

## CANNABIS EXTRACTS IMPROVE LOWER URINARY TRACT SYMPTOMS IN ADVANCED MULTIPLE SCLEROSIS

### Aims of Study

Indwelling catheterisation is often required in patients with advanced multiple sclerosis (MS) despite maximum tolerated anti-cholinergic medication and clean intermittent self catheterisation where indicated. Lower urinary tract symptoms (LUTS) in these patients are further compounded by poor mobility, making problems of urgency and incontinence distressing for both patient and their carer(s). There have been positive reports on the effect of cannabis on the bladder; also, cannabinoid receptors have been identified in rodent and primate bladder, as well as parts of the central nervous system associated with bladder control. We have assessed the safety, efficacy and tolerability of two types of cannabis-based medicinal extract (CBME) administered as a sublingual spray.

### Methods

This open-label study included patients with advanced MS and refractory LUTS. After a baseline period, patients were given an extract of *Cannabis Sativa*, the cannabinoid fraction of which consisted of tetrahydrocannabinol (THC) and cannabidiol (CBD) in a 1:1 mixture (2.5mg of THC and 2.5mg CBD per spray) for 8 weeks. Patients were then given a THC-only extract (2.5 mg THC per spray) for a further 8 weeks. Dosing was supervised in the laboratory, and patients advised to continue on maximally tolerated self-titrated dose. Frequency-volume chart data were recorded at baseline, weeks 7 & 8 and weeks 15 & 16. Cystometry was performed at baseline and at weeks 8 and 16 before and after dosing with CBME in the lab.

### Results

21 patients (4M:17F; age 31-64) were recruited, of which so far 14 have completed both arms of the trial. All patients described a tolerable degree of dry mouth, and most experienced only mild effects of intoxication at some stage. Two patients had single hallucinogenic episodes, and one patient had a transient supraventricular tachycardia (cardiac investigations revealed no abnormality and full recovery). When compared to baseline, diary data showed improvements at weeks 7 & 8 and weeks 15 & 16 (table 1).

Table 1: Voiding diary data

	Baseline	THC: CBD (wks 7 & 8)	THC-only (wks 15 & 16)
Mean daily incontinent episodes	2.15	1.24 (p<0.007)	0.48 (p<0.001)
Mean nocturia episodes	2.4	1.38 (p<0.101)	1.29 (p<0.013)
Mean daytime frequency	9.6	7.8 (p<0.003)	6.8 (p<0.004)

Mean maximum cystometric capacity (MCC) increased from 276mls at baseline to 332 and 401mls at week 8 before and after dosing with CBME. Similar increases in MCC compared to baseline were recorded at the week 16 visit (369 and 337mls). All patients preferred the THC only extract for control of their urinary symptoms.

### Conclusions

With careful supervision during dosing, we have shown that these 2 cannabis extracts can be administered safely, and are well tolerated by patients with refractory neurogenic detrusor overactivity and considerable co-morbidity.