

Complementary and Integrative Therapies for Lower Urinary Tract Diseases

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KEYWORDS

- Complementary and alternative medicine • Integrative medicine
- Lower urinary tract disease (LUTD) • Urinary tract infection • Urolithiasis
- Urinary tract tumor • Supplement • Herbs

KEY POINTS

- There is a growing demand for the use of integrative medicine in veterinary medicine.
- Evidence-based research using integrative medicine in veterinary patients with lower urinary tract diseases is scarce.
- Translational research with animal models of human lower urinary tract disease (LUTD) is an opportunity to expand our knowledge of etiopathogenesis and identifying complementary treatments.
- Translational evidence-based research is needed to accelerate the use of integrative health care in both human and veterinary medicine where there is a concern for antimicrobial resistance.

In 2014, the National Center for Complementary and Alternative Medicine changed its name to the National Center for Complementary and Integrative Health (NCCIH). Complementary approaches have grown in use to where they are no longer considered an alternative to medical care. For example, more than half of Americans report using a dietary supplement and spend nearly \$4 billion annually on spinal manipulation therapy. Large population-based surveys have been done and found that the use of alternative medicine, which has been defined as unproven practices used in place of conventional medicine, is actually rare. The NCCIH defines integrative health care as the combination of complementary approaches into conventional treatment plans and has widespread use in human medicine. The goal of an integrative approach is to enhance overall health, prevent disease, and to alleviate debilitating symptoms, which often affect patients with chronic diseases and affect outcomes. The NCCIH states that despite the widespread use of integrative health care, the scientific evidence for many complementary approaches is still needed.¹

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Complementary approaches can include herbs, supplements, acupuncture, and other modalities that are rational and supported by evidence to alleviate physical symptoms, improve quality of life, and also prevent diseases in veterinary patients. There is a growing consumer demand for an integrative health care approach, and veterinarians are being challenged to know more about these nontraditional therapies.^{2,3} In recognition and response to these demands, the American Veterinary Medicine Association admitted the American Veterinary Holistic Medical Association and the American Academy of Veterinary Acupuncture into the House of Delegates as constituent allied veterinary organizations.^{4,5}

URINARY TRACT INFECTIONS

Veterinarians frequently manage patients with simple lower urinary tract diseases (LUTD), such as bacterial urinary tract infections (UTIs), with conventional therapies with good outcomes. Most simple infections resolve with an approximate 2-week course of oral antimicrobials, but persistent or recurrent UTIs (RUTIs) that involve refractory bacterial isolates can be difficult to treat using conventional antimicrobial therapy alone.⁶ UTIs develop when there is a breach in host defense mechanisms, which allows virulent microbes to adhere, multiply, and persist within the urinary tract. Bacterial UTIs may affect 14% of all dogs during their lifetimes, and they are more common in females. Although less common in cats, bacterial UTIs usually occur in those older than 10 years, with incidence increasing with age. In these patients, repeated courses of antimicrobials are typically ineffective at achieving long-term bladder sterility and a nonantimicrobial preventative strategy is needed.⁷ The bacteria that most commonly cause UTIs are similar in dogs and cats; *Escherichia coli* infections account for more than one-half of all positive urine cultures.^{6,7}

In the human literature, the efficacy of different forms of nonantimicrobial prophylaxis are being assessed for effectiveness and tolerability in adults with recurrent UTIs. UTIs are more common in women, accounting for nearly 25% of all infections, with around 50% to 60% developing UTIs in their lifetimes. Similar to veterinary patients it has been shown that *E coli* is the organism that causes UTIs in most human patients, and RUTIs are reinfection by the same pathogen.⁸ In human medicine managing, RUTI is primarily done with repeated or continuous antimicrobial therapy, and resistance in common urinary pathogens is increasing because of the overuse and misuse of antimicrobials. It has been shown that resistance patterns vary by geographic location but are rising nationwide and globally.⁹

Because of the growing concern for antimicrobial resistance, nonantimicrobial, unconventional treatments evaluated in the human literature include vaginal vaccines, behavioral modifications, vaginal and oral estrogens, oral immunostimulant *E coli* fractions OM-39 (Uro-Vaxom), cranberry supplements, oral and vaginal probiotics, herbs or herbal preparations, mannose, and acupuncture.^{8–13}

A systematic review and meta-analysis of randomized controlled trials (RCTs) in human research included 17 studies with data for 2165 patients, and the Jadad score was used to assess the risk of bias (0–2, high risks and 3–5, low risks). The Jadad scale assigns scores for the best-quality trial from 0 to 5 based on the following: (1) the study is randomized; (2) the intervention is double blind; (3) study withdrawals are accounted for and described; (4) the randomization procedure is adequately performed using an appropriate method; and (5) the blinding is adequately performed using placebo. An assessment of effectiveness, tolerability, and safety of nonantibiotic prophylaxis in adults with recurrent UTIs was reported. The oral immunostimulant OM-89 (Uro-Vaxom), an extract of 18 different serotypes of heat-killed uropathogenic *E coli*,

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