

#140 BLEBBISTATIN REVEALS BENEFICIAL EFFECT ON THE CYSTOMETRIC PARAMETERS IN THE ANIMAL MODEL OF THE DETRUSOR OVERACTIVITY

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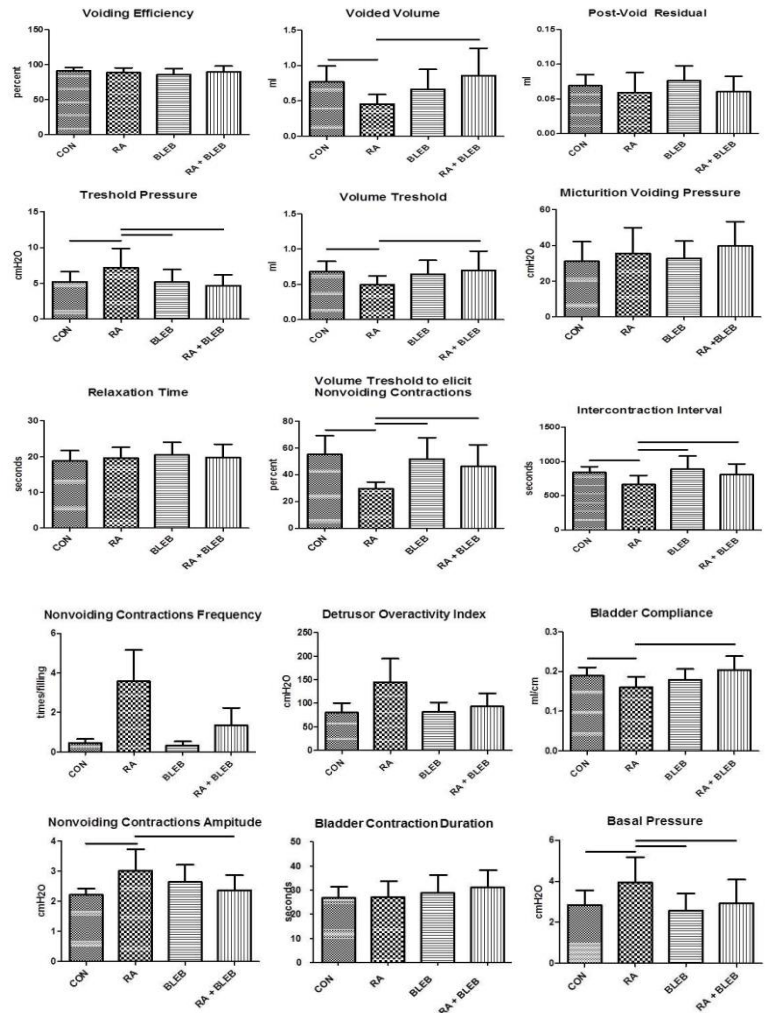
AIM OF THE STUDY

to determine the effectiveness of the blebbistatin (BLEB), on detrusor overactivity (DO) in the animal model and, due to the potential urothelial permeability, to evaluate the potential degenerative impact of the BLEB on the urothelium.

MATERIALS AND METHODS

- ❖ A total of 60 female Wistar rats were used and randomly assigned to one of the following four treatment groups of 15 animals each:
 - ❖ 1. Control (CON)
 - ❖ 2. Retinyl acetate (RA)
 - ❖ 3. Blebbistatin (BLEB)
 - ❖ 4. Retinyl acetate plus blebbistatin (RA + BLEB).
- ❖ The following drugs were used:
 - ❖ Retinyl acetate with a mixture of Polysorbate 80 and saline;
 - ❖ (±)-Blebbistatin: a small cell permeable selective inhibitor of the myosin-ADP-Pi complex blocking the myosin II in an actin-detached state.
- ❖ Animals were catheterised and drug instillation was performed followed by the cystometry and urothelium thickness measurement.
- ❖ Cystometric evaluation was performed 3 days after surgical procedures in conscious unrestrained animals.
- ❖ Conscious cystometry was then performed by slowly filling the bladder with physiological saline at a constant rate 0.05 mL/min to provoke repetitive voiding.
- ❖ The following cystometric parameters were recorded:
 - ❖ volume threshold (VT, ml),
 - ❖ micturition voiding pressure (MVP, cm H₂O),
 - ❖ basal pressure (BP, cm H₂O),
 - ❖ nonvoiding contractions amplitude (ANVC, cm H₂O),
 - ❖ detrusor overactivity index (DOI, cm H₂O/ml),
 - ❖ bladder compliance (BC, ml/cm H₂O),
 - ❖ threshold pressure (TP, cm H₂O),
 - ❖ voided volume (VV, ml),
 - ❖ post-void residual (PVR, ml),
 - ❖ voiding efficiency (VE, %),
 - ❖ intercontraction interval (ICI, s),
 - ❖ bladder contraction duration (BCD, s)
 - ❖ volume threshold to elicit NVC (VTNVC, %),
 - ❖ nonvoiding contractions frequency (FNVC, times/filling phase),
 - ❖ relaxation time (RT, s).
- ❖ After the cystometric assessment, bladder edema and urothelium thickness were measured. Herein, $p < 0.05$ was considered as a statistically significant difference.

RESULTS



- Administration of BLEB alone did not cause any statistically significant differences in measured parameters when compared with the control group.
- Instillation of RA solution into the urinary bladder led to changes in cystometric parameters characteristic for DO.
- An administration of BLEB to rats previously treated with RA resulted in decreases of urodynamic parameters characteristic for DO
- No statistically significant changes in Evans Blue extravasation into bladder tissue and urothelium thickness between the study groups.

CONCLUSION

- ❖ Blebbistatin did not influence the cystometric results obtained in the healthy rats treated with the BLEB
- ❖ It revealed a beneficial effect on the cystometric parameters specific for the DO
- ❖ It was shown not to induce degenerative effect on the urothelium after local administration.

