are phospholipid bilayered vesicles, and evaluated the urodynamic and immunohistochemical effect on acetic acid induced bladder hyperactivity in rats.
Materials and Methods: Liposomes (1 ml), botulinum toxin A (20 U/1 ml saline) or botulinum toxin A encapsulated in liposomes (lipotoxin, that is 20 U botulinum toxin A plus 1 ml liposomes) was administered in the bladder and retained for 1 hour on day 1 after baseline cystometrogram. Continuous cystometrogram was performed on day 1 by filling the bladder with saline and on day 8 by filling the bladder with saline, followed by 0.3% acetic acid. The bladder was then harvested. Cystometrogram parameters, histology, SNAP25 and calcitonin gene-related peptide expression were measured by Western blotting or immunostaining.
Results: The intercontraction interval was decreased 57.2% and 56.0% after intravesical acetic acid instillation in liposome and botulinum toxin A pretreated rats, respectively. However, rats that received lipotoxin showed a significantly decreased intercontraction interval response (21.1% decrease) to acetic acid instillation but without compromised voiding function. Also, lipotoxin pretreated rats had a better decrease in the inflammatory reaction and SNAP-25 expression, and increase in calcitonin gene-related peptide immunoreactivity than those in liposome or botulinum toxin A pretreated rats.
Conclusions: Intravesical lipotoxin administration cleaved SNAP-25, inhibited calcitonin gene-related peptide release from afferent nerve terminals and blocked the acetic acid induced hyperactive bladder. These results support liposomes as an efficient vehicle for delivering botulinum toxin A without injection.

Editorial Comment

It has been proved that Botulinum toxin A applied as cystoscopic guided injections into the bladder wall have a therapeutic effect on overactive bladder and interstitial cystitis / painful bladder syndrome. Nevertheless, we know well that bladder injection therapy has some limitations, including drug leakage outside the bladder, hematuria, pain at injection sites and uneven distribution. In this way, the authors have been searching for a simpler and lower risk method to deliver Botulinum toxin A without injection.

We know that it is difficult for Botulinum toxin A to access the submucosal nerve plexus in formal use with saline as a vehicle without direct injection to pass the urothelial barrier. Based on previous experience, the authors speculated that delivery using liposomes, which are phospholipid bilayered vesicles, and evaluated the urodynamic and immunohistochemical effect on acetic acid induced bladder hyperactivity in rats.
Their results show that Botulinum toxin A can be combined with liposomes to be administered as a liquid instillation without cystoscopic injection, with good therapeutic results in rats.

To our knowledge, this is the first report of the promise of liquid instillation of Botulinum toxin A. I strong recommend this paper to all physicians involved in research on neurourology.

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Shock wave induced kidney injury promotes calcium oxalate deposition

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Purpose: Extracorporeal shock wave lithotripsy is the preferred treatment for upper urinary tract renal calculi. However, this treatment is associated with a high rate of recurrent renal calculi. Shock wave therapy can result

in renal epithelial cell injury, which in turn is a most important factor in calculus formation. We investigated the influence of kidney damage secondary to shock waves on Ca oxalate crystal retention in the kidney.
Materials and Methods: A total of 32 rats were randomly divided into 4 groups, including group 1--controls, group 2--sham treated rats given 25 ml 0.75% ethylene glycol per day for 14 days, group 3--rats given 15 kV 1 Hz shock waves 500 times to the left kidney, followed by 25 ml 0.75% ethylene glycol daily for 14 days, and group 4--rats with the same treatment as group 3 except the number of impacts was increased to 1,000. The 2 kidneys were removed at the end of the experiment. Ca oxalate crystals were observed by surgical microscopy in kidney sections stained with hematoxylin and eosin. Crystal morphology was determined using polarizing microscopy. Acidified kidney tissue homogenate was examined for Ca and oxalate content by colorimetry (Sigma).
Results: Kidney sections showed that kidneys that did not receive shock waves had fewer crystals than kidneys with shock waves, which had crystals in major areas. In the left kidney in groups 2 to 4 the mean +/- SD quantity of Ca was 16.88 +/- 6.41, 28.58 +/- 7.54 and 40.81 +/- 15.29 micromol/gm wet kidney and the mean quantity of oxalate was 8.44 +/- 6.80, 20.52 +/- 7.70, 31.76 +/- 14.14 micromol/gm wet kidney, respectively. Ca oxalate density increased with the number of shock wave impacts.
Conclusions: Kidney damage caused by shock wave treatment can increase Ca oxalate crystal retention in the kidneys of rats in this stone model.

Editorial Comment

The authors elegantly demonstrated in a rat model that shock wave therapy results in proximal tubular injury in a dose dependent manner. Also, this was associated with a markedly increased deposition of CaOx stones in kidney tissue.

The study is provocative, since we know that extracorporeal shock wave lithotripsy is associated with a high rate of stone recurrence. The main shortcoming of the study is the use of a rat model, which have a kidney very different from humans. Probably, further studies in pigs, which have kidneys very similar to human kidney, would better clarify this issue.

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RECONSTRUCTIVE UROLOGY

Urethral lengthening in metoidioplasty (female-to-male sex reassignment surgery) by combined buccal mucosa graft and labia minora flap

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Objectives: To develop a technique for urethral reconstruction using a combined labia minora flap and buccal mucosa graft. Urethral lengthening is the most difficult part in female transsexuals and poses many challenges.
Methods: From April 2005 to February 2008, 38 patients (aged 19-53 years) underwent single-stage metoidioplasty. The technique starts with clitoral lengthening and straightening by division of both clitoral ligaments