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Underlying Urinary Tract Infection in Premenopausal Woman: A Case Report

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ABSTRACT

Urinary tract infections (UTIs) are prevalent infections affecting the bladder, urethra, and kidneys, with premenopausal women being particularly susceptible due to hormonal fluctuations. Premenopause, typically starting in a woman's 40s, involves significant decreases in estrogen, impacting the urinary system by reducing the health of vaginal and urethral tissues, decreasing blood flow, and raising pH levels. This environment fosters bacterial growth, increasing UTI risk. Additionally, related symptoms such as urinary incontinence, urgency, and frequency further predispose these women to infections. Lifestyle factors, sexual activity, and conditions like diabetes also contribute to the higher incidence of UTIs in this demographic. A case study of a 44-year-old woman with chronic vaginal itching, reduced vaginal mucus, and pain during intercourse. Laboratory tests revealed anemia, elevated white blood cells, and protein in urine. Treatment with azithromycin and clindamycin cream, alongside cranberry supplements and multivitamins, led to complete recovery. Recurrent UTIs are common, with a significant portion of women experiencing multiple episodes. Extensive evaluations are usually unnecessary unless there are atypical symptoms or multiple episodes of pyelonephritis. Preventive strategies traditionally recommended include good hygiene and increased fluid intake, though a large study found no significant difference in UTI recurrence based on these measures. Behavioral factors like sexual activity frequency and spermicide use were significant. Cranberry supplements, probiotics, oral uropathogen vaccines, and other methods have inconsistent evidence for effectiveness. In summary, targeted research and clinical interventions are essential to address UTIs among premenopausal women, emphasizing evidence-based prevention and treatment strategies.

Introduction

Urinary tract infections (UTIs) are common infections that affect various parts of the urinary system, including the bladder, urethra, and kidneys. While UTIs can occur in individuals of all ages and genders, certain populations are more susceptible to these infections due to physiological and hormonal changes. [1] One such vulnerable group is premenopausal women.

Pre-menopause, the transitional period leading up to menopause, typically begins in a woman's 40s but can start as early as the mid-30s or as late as the mid-50s.[2] This phase is characterized by significant hormonal fluctuations, particularly in estrogen levels, which can have a profound impact on various bodily functions, including the urinary system. The decline in estrogen levels during pre-menopause leads to several changes in the urinary tract that increase the risk of UTIs. Estrogen plays a crucial role in maintaining the health and function of the urogenital system by promoting the growth of the vaginal epithelium,

enhancing blood flow, and maintaining the acidic environment that prevents bacterial overgrowth. [3] Reduced estrogen levels result in thinning of the vaginal and urethral tissues, decreased blood flow, and a higher pH level, all of which create a favorable environment for bacterial colonization and infection. Moreover, premenopausal women often experience other related symptoms such as urinary incontinence, urgency, and frequency, which can further predispose them to UTIs.[2] Additionally, lifestyle factors, sexual activity, and underlying medical conditions like diabetes can contribute to the increased incidence of UTIs in this population.[4]

Understanding the unique challenges faced by premenopausal women in relation to urinary tract infections is essential for developing effective prevention and treatment strategies. This introduction aims to highlight the significance of UTIs among premenopausal women, emphasizing the need for targeted research and clinical interventions to address this important health issue.

Case Presentation

A 44 years old woman was presented with chronic vaginal itching from many months. She had no any foul smell nor any unusual vaginal discharge. By the time now she reduced the vaginal mucus and complained about pain during intercourse with her partner. No any burn during micturition was reported. However irregular menstrual cycles and varied spotting was reported.

Investigation

Physician after physical and clinical evaluation advised complete blood counts, liver function, renal function, uric acid and urine analysis tests. Patient had a hemoglobin of 10.7 g/dl, low red blood cell counts along high white blood cell counts with 85% neutrophils. Similarly protein was detected in complete urine analysis with few white cells per high power field and high globulin and equal Albumin/Globulin ratio. Ultrasound was also normal and neither ascites nor pleural effusion were reported. Patient however had mildly enlarged liver with gall stone along a bit thickened wall of gall bladder.

Treatment

Patient was treated with azithromycin 500 mg once a day Clindamycin 40 mg cream once a day was given to apply inside vagina through applicator. Cranberry was given to enhance the process of micturition. Few multi vitamins were also suggested to improve the overall health.

Outcomes

Patients reported to have complete recovery from all the underlying issues along overall normal vaginal functions.

Discussion

Recurrent UTIs are quite common, with 20%–50% of women experiencing at least one recurrence after their initial infection, and around 5% facing multiple recurrences, often within the first three months after the initial infection. [5] For most of these women, extensive evaluation is unnecessary. Studies, including a case series of young women with frequent UTIs, have shown that cystoscopy and renal or pelvic imaging typically do not reveal significant abnormalities that impact patient management.[5]

Further testing should be reserved for women with atypical symptoms or multiple episodes of pyelonephritis. Referral to a specialist may be warranted if there are complicating factors such as a history of urologic or pelvic floor surgery, renal stone disease, genitourinary or neurological abnormalities, severe urinary symptoms (e.g., pronounced urgency, frequency, or pain), pelvic radiation, or an inadequate response to antibiotics. [5]

Clinicians have traditionally advised a set of "common sense" strategies to prevent UTIs, including maintaining good perineal hygiene, wearing natural fiber underwear, urinating after sexual intercourse, and increasing fluid intake and urination habits. However, a large case-control study found no significant difference in these conservative measures between women with frequent UTIs and those without. Multivariable analysis revealed that the only behavioral factors significantly associated with recurrent UTIs were the frequency of sexual activity and exposure to spermicides, which can disrupt vaginal flora.[6]

Cranberry supplementation is frequently recommended for preventing UTIs. Initially, its effectiveness was thought to stem from acidifying the urine. However, it is now understood that a group of tannins called proanthocyanidins inhibits bacteria from adhering to the bladder's epithelial cells

(urothelium). Laboratory studies have demonstrated dose-dependent inhibition of bacterial adherence, but clinical trials have produced inconsistent results. A comprehensive meta-analysis of randomized trials found no significant effect of cranberry supplementation on recurrent UTIs.[7] Interpretation of these studies is challenging due to the use of different cranberry products, often juices (which had high patient dropout rates due to volume) or tablets with inconsistent proanthocyanidin concentrations.

Other potential strategies examined in the literature include probiotics (to restore an altered vaginal microbiota), oral uropathogen vaccines (available in Europe), vitamin C, methenamine salts, acupuncture, and d-mannose. However, there is currently insufficient evidence or availability in Canada to recommend their use.[8]

For women who experience UTIs associated with sexual activity, postcoital prophylaxis with a single dose of antibiotic has been demonstrated in randomized clinical trials to reduce the incidence of recurrent UTIs. A Cochrane review investigated continuous, low-dose antibiotic prophylaxis and found that it significantly reduced UTI rates while the antibiotics were being taken, though there was no lasting effect after discontinuation. Additionally, self-start antibiotics have proven effective; in small cohort studies, most women were able to accurately self-diagnose and successfully treat their UTIs with self-start prescriptions. The choice of antibiotic should be based on local resistance patterns and the patient's previous urine culture sensitivities, as these are predictive of future antibiotic effectiveness.[9]

In conclusion "Decisions" is a series that highlights practical, evidence-based approaches to common primary care scenarios. This article discusses critical decisions clinicians may face during initial assessments. The information provided can typically be covered within a standard primary care appointment.

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