

TREATMENT WITH INTRAVESICAL ELECTRICAL STIMULATION OF ADULTS WITH UNDERACTIVE DETRUSOR MUSCLE.

Hypothesis / the aims of the study

Can intravesical electrical stimulation with physiological parameters retrieve a normal bladder function in adults with underactive detrusor muscle?(1)

The study design, materials and methods

After the local ethical committee approval, eleven patients with underactive detrusor muscle function of neurogenic pathology were invited to participate in the study. They all underwent neurological status examination and cystoscopy. Treatment was given after randomised selection in 20 or 40 sessions with 20 minutes intravesical electrical stimulation twice a day. The effects were evaluated before and after by urodynamics and frequency/ volume charts for three days, a questionnaire of bladder emptying and health questionnaire SF-36..

Results

The included patients had symptoms of underactive bladder of a duration of 1,5 to 11 years and four of them had symptoms of less than 5 years duration. The person with the shortest time period from injury obtained normal bladder function in 4 weeks after her 40 sessions treatment period with at 6 months follow up still remaining normal bladder function. Two persons could after treatment empty their bladders at volumes of 100-200 ml without straining, but had residuals of 140-170 ml in average and with infrequent CIC (clean intermittent catheterisation) the same results after 6 months. Five people still used CIC and one of them could after treatment empty a small amount at large bladder volumes. Three persons could empty their bladders by straining like before start of treatment, for two of them half the bladder and the remaining the whole amount.

First sensation was felt by 8/11 before and 10/11 after treatment.

The experience of the IVES (intravesical electrical stimulation) treatment was found to be easier than expected by 3 persons and by another 3 a rather easy experience. Three other persons could stand the treatment whereas 2 found it unpleasant.

Health questionnaire SF 36 (index 50/50) showed no general health improvement in the group (9/11), as a whole before and 6-9 months after treatment. Four (4/9) had a psychological health index between 32-40 before treatment that increased to index 46-49 after.

Interpretation of results

A statistical analysis of the effects of 20 or 40 stimulations is not possible due to the small number of persons treated. That only one person was fully helped by the IVES treatment made it necessary to evaluate the project due to the considerable time needed for treatment by personnel and persons treated. Technical evaluation shows not to be maximised with 3 different companies involved in the appliances used. For home treatment a learning period of one week instead of expected 2-3 days is considered to influence the outcome by too few treatments.

In earlier reports it is pointed out that an early start of IVES treatment after injury/ sickness has a beneficial effect on the outcome and so better results on a hypo-contractile detrusor function than on an a-contractile.(2,3) Improvement in bladder sensation received by IVES treatment maybe an indication for further treatments.(3)

A health questionnaire in a small material like ours might only show tendencies, as CIC had no influence on the level of health and was met by a greater acceptance after IVES-treatment.

The subjects in our study were not examined by neuro-physiologically investigations e.g. by evoked potential test of the vesicourethral junction. Maybe this could have been useful for a better selection of patients and prediction of outcome.

Concluding message

Intravesical electrical stimulation can normalise micturition function in persons with underactive detrusor. However just one of eleven persons in present study benefited from the treatment, the one with the shortest period of injury. It can not be excluded that further treatments may give a greater response rate. Improvements in selection of patients to better predict the outcome of IVES-treatment is needed.

References

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2. Persistent postoperative urinary retention treated with transurethral intravesical electrostimulation. *Acta Obstet Gynecol Scand* 1995;74:842-845
3. Restoration of micturition in patients with acontractile and hypocontractile detrusor by transurethral electrical bladder stimulation. *Neurourol Urodyn* 1996;15:489-497.

FUNDING: NONE

DISCLOSURES: NONE

CLINICAL TRIAL REGISTRATION: This clinical trial has not yet been registered in a public clinical trials registry.

HUMAN SUBJECTS: This study was approved by the Researchethics committee of Karolinska Institute, Regional, Stockholm, Sweden and followed the Declaration of Helsinki Informed consent was obtained from the patients.