1046

Lin A T L[1], Fan Y[1], Chen K[1]
1. *Division of Urology, Department of Surgery, Taipei Veterans General Hospital, and Department of Urology, School of Medicine, National Yang-Ming University, Taipei, Taiwan*

BLADDER BOTULINUM TOXIN A INJECTION DOES NOT AFFECT THE UROTHELIAL INHIBITORY ACTIVITY ON THE DETRUSOR

Hypothesis / aims of study
Botulinum toxin A (BoNT/A) injection effectively relief overactive bladder (OAB) symptoms. However, its effects on the detrusor contractile function remain largely unknown. BoNT inhibits the exocytosis of neurotransmitter, including acetylcholine, from nerve terminals. Acethylcholine (Ach) is the main neurotransmitter responsible for detrusor contraction. Most likely the therapeutic effect of BoNT on OAB partly comes from the inhibition of Ach release from presynaptic nerve endings. But this hypothesis remains to be confirmed. Therefore, we design this project to explore the action mechanism of BoNT on the detrusor contractile function.

Study design, materials and methods
Cystometry was done on male New Zealand rabbits followed by injection of 40 units BoNT/A (N=6) or normal saline(N=6) into the bladder wall. Five days later, cystometry was repeated and bladders were obtained. Contractile responses of detrusor strip with and without urothelium to electrostimulation, potassium chloride and acetylcholine were determined.

Results
(1) Contractile frequency and amplitude of spontaneous activity of detrusor strips were similar between control (normal saline injection) and botulinum-injection (BTX) group; (2) Response to electrostimulation and acetylcholine was lower in urothelium-intact strips in control and BTX group (figure 1 and figure 2); (3) Contractile response to lower frequency (0.1, 0.5, 1, 2, 4, 8 and 16Hz) electrostimulation was lower in BTX group. However, the responses to higher frequency (32,64,128Hz) stimulation were similar between control and BTX group (figure 3); (4) Responses to KCl and acetylcholine were similar between control and BTX group.

Interpretation of results
Urothelial inhibitory modulation on the detrusor was not influenced by BoNT/A injection. BoNT/A injection reduced contractile response of the detrusor to lower frequency electrostimulation.

Concluding message
The result of this project indicates that BoNT/A bladder injection does not affect the urothelial inhibitory modulation on the detrusor. BoNT/A reduces detrusor response to lower frequency electrostimulation. These findings partly explain the therapeutic effect of BoNT/A on overactive bladder.

Figure.1

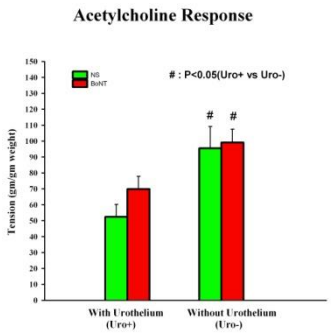


Figure. 2

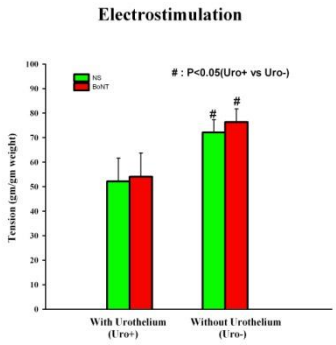
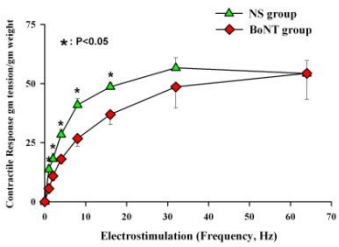


Figure. 3



Specify source of funding or grant	**Taipei Veterans General Hospital in Taiwan**
Is this a clinical trial?	**No**
What were the subjects in the study?	**ANIMAL**
Were guidelines for care and use of laboratory animals followed or ethical committee approval obtained?	**Yes**
Name of ethics committee	**none needed**