxalate, 14.6 micro-molar and 130 micro-molar. All intestinal samples had no insoluble oxalate except the 130 micro-molar specimen, 58 micro-grams per gram.

CONCLUSIONS: These results demonstrate that there is no measurable oxalate secretion in the stomach in the fasted state in individuals who do not have end stage renal disease. Our results also indicate that in the majority there is no measurable oxalate secretion in the small intestine in the fasted state in subjects without end stage renal disease. While small intestinal oxalate secretion could have occurred in 2 of the subjects, this oxalate could also have emanated from residual food. Further studies are warranted including in patients with renal dysfunction.

Source of Funding: Departmental

MP34-18 IN VITRO STUDY, THE ROLE OF RHO-KINASE IN URETERAL SMOOTH MUSCLE RELAXATION WITH TAMSULOSIN AND TERPENE MIXTURE (ROWATINEX®)

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INTRODUCTION AND OBJECTIVES: Rho-kinase (ROK) regulate the phosphorylation of myosin light chain through either phosphorylation and subsequent inhibition of myosin phosphatase or direct phosphorylation of Myosin Light Chain on Ser 19 and Thr 18. It has been shown that ROK is important in the regulation of urinary bladder SM contraction and tone. In this study, we focused on the expression of ROK isoforms in response to Tamsulosin and Terpene mixture (Rowatinex®).

METHODS: We obtained ureteral segments by incising the ureter from renal pelvis to bladder from freshly killed eight-week-old rabbit. The ureter divided into two segments; upper and low. We prepared total protein extracts from the each ureter smooth muscle tissues. The drugs were added to aerated Krebs buffer (95% oxygen and 5% carbon dioxide) at a constant temperature of 37° in increasing concentrations and applied consecutively with a 10-min washout with Krebs buffer between each concentration. Only one drug was applied to each ureteric sample, to prevent any risk of cross-reactivity between drugs. We used Western blotting to determine the relative levels of ROK isoform expression at the each drug density.

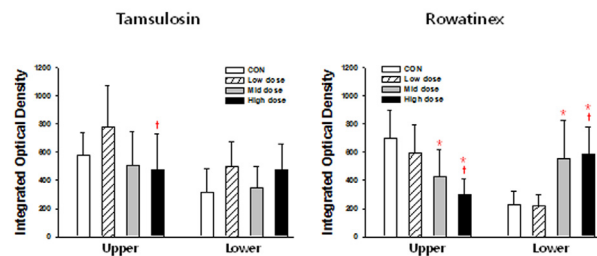
Statistical analysis was performed using the unpaired Student's t test; $p < 0.05$ was considered statistically different.

RESULTS: In Tamsulosin group, upper ureter at high dose was significantly decreased ROK α expression. However in terpene mixture (Rowatinex®) group, upper ureter at middle and high dose was significantly decreased ROK α expression and lower ureter at middle and high dose was significantly increased ROK α expression ($p < 0.05$).

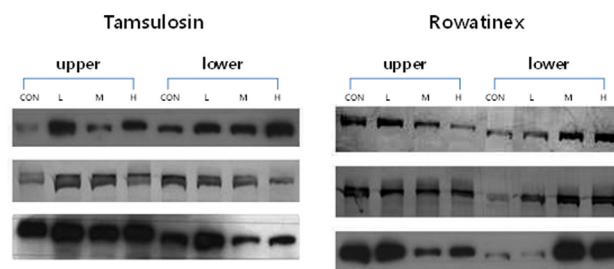
CONCLUSIONS: Tamsulosin in upper ureter at high dose, and terpene mixture (Rowatinex®) in upper at high dose was decreased ROK α expression. It showed the effect on spontaneous ureteral relaxation.

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.

ROK α expression in ureter



ROK α expression in ureter



Source of Funding: none

MP34-19 SURGICAL FACTORS CONTRIBUTING TO THE ACUTE REDUCTION IN RENAL FUNCTION AFTER PERCUTANEOUS NEPHROLITHOTOMY.

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INTRODUCTION AND OBJECTIVES: Percutaneous nephrolithotomy (PCNL) is a minimally invasive surgical option for removing stones from the renal collecting system and involves gaining access to the collecting system by advancing an 18-gauge needle through the skin and kidney until the needle tip enters the urinary collecting system. The needle access tract is subsequently expanded and stabilized so that a sufficiently large channel (nephrostomy tract) is created for the introduction of endoscopic instrumentation to remove stone(s).

Studies in patients and experimental animals have shown that PCNL can acutely impair glomerular filtration and renal perfusion, but the factors contributing to this decline in renal function are unknown. The focus of the present study was to identify the procedural steps in PCNL surgery that contribute to the acute decline in renal hemodynamic function.

METHODS: Acute experiments were performed in 3 groups of anesthetized adult farm pigs: no surgical procedure (n=7); a single-needle stick to access the renal urinary collecting system (n=8); expansion of the single-needle access tract with a 30F NephroMax balloon dilator and insertion of a nephrostomy sheath (n=9). Renal plasma flow was assessed by the renal clearance of para-