

OUTCOMES OF INTRADETRUSOR ONABOTULINUMTOXINA INJECTION IN ADULTS WITH CONGENITAL SPINAL DYSRAPHISM IN TERTIARY TRANSITIONAL UROLOGY CLINIC

Hypothesis / aims of study

Data regarding intradetrusor injection of onabotulinumtoxinA (OnabotA) in adult patients with congenital spinal dysraphism is lacking.[1] In this study, we retrospectively investigated the outcomes of intradetrusor injection of OnabotA in adults with congenital spinal dysraphism.

Study design, materials and methods

Billing codes were used to identify 149 patients who underwent OnabotA injection in the clinic or the operating room between 2012–2016 by four neuro-urologists. Charts were reviewed to determine which of those had any kinds of congenital spinal dysraphism. Detailed retrospective chart review was then performed for findings before and after OnabotA injections. Comparison between clinical and urodynamic findings before and after intravesical injection of OnabotA was done. Statistical analyses were performed by t test and McNemar's Chi-squared tests for comparing 2 dependent means and 2 paired categorical data respectively.

Results

A total of 18 (8 males and 10 females) patients with history of congenital spinal dysraphism were identified. 14 patients had myelomeningocele, 2 sacral agenesis, 1 tethered cord, and 1 occult spina bifida. 3 patients had augmentation cystoplasty with continent cutaneous channel. 2 patients had only augmentation cystoplasty and 3 patients had only a continent cutaneous channel. 17 (94.44%) patients were on clean intermittent catheterization (CIC) through their urethra or stoma. The other patient was able to void spontaneously with a negligible post-void residual of urine. All patients reported refractory urinary incontinence (UI) from native urethra or continent cutaneous channel. After excluding one patient who needed renal transplantation, mean creatinine values before treatment was 0.63 (\pm 0.07) mg/ dL. 5 (27.7%) patients had hydronephrosis at the baseline on renal ultrasound. All patients completed urodynamic study (UDS) prior to OnabotA injection. Mean age at 1st OnabotA injection was 20.76 (\pm 3.03) years. A total of 57 OnabotA injections (200 U and 300 U in 52 and 5 injections respectively) were performed in the included patients. Mean OnabotA injection repetitions was 3.1 (\pm 1.7) times.

UI improved by OnabotA injection in 81.25% of patients and 63.66% of them became completely dry ($p=0.023$). Mean creatinine value after treatment was 0.77 (\pm 0.09) mg/ dL ($p=0.13$). Degree of hydronephrosis improved in 3 of 4 (75%) patients who had follow-up imaging. Mean bladder compliance before treatment in patients in whom degree of hydronephrosis improved and its value in the one that it was not improved were 44.3 (\pm 14) and 10.8 ml/cmH₂O respectively. Repeat UDS after injection was done in 11 patients who did not clinically improve or who had loss of bladder compliance on their baseline UDS. Mean bladder compliance before treatment in this high risk group of patients vs. low risk patients who did not receive UDS post treatment were 29.3 (\pm 31.5) and 67.2 (\pm 68.6) ml/cmH₂O respectively. In the high risk patients, mean maximum cystometric capacity (MCC) before and after injection was 310.18 mL and 380.27mL ($p=.045$). Mean bladder compliance before and after treatment was 29.26 ml/cmH₂O and 28.76 ml/cmH₂O respectively ($p=0.48$). Neurogenic detrusor overactivity (NDO) was observed in 62.5% and 50% of patients before and after treatment ($p=0.5$).

Interpretation of results

Our study showed refractory UI improved by intradetrusor OnabotA injection in 81.25% of adult patients and 63.66% of them became dry. In the high risk group, mean MCC also improved significantly with the treatment. Our short term follow-up data shows mean creatinine was stable and hydronephrosis improved in most patients who had hydronephrosis before treatment. Compliance did not improve with OnabotA injection in the high risk group. This finding is compatible with a study done by Horst M et al. in which bladder compliance did not improve with OnabotA injection in 10 of 11 children with neurogenic bladder who had poor baseline compliance.[2] Tiryaki et al. also concluded that botulinum injection is useless on fibrotic neuropathic bladders with poor baseline compliance.[3]

Concluding message

Intravesical OnabotA injection may improve refractory urinary incontinence in selected group of adults with congenital spinal dysraphism. However, despite improvement in maximum cystometric capacity, bladder compliance does not seem to improve following therapy in patients who had loss of compliance at baseline. Earlier intervention might be more beneficial in this specific patient population. Future prospective and multicentric trials are needed to evaluate the effects of OnabotA in adults with congenital spinal dysraphism.

References

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Disclosures

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