

PROTEOMIC ANALYSIS OF PROTEINS CHANGED BY BILATERAL ORCHIECTOMY IN THE RABBIT BLADDER

Hypothesis / aims of study

The aim of this study was to investigate the effects of testosterone deprivation on urinary bladder in male rabbits by proteomic analysis.

Study design, materials and methods

New Zealand white male rabbits (2.5-3 kg) were divided into 2 group; control group with 5 rabbits and bilateral orchiectomized group, bilateral orchiectomized group was divided into post-operative 4 weeks group (group 1), and 8 weeks group (group 2) with 5 rabbits respectively. Bladder wall was excised partly at 4 or 8 weeks from the beginning of the experiment. Conventional proteomics was performed with high resolution 2-D gel electrophoresis followed by computational image analysis and protein identification using mass spectrometry. We decided to consider 'significant' if protein had 50% decreasing or 200% increasing expression rate.

Results

A comparison of the bladder of orchiectomy group with control and sham-operative bladder showed that 6 proteins; Serum albumin precursor, GABA transaminase, dimethylarginine dimethylaminohydrolase 2, serum/gluocorticoid regulated kinase and LOC304923 protein were over-expressed in the group1 and group2 compared to control. Annexin A1 was only over-expressed in the group2 compared to control.

Interpretation of results

An overexpression of Annexin A1 and GABA transaminase mean a processing of neuronal reactions to injury in orchiectomized rat bladder. Also an overexpression of dimethylarginine dimethylaminohydrolase 2 would increase NO synthesis and thereby promote re-endothelialization in the rat bladder after orchiectomy. Serum/gluocorticoid regulated kinase would relate to Na transport. Albumin precursor and LOC304923 protein are remained to further research.

Concluding message

These data suggested that bilateral orchiectomy would make the urinary bladder unstable. However more information is needed in human bladder tissue.

<i>Specify source of funding or grant</i>	No
<i>Is this a clinical trial?</i>	No
<i>What were the subjects in the study?</i>	ANIMAL
<i>Were guidelines for care and use of laboratory animals followed or ethical committee approval obtained?</i>	Yes
<i>Name of ethics committee</i>	IRB in Dankook University College of Medicine