

Regular drinking of cranberry-lingonberry juice concentrate reduced recurrent urinary tract infections in women

Kontiokari T, Sundqvist K, Nuutinen M, et al. *Randomised trial of cranberry-lingonberry juice and Lactobacillus GG drink for the prevention of urinary tract infections in women. BMJ 2001 Jun 30;322:1571-3.*

QUESTION: Does regular drinking of cranberry-lingonberry juice concentrate or *Lactobacillus* GG drink reduce recurrence of urinary tract infections (UTIs) in women?

Design

Randomised [allocation concealed]*, blinded (outcome assessor), controlled trial with 12 months of follow up.

Setting

Student health service at the University of Oulu and occupational health centre for the staff of Oulu University Hospital, Finland.

Patients

150 women (mean age 30 y) who had a UTI caused by *Escherichia coli* ($\geq 10^5$ colony forming units [cfu]/ml in clean voided midstream urine) and were not taking any antimicrobial prophylaxis. Follow up at 12 months was 91%.

Intervention

50 women were allocated to receive 50 ml of cranberry-lingonberry juice concentrate (7.5 g cranberry concentrate and 1.7 g lingonberry concentrate in 50 ml of water with no added sugars) once a day for 6 months, and were advised to prepare a drinkable juice by adding 200 ml of water but no sweetener to the concentrate. 50 women were allocated to 100 ml of *Lactobacillus* GG drink (4×10^{10} cfu of *Lactobacillus* GG/100 ml) 5 days per week for 1 year, and 50 were allocated to no juice (control). Both drinks were commercially available.

Main outcome measure

First recurrence of symptomatic UTI ($\geq 10^5$ cfu/ml in a clean voided midstream urine sample).

Main results

Patient recruitment was stopped early because the cranberry juice supplier stopped producing the juice. 1 woman who was taking postcoital antimicrobials was excluded from the analysis. At 6 months, recurrence of UTI was lower in the cranberry group than in the control group ($p=0.014$). At 12 months, the difference between the 2 groups was of borderline significance ($p=0.052$). The *Lactobacillus* GG and control groups did not differ at 6 or 12 months.

Conclusions

Cranberry-lingonberry juice reduced recurrence of urinary tract infections in women compared with no intervention or *Lactobacillus* GG drink. *Lactobacillus* GG drink had no effect on urinary tract infection.

*Information provided by author.

COMMENTARY

Interest in the use of complementary treatments for the prevention and treatment of common episodic conditions is growing. The challenge for primary healthcare providers is to determine when a self care strategy is safe and effective for clinical use.

Up to 60% of women will contract a UTI in their lifetime.¹ Anecdotal reports of the use of cranberry juice to prevent UTIs have gained widespread popularity. A recent Cochrane review, amended shortly before publication of the study by Kontiokari *et al*, assessed the effectiveness of cranberries to prevent UTIs.² The authors found that the existing evidence was of poor quality and inconclusive, and recommended the development of parallel group, double blind trials to compare the effectiveness of cranberry juice with placebo.

The well-designed trial by Kontiokari *et al* attempts to determine whether recurrence of UTIs can be prevented by regular use of cranberry-lingonberry juice or *Lactobacillus* GG in liquid form. Although the difference in UTI recurrence between the cranberry-lingonberry and control groups was highly significant at 6 months ($p=0.014$), it was only of borderline significance at 12 months ($p=0.052$). There are 2 possible explanations for this. Firstly, the authors did not obtain the required sample size of 70 women per group, and the study likely lacked the power to detect the 10% clinically important difference stipulated *a priori*. Secondly, this result may be related to the fact that, as per protocol, patients stopped drinking the cranberry-lingonberry juice at 6 months. Further research is needed to resolve this uncertainty.

The authors selected a combination of cranberry-lingonberry juice, explaining that both fruits contain condensed tannins called proanthocyanidins, which are thought to have antibacterial properties. They did not address the issue of using cranberry juice concentrate alone or consider other fruit juice combinations that might be effective. This could present a feasibility issue if this particular combination is not available to women in retail outlets.

Clinically, the results of Kontiokari *et al* will be of interest to primary care nurse practitioners who provide holistic women's health care, particularly for consultations with clients about the safety and effectiveness of this type of prevention strategy for recurrent UTIs. Other than the bitter taste mentioned by some participants, the intervention is a safe, natural food product.

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- 1 Foxman B, Barlow R, D'Arcy H, et al. Urinary tract infection: self-reported incidence and associated costs. *Ann Epidemiol* 2000;**10**:509-15.
- 2 Jepson RG, Mihaljevic L, Craig J. Cranberries for preventing urinary tract infections *Cochrane Database Syst Rev* 2001(3):CD001321.