122

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DOES ANTIMUSCARINIC THERAPY EXACERBATE VOIDING DIFFICULTIES?

Aims of Study

Antimuscarinic therapy, in conjunction with bladder retraining, remains the management of choice for women complaining of symptoms suggestive of an overactive bladder and a urodynamic diagnosis of detrusor overactivity (1). The development of newer long acting, and highly specific, antimuscrinics has reduced adverse effects such as dry mouth, constipation and somulence although there is a lack of documented evidence regarding their effect in women with concomitant voiding difficulties. The purpose of this study was to investigate the hypothesis that by suppressing spontaneous detrusor contractions antimuscarinic therapy may worsen symptoms of voiding difficulty and lead to a reduction in flow rates and increasing urinary residuals.

Methods

Women were recruited prospectively from a tertiary referral urodynamic clinic. All complained of troublesome lower urinary tract symptoms and underwent videocystourethrography including uroflowmetry, cystometry and pressure/flow voiding studies. Residual urine volumes were measured at catheterisation following uroflowmetry and again after the pressure/flow study. A residual of 100mls or greater on either occasion was taken to be significant. Urethral Pressure Profilometry (UPP) was performed in each case to exclude those women with voiding difficulties secondary to outflow obstruction. Those women with a urodynamic diagnosis of detrusor overactivity and a significant urinary residual were recruited to the study and commenced on antimuscarinic medication. Clinical assessment with a free urinary flow rate and ultrasound urinary residual was performed whilst taking medication at a scheduled follow up visit. All studies were performed in accordance with ICS Guidelines for Good Urodynamic Practice (2). Urinary symptoms and urodynamic parameters were analysed before and during antimuscarinic treatment using the Wilcoxon Signed Ranks test (SPSS, V10).

Results

In total 39 women were recruited to the study over an 18 month period. Mean age was 55 yrs (range 23 yrs – 82 yrs) and mean duration of follow up was 24 weeks (range 3 weeks – 306 weeks). All women had an objective diagnosis of detrusor overactivity with voiding difficulties; the urodynamic findings are shown below **[Table1]**. Antimuscarinic therapy was prescribed in keeping with unit protocol and at standard dose regimens (Tolterodine 2mg bd, Oxybutynin 2.5 – 5mg tds, Detrusitol XL 4mg od and Ditropan XL 10 – 30mg od.) **[Table 2]**.

Urodynamic Diagnosis	No (%)
Systolic detrusor overactivity	7 (18)
Provoked detrusor overactivity	12 (31)
Provoked and systolic detrusor overactivity	9 (23)
Low Compliance	12 (31)
Detrusor overactivity and urethral sphincter incompetence	6 (15)

Table 1: Urodynamic Diagnosis

Antimuscarinic Drug	No (%)
Tolterodine (Immediate Release)	20 (51)
Oxybutynin (Immediate Release)	8 (21)
Tolterodine (Extended Release) - Detrusitol XL	8 (21)
Oxybutynin (Extended Release) - Ditropan XL	3 (8)

Table 2: Antimuscarinic Therapy

Statistical analysis revealed a significant improvement in symptoms of urgency, frequency and nocturia with antimuscarinic therapy although there was no significant deterioration in symptoms of voiding difficulty, poor stream and recurrent lower urinary tract infection **[Table 3]**. In addition there was no significant decrease in urinary free flow rate or increase in residual volume whilst taking antimuscarinic medication **[Table 4]**.

Lower urinary Tract Symptoms	Pre- Treatment (%)	Post–Treatment (%)	p value
Urgency	92	44	**0.000**
Frequency	74	30	**0.000**
Nocturia	69	30	**0.000**
Voiding Difficulties	21	15	0.414
Poor Stream	13	5	0.257
Recurrent Urinary Infection	8	10	0.655

Table 3: Lower Urinary Tract Symptoms before and during anti-muscarinic therapy

Urodynamic Parameters	Pre- Treatment	Post -Treatment	p value
Mean free flow rate (mls/s)	14.0	17.7	0.057
Mean urinary residual (mls)	96	63	0.289

Table 4: Urodynamic Findings before and during anti-muscarinic therapy

Conclusions

To the best of our knowledge this is the first study to investigate the effect of anti-muscarinic therapy in women with detrusor overactivity and mild voiding difficulties. It is reassuring that despite significantly improving symptoms of an overactive bladder there appears to be no increase in symptoms such as recurrent lower urinary tract infections or slow stream which are suggestive of worsening voiding difficulties. In addition objective testing shows no evidence of diminished urinary flow rates and increasing residual volumes in those women taking anti-muscarinic therapy. This study provides reassurance that prescribing anti-muscarinics to women with detrusor overactivity and concomitant mild voiding difficulties is safe and there is no requirement to monitor residuals if the women themselves remain asymptomatic.

References

1. BJU Int 1999; 84: 923
2. Neurourol Urodyn 2002; 21 (3): 261.