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MORPHOLOGICAL CHANGES OF BLADDER WITH URETHRAL PARCIAL OBSTRUCTION AND NITRIC OXIDE DEPLETION

Hypothesis / aims of study

Benign Prostatic Hyperplasia is the most prevalent primary cause of lower urinary tract symptons. Despite the high prevalence of benign prostatic hyperplasia among men, the mechanisms responsible for voiding dysfunction induced bladder outlet obstruction are not yet well understood. However, animals are used as experimental models for the study of partial urethral obstruction. Quantitative and qualitative changes of the hypertrophied detrusor include changes in the muscle cells and increased synthesis and deposition of collagen, leading to increased bladder weight. To analyse and compare morphometric features in male mice with parcial uretral obstruction, treated or not with nitric oxide inhibitors.

Study design, materials and methods

Twenty adult male mice that were divided into 4 experimental groups: Sham, Sham + L-name, partial urethral obstruction, partial urethral obstruction + L-name. For hystological analysis of the bladder fragments were processed routinely. These sections were stained with hematoxylin and eosin to verify tissue integrity and Masson's trichrome for differentiation of collagen and smooth muscle. And for immunomarkers used anti-alpha actin antibodies, for smooth muscle density and anti-CD31 antibody for vascular density. As stained slides were photographed at a magnification of 100x, a smooth muscle density, vascular density and cell density of each layer were measured with the aid of ImageJ software. The means of each group were analyzed with ANOVA test with Tukey post-test. All analyzes were performed using the GraphPadPrism software. 0.05. In all cases, the significance is set to a probability value of p.

Results

The Sham + L-name group had a lower luminal density than the other groups ($p = 0.003$). The Sham + L-name group has a higher tissue density of smooth muscle, with $p = 0.0078$. Regarding connective tissue density, no group presented statistical difference, since $p = 0.5516$. The Sham + L-name group had higher vascular density when compared to the other groups ($p = 0.001$).

Interpretation of results

In the present study of the Sham + L-name group, it was the one that presented the biggest difference when compared to the other groups, obtaining lower luminal density, greater smooth muscle density and greater vascular density when compared to the other groups. The treatment did not show significant is not the group that had an obstruction, thus showing that there was no effective treatment.

Concluding message

The present study shows that there are histomorphometric differences in the bladder of the studied groups. It was seen that the use of L-name in the sham group had higher density of luminal tissue, muscle tissue and vascular increase, but did not have any significant histomorphometric alterations in the urethral partial obstruction + L-name group.

References

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Disclosures

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