

# Can the Low Dose Antimuscarinics after Botulinum Toxin Type A (Dysport) Injection in Overactive Bladder Reduce the Probability of Reinjection?

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## Citation

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## Abstract

Introduction: Dysport is used for the treatment of patients with OAB refractory to Anticholinergic drugs in recent years, but it needs to be reinjected after 6-9 months which results in spending more time and money and other reinjection problems. This study tries to find a way to reduce the probability of Dysport reinjection. Methods: Between 2008 and 2010, 35 patients with OAB refractory to oral treatment were included in before and after trials after ICIQ-UISF questionnaire filling, physical examination and urodynamic study. Then, all patients were injected 800 units Dysport in Detrusor muscle. Two weeks later, low dose prescription of Tolterodin tablet began. The outcome of the injection was evaluated and analyzed 6 and 12 month after the injection by using ICIQ-UISF questionnaire. Results: The patients were in the ages between 29 and 70. Twenty two patients suffered only from urge incontinency while 9 of them had mixed incontinency which showed that urge incontinency was more

common. At the beginning of the study, the mean ICIQ score was 14.48-/+4.5 that reduced to 🙄+6 after 6 months. This score

did not change after a period of 12 months. Conclusion: Mixed treatment i.e. the injection of Dysport and the low dose prescription of Tolterodin may reduce the probability of reinjection. However, further studies involving more patients seem to be necessary.

## INTRODUCTION

OAB causes urge incontinency and greatly affects the quality of life. Anticholinergic drugs inhibit postganglionic Muscarinic receptor in Detrusor muscle which leads to the inhibition and reduction of involuntary Detrusor muscle contraction. Therefore antimuscarinic drugs become first line for OAB treatment. However, 25-40% of these patients were reported to be unresponsive to this treatment (2). Dysport is used for OAB treatment in recent years. The injection of Dysport in bladder for OAB treatment has been approved by FDA. Dysport causes the inhibition of Ach release from the presynaptic nerve terminal. With intradetrusor injection, Detrusor voluntary contraction is suppressed. Recent studies have shown that Dysport has effects on sensory receptor in suburoterium such as the reduction of the level of TRPV1 and P2X3. All these data help support the belief that Dysport works to treat OAB by both sensory and motor pathway and may have positive effect on bladder wall structure and fibrosis(5). On the other hand, patients who received Dysport injection had less

fibrosis in bladder wall compared to those who did not(5). While Dysport bladder injection offers both objective and subjective incontinence control, treatment duration is limited by the gradual reinnervation of injected tissue over an approximately 6 to 9 months interval (5). Recent study shows that low dose antimuscarinic drugs via c-fiber can have positive effect on sensory urgency (7). Since Dysport leads to the inhibition of bladder wall fibrosis, the continuation of the treatment with low dose antimuscarinic drugs after Dysport injection will reduce or postpone the probability of reinjection with less side effects. The aim of this study was to evaluate the efficacy of low dose oral antimuscarinic after the injection of Dysport to the bladder and the need for reinjection. It was carried out as a before and after study in Tabriz University Hospital.

## METHODS

Female patients aged more than 18 showing symptoms of Urgency incontinence refractory to oral anticholinergic were included in the study. Patients with symptomatic urinary

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tract infection, bladder lithiasis, bladder cancer, pregnancy and myasthenia were excluded from the study. 35 female patients with the average age of 54 were introduced to urodynamic clinic after ICIQ questionnaire and physical examination. All patients underwent Dysport injection when their OAB with urodynamic study was approved. In the operation room and under general anesthesia, they were injected 800 units of Dysport mixed with 5 ml normal saline serum by special needle under cystoscopic guide into 30-40 sites of the Detrusor and sparing Terigone. After Dysport injection, the patients were monitored in the outpatient ward at three month intervals with ICIQ questionnaire. The collected data were analyzed via SPSS 16, using multiple measurement statistical method.

### RESULTS

The average age of 35 patients included in the study was 54.5 ranging from 29 to 70 years old. Three of them were excluded because they did not respond to the injection. Based on urodynamic findings, maximum cystometric capacity mean was 168-/±58 , peak Detrusor pressures' mean was 44-/±19 and post void residual urine, mean was 14-/±22. Urodynamic pattern for OAB was phasic in 75% of the patients and was terminal in the others. 71% of the patients (n=22) suffered only from urge incontinency while 29% (n=9) had mixed incontinency which showed that urge incontinency was dominant. The mean ICIQ in baseline, 6 and 12 months after the injection are presented in Table 1. Table 2 shows that the mean ICIQ-UISF score has been statistically meaningful. ( $p<0/001$ )

The Figure 1 indicates that there is substantial statistical difference in Bonferroni examination except in interval 2 and 3.

