

DETRUSOR INJECTION THERAPY WITH BOTULINUM TOXIN UNDER LOCAL ANESTHESIA

Hypothesis / aims of study

Botulinum toxin injection therapy under local anesthesia is only sporadically mentioned in the literature. No clear statement on preparation or dosage can be found in the relevant guidelines. In some reports this therapy is mentioned as an option, but it is nowhere described in detail, although widely in use for years.

Study design, materials and methods

From 2003 through 2013 we treated 320 patients (238 women, 82 men) with botulinum toxin. We treated 311 patients with detrusor injections, 5 patients with injections into the external sphincter, and 4 patients with injections into the prostate. We used onabotulinumtoxinA in 261 cases, incobotulinumtoxinA in 49 cases, and abobotulinumtoxinA in 10 cases, respectively. 176 injections were performed under general anesthesia, 144 injections under local anesthesia. We used a mixture of 50 ml lidocaine 1% and 50 ml sodium bicarbonate 8.4% that was administered into the bladder after complete emptying with disposable catheter. Prior to injection the solution was left in the bladder for a minimum of 15 minutes. In men we used additional lidocaine gel for the urethra. Only in some few cases we used additional sedation if desired by the patient. Almost all procedures were performed with a rigid cystoscope (flexible only when a urostoma was present).

Results

By alkalization with sodium bicarbonate the pH of the lidocaine solution increases from ~6.6 to ~7.8 and lidocaine is therefore transformed into a free base. With this alkalization the local anesthetic becomes lipophilic and can penetrate the urothelium more easily. By adding epinephrine to the solution this effect can be reversed and it is therefore not recommended to use a combined solution with epinephrine. Since 2006 the percentage of our patients who were treated under general anesthesia dropped from 100% to 11,6%, and the portion of local anesthesia rose from 0% to 88,4%. Scarcely the injection under local anesthesia was perceived as painful, no treatment needed to be interrupted.

Interpretation of results

The injection therapy with botulinum toxin under local anesthesia is safe and as effective as with general anesthesia. This is true for all types of botulinum toxin and all commonly used dosages. Neurogenic patients with spinal cord lesions at or above Th6 are at risk for autonomic dysreflexia and therefore need at least an anesthesiological stand-by. The injection itself is safer, quicker, and more precise with a rigid cystoscope. The procedure as a whole is more convenient for the patient and less expensive when performed under local anesthesia.

Concluding message

The injection therapy with botulinum toxin under local anesthesia is very well accepted both by men and women. Key issues are the addition of sodium bicarbonate to lidocaine for the anesthetic solution and a time of exposure of at least 15 minutes before injection.

Disclosures

Funding: NONE **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** Retrospective observational study **Helsinki:** Yes **Informed Consent:** Yes