

Antibiotic appears more effective than cranberry capsules for preventing urinary tract infections

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In premenopausal women who have repeated urinary tract infections (UTIs), the antibiotic trimethoprim-sulfamethoxazole (TMP-SMX) appeared more effective than cranberry capsules for preventing recurrent infections, at the risk of contributing to antibiotic resistance, according to a report in the July 25 issue of *Archives of Internal Medicine*.

Urinary tract infections are common in women, affecting nearly half at some point in their lives, according to background information in the article. The authors note that up to 30 percent of women develop recurrent UTIs (rUTIs), a condition for which a low-dose antibiotic is frequently used as a preventive measure. "However, this may lead to [drug resistance](#) not only of the causative [microorganisms](#) but also of the indigenous flora," write the authors. Studies of cranberries and cranberry products have shown some effectiveness in preventing rUTIs, but these trials have not compared those interventions directly with TMP-SMX, the standard antibiotic used in these cases.

Mariëlle A.J. Beerepoot, M.D., from the Academic Medical Center, Amsterdam, and colleagues conducted a double-blind noninferiority trial of cranberry capsules and TMP-SMX. The 221 participants were premenopausal adult women who had reported at least three symptomatic UTIs in the previous year. They were randomized to take either TMP-SMX (480 mg at night, plus one placebo capsule twice

daily) or cranberry capsules (500 mg twice daily, plus one placebo tablet at night) for 12 months. Researchers assessed participants' clinical status once a month (and for three months after stopping the study medication) via urine and feces samples and a questionnaire; participants also submitted urine samples when they experienced UTI-like symptoms.

At 12 months, the average number of clinical recurrences was 1.8 in the TMP-SMX group and 4.0 in the cranberry capsules group. Recurrence occurred, on average, after eight months in the drug group and after four months in the cranberry capsules group. Antibiotic resistance rates tripled in the pathogens found in patients in the TMP-SMX group, although three months after the drug was discontinued, resistance rates returned to the levels they had been at when the study began.

The antibiotic used in this study appeared to be more effective at preventing rUTIs than cranberry capsules, but the researchers noted that achieving this result also seemed to increase the rate of antibiotic resistance. "From clinical practice and during the recruitment phase of this study, we learned that many women are afraid of contracting drug-resistant bacteria using long-term antibiotic prophylaxis and preferred either no or nonantibiotic prophylaxis," they report. "In those women, cranberry prophylaxis may be a useful alternative despite its lower effectiveness."

Commentary: Cranberries as Antibiotics?

An accompanying commentary by Bill J. Gurley, Ph.D., from the University of Arkansas for Medical Sciences, Little Rock, evaluates the results obtained by Beerepoot and colleagues in the context of nonpharmacologic remedies. Botanical dietary supplements are not intended to be used to treat, cure or prevent disease, he writes, but "most U.S. consumers, however, have expectations of health benefits from the dietary supplements they consume." Nevertheless, supplements such as

cranberry capsules may not demonstrate optimal efficacy due to issues with poor water solubility and the type of metabolism that occurs.

Dr. Gurley notes that the report by Beerepoot and colleagues has two important features. Given that one month into the study, antibiotic resistance for *Escherichia coli* was higher than 85 percent in the TMP-SMX group but less than 30 percent in the cranberry capsule group, "such a marked reduction in [antibiotic resistance](#) certainly favors the therapeutic potential of cranberry as a natural UTI preventative." Further, Gurley points out that TMP-SMX showed superior efficacy to cranberry capsules, but that the low rate of bioavailability of bacteria-fighting chemicals in the dosage used of the latter may have affected the study's results. "Because optimal doses have not been established for many botanicals, clinical efficacy trials have often yielded negative or inconclusive results," Gurley points out. He mentions an ongoing dose-ranging study for cranberry that may provide more information on this supplement's effectiveness.

More information: *Arch Intern Med.* 2011;171[14]:1270-1278. and *Arch Intern Med.* 2011;171[14]:1279-1280.

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