Female or Male Lower Urinary Tract Symptoms

Can Dopamine Depletion at DAT Scan in a Non Parkinson Patient be the Cause a Refractory Overactive Bladder?

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A B S T R A C T
We report here the first case of treatment of idiopathic refractory overactive bladder with dopamine. A female patient consulted for urge incontinence. Management included all recommended treatments without success. DAT scan was finally performed showing clear reduction in dopamine secretion without diagnosis of any neurological condition. Patient started dopamine treatment. At 1 month, patient described persistence of mild urgency and frequency but complete resolution of urge incontinence. At 3 months patient was completely dry with only persistence of mild frequency. Functional imaging and central nervous system target might represent new ways of managing idiopathic overactive bladder.

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Introduction

Overactive bladder is a urological syndrome which affects 13–16% of the population1 and focus point of the neuro-urological world due to its socially invalidating symptoms (urgency and incontinence). Nevertheless it remains a complex matter as its etiology is multifactorial (neurogenic, non neurogenic, idiopathic) and its physiopathological mechanism localized at various levels and yet to be clearly known. For this matter in the last 20 years it has been subject of various studies with following implications in treatment, advocated by guidelines, which goes from behavioral therapy, to oral drugs (anti-muscarinics and recently beta adrenergics) intracavitary drugs (vanilloids: non longer in use) intradetrusorial drugs (botox) and nerve stimulation (neuromodulation, PTNS).

Addressing this matter, Andersson introduced the concept of possible central nervous system targets by reviewing all neurotransmitters involved at a central level. He emphasized however the fact that a selective action on the lower urinary tract might be difficult to obtain and is infact yet to demonstrate in non neurogenic patients.2

We report here what we believe to be the first case of a patient treated successfully with dopamine for idiopathic refractory overactive bladder after evidencing depletion by DAT scan.

Material and methods

A 49 year old female patient come to our observation in 1989 for a symptomatic incontinence (more than 3 diapers/day wet) initially falsely labeled as stress incontinence, which persisted without any improvement nor modification of symptoms after colposuspension according to Burch. Our initial work-up included video-urodynamics which concluded at urge incontinence from detrusor overactivity. Patient subsequently underwent full neurological evaluation as well as urological work-up to rule out any neurogenic (Parkinson’s disease) or non neurogenic origin to finally conclude to urge incontinence in a context of idiopathic overactive bladder. Initial treatment included lifestyle treatment and adjunction of oxybutynin without any success. Patient...
treatments (Fig. 2) were used without any success, bringing up the idea that we do not know yet everything about the pathophysiology of overactive bladder. Andersson describes that central dopaminergic pathways may have facilitatory and inhibitory effects on micturition by actions through D1-like and D2 like dopaminergic receptors. This has already been described in Parkinson’s disease affected patients but not in non neurological patients, where an involvement of dopamine depletion has yet to be demonstrated. We believe in the importance of presenting this case for two reasons: it is the first description of dopamine use for successful treatment of refractory idiopathic overactive bladder. Second it introduces DAT scan imaging as a possible tool in patients non responders to current treatment options. This case presentation does not claim to have found a new treatment option but opens the way for new research which might confirm the use of imaging for overactive bladder diagnosis.

Furthermore if a correlation between symptoms and imaging is found central nervous system target might finally be confirmed as treatment options in which could therefore be more defined as undisclosed neurogenic overactive bladder than idiopathic. It is important to emphasize once again that this report should be a preliminary for a structured randomized study.

Conclusion

This represents for us an interesting case as it shows for the first time a possible correlation between voiding symptoms and central nervous system deficit, demonstrated through imaging. If this is confirmed in other patients, central nervous system deficit may be recognized as a cause of bladder instability in non neurological patients and central nervous targets might be confirmed as treatment options. Furthermore this might lead to a modification of terminology switching from idiopathic overactive bladder to a more meaningful “undisclosed neurogenic” overactive bladder.

Conflicts of interest

There were no conflicts of interest.

References

1. Irwin DE, Hunskaar S, Reilly K, et al. Population-based survey of urinary incontinence, overactive bladder, and other lower urinary tract symptoms in five countries: results of the EPIC study. *Eur Urol*. 2006 Dec;50(6):1306–1314.

2. Andersson KE. Treatment of the overactive bladder: possible central nervous system drug targets. *Urolgy*. May 2002;59(Supp. 5A).

3. Spinelli M, Lazzari M. Intravesical vanilloids and neurogenic incontinence: a 10 Year Experience. *Urodinamica*. 2003;13:9–14.

4. Berger Y, Blaivas JG, DeLa Rocha ER, et al. Urodynamic findings in Parkinson’s disease. *J Urol*. 1987;138:836–838.