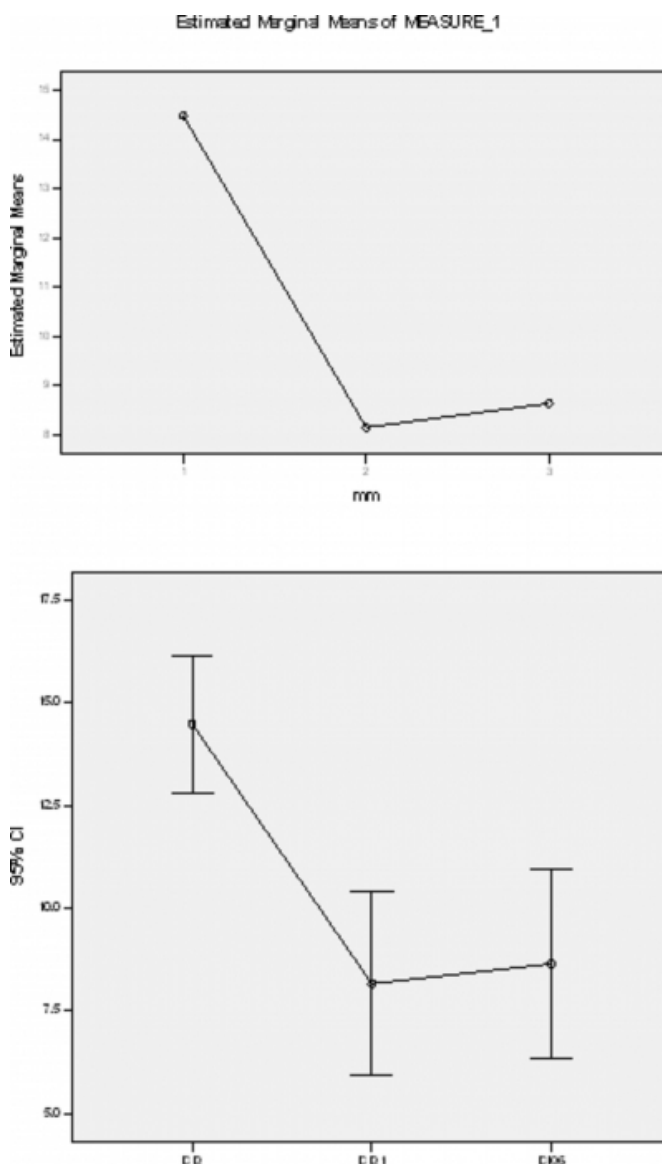
**Figure 1**

Table 1 The mean ICIQ in baseline, 6 and 12 months after the injection

	Mean	SD	N
ICIQ-1	14.4839	4.55976	32
ICIQ-2	8.1613	6.12153	32
ICIQ-3	8.6452	6.24259	32

**Figure 2**

Figure 1 Bonferroni examination



### DISCUSSION

Follow-ups in a period of 12 months showed that there was not any recurrence needing reinjection. Repetitive measurement examination with General Linear Model showed that every individual had reached a stable improvement during this period in comparison to what they were before. As Bonferroni examination showed, during a period of 6-12 months after injection, a significant improvement was recognized. The efficacy of the treatment was to be about 91/7 which is comparable to those in other studies. As mentioned before, Dysport can have both sensory and motor effect on bladder wall. Mixed treatment of the patients with the two mechanisms can prolong medication efficacy. Dysport affects preganglionic site and assures

Detrusor paralysis. The question that may be raised here is that Dysport injection would not be needed if oral treatment was effective, so Dysport did not seem to be necessary for these patients. To answer this, studies showed that in the early weeks after the injection, Dysport had effect on the fibrosis bladder wall inhibition which leads to an increase in functional bladder capacity. This procedure paves the way for the efficacy of Anticholinergic drugs (5). Patients injected Dysport were reported to have no side effect which needed treatment. However, those who received low dose Tolterodin complained about constipation and dry mouth. It seemed that patients were responsive to low dose Tolterodin. Low dose proved to be effective for lowering sensory urge. As far as we know, this is the first study in this way which introduces mixed treatment by Dysport multipotential capacity. The desired responses to the treatment were about 91% similar to our previous study that Dysport had been used. It should be noted that more controlled and clinical studies with more patients and longer evaluation are needed in order to confirm or reject this hypothesis.

## **CONCLUSION**

Mixed treatment i.e. the injection of Dysport and the low dose prescription of Tolterodin may reduce the probability of reinjection. However, further studies with more patients are necessary to be carried out.

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