

Urinary Tract Infections in the Older Adult



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KEYWORDS

- Urinary infection • Cystitis • Pyelonephritis • Asymptomatic bacteriuria • Elderly
- Long-term care facility • Urinary catheter

KEY POINTS

- Symptomatic urinary tract infection and asymptomatic bacteriuria are very common in elderly populations.
- Major risk factors for infection are female sex, functional impairment, and use of indwelling urethral catheters.
- Clinical diagnosis of symptomatic urinary tract infection in long-term care facility residents is compromised by impaired communication and chronic genitourinary symptoms. Non-localizing symptoms, together with the high prevalence of asymptomatic bacteriuria, promote overdiagnosis and overtreatment of urinary infection.
- Residents of long-term care facilities with chronic indwelling catheters are always bacteriuric. The most common presentation of symptomatic infection in these patients is fever without localizing genitourinary symptoms or signs.
- Antimicrobial treatment is selected based on clinical presentation, presumed or known infecting organism, and patient tolerance.

INTRODUCTION

Urinary infection is an important clinical problem affecting older populations across the clinical spectrum of well, elderly men and women living independently in the community to the highly functionally impaired nursing home resident with multiple comorbidities. The site of infection may be the bladder (cystitis or acute lower tract infection) or kidney (pyelonephritis or acute upper tract infection). Acute or chronic bacterial prostatitis are additional presentations for men but will not be discussed further. Urinary infection in women with a normal genitourinary tract is referred to as acute uncomplicated urinary tract infection. Complicated urinary tract infection occurs in

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patients with functional or structural abnormalities of the genitourinary tract.¹ Asymptomatic bacteriuria is identified when the urine culture is positive without accompanying symptoms or signs attributable to genitourinary infection.² Individuals managed with a chronic indwelling urethral catheter have unique considerations with respect to diagnosis, complications, and management.³

EPIDEMIOLOGY

Community Populations

Asymptomatic bacteriuria increases with increasing age in elderly women living in the community, reaching a prevalence of 20% or more in those older than 80 years.⁴ For healthy men, asymptomatic bacteriuria is unusual before 60 years of age; however, 5% to 10% of men older than 80 years have bacteriuria.^{2,4} Individuals with bacteriuria also experience an increased frequency of symptomatic infection but symptomatic episodes are not directly attributable to the bacteriuria. Survival, and long-term negative outcomes such as renal failure or hypertension are not associated with bacteriuria.²

Older women in the community experience a higher frequency of symptomatic infection than men but the magnitude of the gender difference is less than in younger populations⁴⁻¹² (Table 1). There is limited morbidity associated with symptomatic urinary infection in healthy older individuals. Hospitalization rates for acute pyelonephritis increase with age and are highest for the oldest age groups.^{10,11} Frequent recurrent infections may occur in some individuals, especially those with complicated infection.

Mortality directly attributable to urinary infection is uncommon.⁷ For 270 Spanish subjects of mean age 83.7 years (14% from nursing homes) admitted with severe

| | Asymptomatic Prevalence (%) | Symptomatic Incidence |
|---------------------------------------|-----------------------------|--|
| Community | | |
| Women | | |
| >80 y | 20 ⁴ | — |
| 55–75 y | | 7/100 patient years ⁵ |
| 86–90 y | | 12.8/100 patient years ⁶ |
| Hospitalization, pyelonephritis >60 y | | 1.4–2.3/10,000 population ⁷ |
| Men | | |
| >80 y | 8.0–9.5 ⁴ | 0–17/1000 d ⁸ |
| 75–84 y | — | 2.8–6.7/1000 population ⁹ |
| >85 y | | 4.3–7.8/1000 population ⁹ |
| 86–90 y | | 7.8/100 patient years ⁶ |
| Hospitalization, pyelonephritis >60 y | | 6–1.3/10,000 population ⁷ |
| Women and men | | |
| Hospitalization, pyelonephritis >70 y | — | 1.0–1.5/10,000 ¹⁰ |
| Long-term care | | |
| United States | — | 0.57/1000 d ¹¹ |
| Germany | — | 0.49/1000 d ¹² |
| Chronic indwelling catheter | 100 ³ | 3.2/1000 catheter days ¹¹ 3.5/1000 catheter days ¹² |

Data from Refs. 3-12

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