

AMBULATORY URODYNAMICS; A SENSITIVE METHOD OF ASSESSING DRUG THERAPY EFFICACY

Hypothesis / aims of study

Anticholinergic therapy has been traditionally assessed in randomised trials with subjective assessments such as frequency volume charts, quality of life questionnaires and objective measures such as laboratory urodynamics. Unfortunately laboratory urodynamics have shown only small significant increases in bladder capacity when comparing anticholinergic therapy with placebo in studies with large numbers of patients. Ambulatory urodynamics (AUM) has been suggested as a sensitive method of assessing the drug effect on detrusor overactivity, thus needing smaller numbers of women to show significance.

This study investigates whether AUM is a sensitive method of assessing anticholinergic therapy in a multicentre, double blind, randomised crossover placebo-controlled study.

Study design, materials and methods

Patients with proven detrusor overactivity were recruited. All patients completed a two week treatment free period. They then underwent AUM lasting four hours using two 6F microtip transducers (Gaeltec,UK) one transducer in the bladder and one in the rectum with recording in a MPR solid state recorder. The patients were asked to keep a diary, drink 180ml of water every 30 minutes and void on a gravimetric flowmeter. The traces were downloaded at the end of the test and reviewed with the patient present to allow the electronic trace to be annotated for urinary symptoms. The patients were then randomised to a study drug for two weeks of Propiverine 20mg od, Propiverine 15mg tds, Oxybutynin 5mg tds or placebo.od for two weeks, then had a two week washout period and then were randomised to another drug for a further two weeks. AUM was repeated after each treatment period. The total number of unstable detrusor contractions with or without symptoms were recorded using a normalised score for the first four hours of interpretable trace. The AUM was carried out using a strict protocol and the traces were reviewed blindly to ensure good quality and appropriate annotation.

Results

8 centres recruited patients with 77 patients being randomised to the study. Sixty-nine patients completed the study. All treatment groups showed a reduction in detrusor activity following treatment for both symptomatic and asymptomatic contractions.

Table 1. Number of all contractions symptomatic and asymptomatic (normalised score over 4 hours)

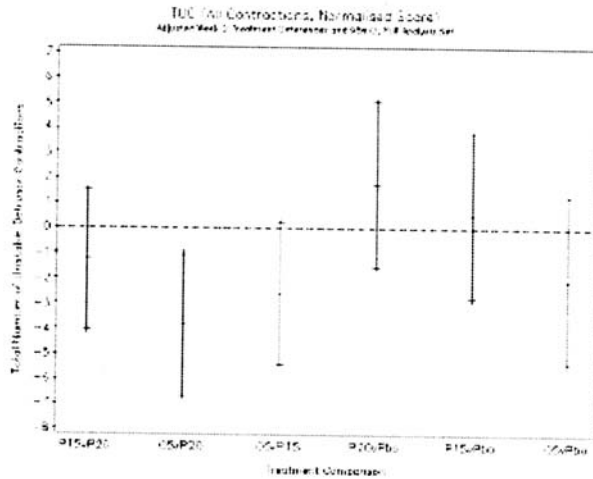
Drug	n	Baseline Mean (sd)	Week 2 Mean (sd)	Week 2 adjusted Mean (SE)
Propiverine 15 tds	29	11.8 (8.2)	8.0 (6.9)	8.8 (1.0)
Propiverine 20mg od	30	15.4 (10.6)	11.1 (7.7)	10.1 (1.0)
Oxybutynin 5mg tds	27	13.5 (9.8)	6.4 (6.4)	6.2 (1.0)
Placebo	17	11.5 (7.2)	7.6 (7.7)	8.3 (1.3)

All treatments groups (including placebo) showed a reduction in detrusor activity following treatment. This was found for all detrusor contractions and also contractions associated with

symptoms. For both endpoints oxybutynin 5mg tds produced the lowest detrusor activity at week 2 followed by propiverine 15mg tds and then propiverine 20mg od. There was also evidence of a strong placebo effect. For all contractions the difference between oxybutynin 5mg tds and propiverine 20mg od was statistical significance (-3.8, 95%CI [-6.7, -1], p=0.008). No other treatment comparisons reached significance. This was also seen for the symptomatic contractions between oxybutynin 5mg tds and propiverine 20mg od (-1.7, 95%CI[-3.1,-0.3],p=0.018).

The treatment differences are shown graphically in fig 1.

Fig 1: Treatment differences for all detrusor contractions (normalized scores for 4 hours) and 95% CI



Interpretation of results

AUM allows the effects of drugs for the treatment of detrusor overactivity to be assessed. The test appears to be more sensitive allowing smaller groups of patients to be studied. The measurement of symptomatic and asymptomatic contraction number changes with treatment appears to differentiate the efficacy of different drugs. Placebo does reduce the frequency of detrusor contractions.

Concluding message

This is the first randomised controlled study using AUM to assess drug effect on detrusor overactivity. AUM is a sensitive method of evaluating the objective effects of drugs on detrusor overactivity compared with laboratory urodynamics. It also allows drug treatment effect to be measured.

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