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AN OPEN LABEL FEASIBILITY STUDY EVALUATING D-MANNOSE FOR THE PREVENTION OF URINARY TRACT INFECTIONS IN PATIENTS WITH MULTIPLE SCLEROSIS

Hypothesis / aims of study
Recurrent urinary tract infections (UTIs) are a significant problem in people with multiple sclerosis (PwMS). Currently available options are limited and often unsatisfactory. D-mannose is a natural food supplement which has recently been shown to prevent UTIs in women, however benefits in PwMS are unknown. The objective of the study was to assess the feasibility of using D-Mannose in PwMS reporting recurrent UTIs as a preventative.

Study design, materials and methods
A prospective single centre, open-label, feasibility study with PwMS who had experienced recurrent UTIs (≥3/year or ≥2 in the last 6 months). Participants were given D-mannose powder 1.5 grams twice daily for 16-weeks and were instructed to monitor suspected UTIs at home using urine dipsticks. Diaries were used to record compliance, number of prescriptions of antibiotics received for UTIs, the results of urine dipstick tests and subsequent cultures.

Results
22 PwMS (18 female, 4 men), median age 50 years (46-59) were enrolled. Table 1 shows patients' baseline characteristics. The compliance rate for using D-Mannose was 100% and the compliance rate for using dipsticks for suspected UTIs was 90.2%. 61 episodes of suspected UTIs were recorded, 19/61 (31.1%) were confirmed UTIs and 29 (47.5%) prescriptions of antibiotics were done. Table 2 shows the number of antibiotic prescriptions and symptomatic UTIs during 16-weeks treatment with D-Mannose The number of monthly proven UTIs decreased both in catheter users and non-users ($p<0.01$). No side effects were reported of the D-Mannose or adverse effects from the home-monitoring programme.

Interpretation of results
Awareness about D-mannose is increasing and only recently has it become available, however over the Internet. Recent randomized controlled trials suggested a benefit of using D-mannose in non-neurological women experiencing recurrent UTIs (1,2). However, no clinical trial has been undertaken to test its feasibility in clinical practice among neurological patients. Considering the high prevalence of UTIs in PwMS and the impact on general health and on MS, it was thought that PwMS were an ideal group to test. D-mannose is safe product, classed as a food supplement, with no significant safety signals identified in open label studies, with only diarrhoea rarely reported (1,2). The results on our study were in line with these reports. Therefore, taking D-Mannose represented a low-risk intervention for PwMS reporting recurrent UTIs. The high compliance rate in our study is likely to represent patient acceptability of a natural product devoid of any significant side effects. Using a powder allowed patients to mix D-mannose with a beverage. The reliability of patients to measure out an accurate amount is a natural concern, however products were weighed in at the end of the study and no significant discrepancies were noted.
The concern about using antimicrobial prophylaxis is the emerging global problem of antimicrobial resistance as a twofold increase in resistant bacteria was reported with this approach (3). Our preliminary results seemed to suggest a significant reduction in number of UTIs. As the study was designed to evaluate only feasibility, no conclusions could be drawn about efficacy, however the results are encouraging and clearly, a randomized controlled study designed to evaluate efficacy is required.

Table 1. Patients' baseline characteristics

Characteristics	Group 1 Without catheter (n= 10)	Group 2 With catheter (n= 12)
Age, years	51 (48-59.5)	48.5 (41.7-58.7)
Gender (female)	10	8
Time since MS diagnosis, years	14.5 (8.7-25.2)	15.5 (3.7-20.5)
Type of MS - primary progressive - relapse remitting - secondary progressive	 2 5 3	 2 7 3
EDSS score	6.2 (5.5-6.5)	6.2 (6-7)
Lower urinary tract symptoms - storage symptoms - voiding symptoms - mixed	 7 3 0	 7 3 2
Number of UTIs per month	0.5 (0.4-0.7)	0.7 (0.5-1)

Data are expressed in median, IQR
MS: multiple sclerosis, EDSS: Expanded disability status scale, UTI: urinary tract infection

Table 2. Number of antibiotic prescriptions and symptomatic UTIs during 16-weeks treatment with D-Mannose

	Group 1 without catheter (n= 10)	Group 2 with catheter (n= 12)
Number of antibiotic prescriptions	1 (0-2.2)	2 (0-3)
Total duration of antibiotic therapy (days)	7 (5.5-7)	7 (7-10)
Number of symptomatic UTIs per month	0.1 (0-0.2)	0.2 (0-0.5)

Data are expressed in median, IQR
UTI: urinary tract infection

Concluding message

This study demonstrates the feasibility of using D-mannose in PwMS experiencing recurrent UTIs and self-monitoring for infections, without any safety concerns. The use of D-mannose was associated with a reduction in the number of UTIs and further studies are required to establish efficacy.

References

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Disclosures

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