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Urinary-Pro – Acute UTI Support

Introduction

Urinary tract infections (UTIs) are among the most common bacterial infections, with a lifetime prevalence of at least 50% among women. The recurrence rate of UTIs ranges from 27–44%, often occurring within three months.[1] The urinary tract is particularly susceptible to bacterial infection; at least 3–5% of women have bacteriuria (detectable bacteria via urine/culture with no symptoms), with the rate increasing in older age among both men and women. The presence of even one symptom (e.g., dysuria, urgency, frequency, suprapubic pain, back pain, or gross hematuria) increases the likelihood of a UTI 10-fold, while fever and/or costovertebral tenderness significantly raise the possibility of pyelonephritis.[2]

Uncomplicated UTIs are associated with several challenges, including inappropriate antibiotic use; the antibiotics most frequently used to treat UTIs are the ones to which they have most likely gained resistance, which may help explain the high rate of UTI recurrence.[3,4] Given the frequent use of antibiotics to treat UTIs, complementary approaches that reduce the microbial burden and promote optimal function in the urinary tract may help mitigate the growing prevalence of antibiotic-resistant bacteria.

About Urinary-Pro

Urinary-Pro provides a unique combination of four plant extracts that support healthy urinary function, in part by reducing the microbial population in the urinary tract, along with having anti-inflammatory and antioxidant actions. Bearberry, also known as *Arctostaphylos uva-ursi*, has long been used as a urinary antiseptic.[5] It has naturally high levels of the phenol arbutin (hydroquinone β-D-glucoside, standardized in Urinary-Pro to 20%). The aglycone hydroquinone of arbutin, which is released in alkaline urine, is thought to provide its antimicrobial actions. Its greater efficacy in alkaline urine is the context for avoiding simultaneous administration of acidic agents, such as citrus foods or medications that acidify the urine.[6] In a clinical trial, women with recurrent cystitis had no infections over a one-year period when consuming bearberry in combination with dandelion extract, compared to 23% of the placebo group.[7]

Urinary-Pro also provides berberine, well known for its broad antibacterial and antifungal properties, and recently shown to inhibit the adhesion of *E. coli* to human bladder cells, as well as the formation of bacterial biofilms by *E. faecalis*, in vitro.[8–11] An upregulation of nuclear factor erythroid 2-related factor 2 (Nrf2) activity by berberine, a key signalling pathway for antioxidant defence, has a broad antioxidant effect, while inhibition of components of the NLRP3 inflammasome has anti-inflammatory benefits.[12,13]

Concentrated extracts of juniper berry and *Echinacea purpurea* are also included in Urinary-Pro. Juniper has a history of use primarily for its antimicrobial, antioxidant, and diuretic properties, and has more recently been shown to prevent adhesion and growth of several bacterial species, including *E. coli*, in vitro.[14,15,16] *Echinacea purpurea* has recently been shown to have both antioxidant and antibacterial properties, though it is more widely known for supporting both innate and specific immune activity.[17,18]

General Recommendations

- The recommended dose of Urinary-Pro is 2 tablets twice per day, a few hours before or after any medication or natural health product. Do not take with highly acidic foods (e.g., citrus fruits or juice) or medications, which may acidify urine.
- Although *E. coli* causes the majority of UTIs in all settings, it is found at a lower prevalence among hospital- or healthcare-acquired infections.[19]
- Although controlled data is limited, one randomized trial found that women with recurrent bladder infections who increased their fluid intake had significantly fewer infections than women who did not. They were encouraged to add 1.5 L of water to their usual intake.[20]
- The risk factors for UTIs include female gender, prior UTI, sexual activity, spermicide/diaphragm use, trauma, diabetes, and obesity.[20]

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- Evidence suggests that a lower vitamin D level increases the risk for UTIs among both women and children, especially for recurring UTIs. Insufficient vitamin D was associated with a three-fold risk for UTI in a meta-analysis of nearly 2,000 participants.[21,22,23]
- A recently conducted, large, systematic review and meta-analysis found that cranberry products, especially cranberry juice, can significantly help reduce UTIs among people most at risk.[24] Large amounts (at least 1 L per day) of cranberry juice should not be taken simultaneously with Urinary-Pro to avoid acidifying the urine.

Drug Interactions

No known drug interactions exist. As a diuretic, bearberry theoretically may increase serum lithium levels, but this has not been shown clinically.[25] Berberine has been shown to lower blood glucose levels and may have an additive effect when combined with other hypoglycemic medications, such as metformin.[26] Berberine has also been shown to increase levels of cyclosporin A, and combined use should be avoided.[27] Berberine has demonstrated inhibitory activity on cytochrome enzymes CYP2D6, CYP3A4, and CYP2C9, and use of medications metabolized by these enzymes should be monitored.[28] Echinacea has been shown to increase the duration of steroid-free periods among participants with steroid-dependent uveitis, an inflammatory condition, and may improve the efficacy of antifungal treatments for infection with candida spp.[29,30,31] Although direct evidence of drug interactions with echinacea is lacking, it is a weak inhibitor of CYP1A2 and minor inducer of CYP3A4, and may have a slight effect on drugs metabolized through these pathways.[32]

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