COMMENTARY

Urinary tract infection in old age: over-diagnosed and over-treated

A careless and uncritical approach by some clinicians to the diagnosis of urinary tract infection in frail elderly people has resulted in the condition being over-diagnosed and over-treated. Symptoms of lower urinary tract infection are easily recognized and include dysuria, frequency and urgency. But even such typical symptoms require cautious interpretation, as they are common in elderly people without infection [1].

Is laboratory diagnosis by urine culture a more reliable diagnostic tool for urinary tract infection in old age? The isolation of >100 000 colony-forming units of a single species per ml in a mid-stream specimen of urine is regarded as ‘significant’ bacteriuria. This is based on criteria described by Kass [2], although Kass’s studies were performed in healthy young women. There are problems in using these criteria as the standard, since bacteriuria is common in old age, occurring for example in 25–40% of non-catheterized patients in long-stay units [3, 4]. Pyuria is also common in nursing-home residents—both in the presence and absence of bacteriuria—and should not be the sole determinant of the need for antimicrobial treatment [5]. The presence of bacteria in a urine sample does not help to distinguish between true infection and colonization or contamination.

The chances of detecting coincidental asymptomatic bacteriuria in a frail elderly patient are high [6, 7]. A familiar scenario begins when a frail elderly patient is non-specifically unwell, and nurses ask if a urinary tract infection might be responsible. No other symptoms or signs of systemic infection are present but a urine specimen is sent for culture. The microbiology laboratory reports the presence of bacteria in the urine, and the ward doctor (perhaps without assessing the patient) prescribes an antibiotic. This leads to overuse of antimicrobials, provides opportunities for the colonizing organism to acquire antimicrobial resistance and exposes the patient to unnecessary antibiotic side-effects [8–11]. Awareness of this situation has led to the suggestion that urine culture in older patients be abandoned, but this remains one of the most commonly requested bacteriological investigations in elderly hospital patients [12].

Another common event is when ‘routine’ urinalysis is carried out for elderly patients in the absence of clinical symptoms suggestive of infection, and a positive stick test results in a urine sample being sent for culture. This misguided practice is perpetuated by the notion that urinary infection can occur in an asymptomatic older patient, and ignores the fact that asymptomatic bacteriuria is not an indication for treatment [13]. While dipstick testing and urine clarity can predict which urine specimens are likely to be culture-negative, the use of these procedures should be highly selective and confined to symptomatic patients [14].

How can practice be improved?

Two pervasive and damaging myths of old age medicine are that urinary infections cause such non-specific symptoms as anorexia, malaise, fatigue or weakness [15], and that treatment of asymptomatic bacteriuria improves chronic genitourinary symptoms, such as incontinence [16].

Clinicians caring for frail elderly people must re-focus on the clinical condition of the patient, discard false notions of atypical presentation and stop treating the results of unnecessary urine cultures. Elderly patients with non-specific symptoms merit a full clinical assessment, including consideration of several common and treatable conditions such as anaemia, hypothyroidism and depression. Bacteriuria is too often invoked as a spurious explanation for many non-specific symptoms in elderly people.

The diagnosis of urinary infection in a frail elderly person with a high probability of asymptomatic bacteriuria should be a clinical one, based on the results of a careful clinical evaluation, a search for other diagnoses and the presence of new signs or symptoms localized to the genitourinary tract. The only justification for urine culture in these circumstances is to confirm antimicrobial sensitivity.

In institutionalized elderly people the diagnosis of symptomatic urinary infection is problematic, and the presence of fever with a positive urine culture (in the absence of a urinary catheter) is due to urinary infection in <10% of episodes [17]. Thus, in most cases where the diagnosis of urinary infection is considered, it will be wrong.

Further research is needed to refine the diagnosis of symptomatic urinary infection, particularly in long-stay patients [18]. Perhaps the measurement of urinary cytokines will provide useful diagnostic markers [19].

Of course, any elderly person with an acute symptomatic urinary infection should be treated. But
bacteriuria alone should be ignored. We should stop the sending urine specimens for culture solely on the results of ‘routine’ urinalysis and not attribute miscellaneous vague symptoms to urinary infection. This will help reduce exposure of elderly people to unnecessary antibiotics. Whilst the results of research on improving diagnostic accuracy are awaited, a more critical and cautious approach to initiation of antimicrobial therapy is needed [20].

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