391

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OUTCOMES OF ALPHA1-BLOCKER TREATMENT IN NEUROGENIC AND NON-NEUROGENIC PATIENTS WITH BLADDER EMPTYING DISORDERS

Hypothesis / aims of study
This investigator initiated retrospective open-label trial analysis wether an alpha blocker treatment can avoid clean intermittent catherization in patients suffering from bladder emptying disorders.

Study design, materials and methods
Patients suffering from bladder emptying disorders of an unknown cause or due to neurogenic diseases were enrolled. All patients underwent a cystoscopy to exclude a mechanical obstruction. The first half of the patients had 2-3 EMG-Uroflows followed by a cystometry and pressure flow studies. The second half only had EMG-Uroflows. Patients with dysfunctional voiding or detrusor-sphinkter-dyssynergia were excluded. Respecting the fact, that urodynamic parameters measured are gender depend, the patient were subgrouped in females and males. Postvoid residual volume was measured by ultrasound with a 3.5mgHz transducer.
In children Detrusor thickness was measured with a bladder volume of at least 50% by a 5mgHz transducer.
Patients were treated with the following selective or non-selective alpha blockers: Alfuzosin IR, Tamsulosin ER, Terazosin IR, Doxazosin IR and Phenoxybenzamin IR. All patients were followed up by EMG-Uroflows and measurements of their post void residual. Adverse events were also surveyed.

Results
37 adults and 3 children were enrolled, 26 females and 11 males, age 22-78years, mean=54,19years (women) and 39,36years (male). Four women were older than 70 years. Also there were 2 girls aged 7 and 11 years and 1 boy aged 11 years included.
Diagnosis comprised 7 patients with vertebral surgery, 3 patients with pelvic surgery, 1 patient with myelomenigocele, 8 patients with multiple sclerosis, 1 patient with Parkinson's disease and 1 patient with fibromyalgia. 16 patients were classified as non-neurogenic/idiopathic because no underlying disorder could be identified.
Patients were treated with Alfuzosin 2/3x5mg n=13, Tamsulosin n=9, Terazosin n=5, Doxazosin n=3 and Phenoxybenzamin n=7. 2 patients treated with Alfuzosin 2x5mg changed to Tamsulosin due to side effects of their blood pressure and 2 patients changed from Tamsulosin to Alfuzosin due to lack of efficacy. In the 7 patients treated with Phenoxybenzamin 3 had severe blood pressure side effects. 4 patients showed a lack of efficacy.
Qaverage increased from 4.3 ml/s to 10.7ml/s in females treated with selective alpha1 blockers (sAB), but from 6ml/s to 6.8ml/s in the Phenoxybenzamin treatment group. In those 3 patients who changed to Terazosin Qaverage improved to 9.9ml/s. Post void residual volume in females decreased from 121ml to 28ml (43%) in sAB . In Phenoxybenzamin post void residual volume only decreased from 168.3 to 141ml (11.9%). Qmax was no reliable parameter.
In males Qaverage increased from 7.6 to 10.03ml/s and post void residual decreased from 116.6 to 14.5ml (80%). Again Qmax was no reliable parameter. No male patient was included in the Phenoxybenzamin treatment group.
All patients had a staccato or prolonged plateau shaped flow curve which changed to improved to bell or plateau shaped flow curves. Efficacy in reduction of their post void residual volume was not sufficient enough in 3 Patients, so a clean intermittent catherization program was introduced.
In children the 11 year old girl was diagnosed as juvenile multiple sclerosis, the underlying cause of the 7 year old was not known so she was assumend as idiopathic and the 11 year old boy suffered from dysfunctional voiding. Results were comparable to adults with an increase of Qaverage from 10 to 15ml/s and a reduction of post void residual from 72 to 15,67ml (45,9%). Flow curves improved to bell shape.

Interpretation of results
Treatment with selective alpha1 blockers was efficacious concerning reduction of post void residual volume and improvement of bladder emptying. IR formulations showed to be more efficacious than ER formulations. Side effects in this treatment group were mild, so it was a safe treatment. In children interestingly no side effects occurred and treatment was efficacious and safe. Non-selective alpha blockers (Phenoxybenzamin) were less efficacious and showed severe blood pressure side effects and therefor were categorized to be less safe. Only in 3 patients treatment with selective alpha blockers was not sufficient enough to avoid clean intermittent catherization.

Concluding message

Selective alpha1 blocker treatment is an efficacious treatment in functional bladder emptying disorder and well tolerated.

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

HUMAN SUBJECTS: This study did not need ethical approval because Ethical approval is not necessary since the study is a retrospective, post-marketing study with a drug that has been approved by the necessary authorities for the German market ; please note that all other ethical questions do not apply for this matter but followed the Declaration of Helsinki Informed consent was obtained from the patients.