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Consensus statement

Executive summary of the diagnosis and treatment of urinary tract infection: Guidelines of the Spanish Society of Clinical Microbiology and Infectious Diseases (SEIMC)



Marina de Cueto^a, Luis Aliaga^b, Juan-Ignacio Alós^c, Andres Canut^d, Ibai Los-Arcos^e, Jose Antonio Martínez^f, Jose Mensa^f, Vicente Pintado^g, Dolors Rodriguez-Pardo^e, Jose Ramon Yuste^h, Carles Pigrau^{e,*}

^a Unidad Clínica Intercentros de Enfermedades Infecciosas, Microbiología y Medicina Preventiva, Hospitales Universitarios Virgen Macarena y Virgen del Rocío, Sevilla, Spain

^b Unidad de Gestión Clínica de Medicina Interna, Hospital Universitario Unificado de Granada, Granada, Spain

^c Servicio de Microbiología, Hospital Universitario de Getafe, Getafe, Spain

^d Servicio de Microbiología, Hospital Universitario de Álava, Vitoria-Gasteiz, Spain

^e Servicio de Enfermedades Infecciosas, Hospital Universitario Vall d'Hebron, Barcelona, Spain

^f Servicio de Enfermedades Infecciosas, Hospital Clínic-IDIBAPS, Barcelona, Spain

^g Servicio de Enfermedades Infecciosas, Hospital Ramón y Cajal, Madrid, Spain

^h Área de Enfermedades Infecciosas, Clínica Universidad de Navarra, Pamplona, Spain

A B S T R A C T

Keywords:

Urinary tract infection
Asymptomatic bacteriuria
Acute cystitis
Acute pyelonephritis
Recurrent urinary tract infections
Catheter-associated urinary tract infection

Most urinary tract infections (UTI) are uncomplicated infections occurring in young women. An extensive evaluation is not required in the majority of cases, and they can be safely managed as outpatients with oral antibiotics. *Escherichia coli* is by far the most common uropathogen, accounting for >80% of all cases. Other major clinical problems associated with UTI include asymptomatic bacteriuria, and patients with complicated UTI. Complicated UTIs are a heterogeneous group associated with conditions that increase the risk of acquiring infection or treatment failure. Distinguishing between complicated and uncomplicated UTI is important, as it influences the initial evaluation, choice, and duration of antimicrobial therapy. Diagnosis is especially challenging in the elderly and in patients with in-dwelling catheters. The increasing prevalence of resistant uropathogens, including extended-spectrum β -lactamases and carbapenemase-producing Enterobacteriaceae, and other multidrug-resistant Gram-negative organisms further compromises treatment of both complicated and uncomplicated UTIs.

The aim of these Clinical Guidelines is to provide a set of recommendations for improving the diagnosis and treatment of UTI.

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Resumen ejecutivo del diagnóstico y tratamiento de las infecciones del tracto urinario. Guía de la Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica (SEIMC)

R E S U M E N

La mayoría de infecciones del tracto urinario (ITU) son infecciones no complicadas que se presentan en mujeres jóvenes. En la mayoría de los casos no se requieren pruebas diagnósticas complementarias y se pueden tratar ambulatoriamente de forma segura con antibióticos por vía oral. *Escherichia coli* es el uropatógeno más frecuente causando más del 80% de estas infecciones. La bacteriuria asintomática (BA) y las ITUs complicadas son otras formas de presentación de la ITU. Las ITU complicadas son un grupo heterogéneo de condiciones que incrementan el riesgo de adquisición de la infección o de fracaso del tratamiento. La distinción entre ITU complicada y no complicada es fundamental para decidir la

Palabras clave:

Infecciones del tracto urinario
Bacteriuria asintomática
Cistitis aguda
Pielonefritis aguda
Infecciones recurrentes del tracto urinario
Infecciones urinarias asociadas al sondaje vesical

* Corresponding author.

E-mail address: cpigrau@vhebron.net (C. Pigrau).

evaluación inicial del paciente, la elección del antimicrobiano y la duración del mismo. El diagnóstico es especialmente difícil en ancianos y en pacientes con sondaje permanente. El incremento de cepas resistentes a los antibióticos, especialmente Enterobacterias productoras de beta-lactamasas de espectro extendido y de carbapenemasas y de otros Gram negativos multirresistentes, dificultan la elección del tratamiento de las ITU complicadas y no complicadas.

El objetivo de esta guía clínica es proporcionar recomendaciones basadas en la evidencia para mejorar el diagnóstico y tratamiento de las ITU.

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Introduction

Urinary tract infection (UTI) is one of the most common clinical problems in both the community and healthcare-associated settings. Community-acquired uncomplicated UTIs (uUTI) are particularly common among women, the vast majority of whom experience at least one episode of infection in their lifetime. A significant subset (25–40%) of women also develop recurrent urinary tract infections (rUTI), with multiple infections that recur over months, or years, in some cases. Other relevant clinical problems associated with UTI include asymptomatic bacteriuria (AB) and patients with complicated urinary tract infection (cUTI). Nosocomial UTI (generally a reflection of catheter-associated infections) constitutes about 20–30% of all hospital-acquired infections and are common sources of nosocomial bacteremia. One of the most important factors impacting the management of UTI in recent years has been the emergence of antimicrobial resistance among uropathogens, particularly isolates causing community-acquired UTI. Although at the moment antimicrobials can generally ensure the successful treatment or prevention of UTI, the emergence of antimicrobial resistance among uropathogens may soon limit our ability to do so.

All the above reasons illustrate how variable and complex these infections are, which is why the Spanish Society of Clinical Microbiology and Infectious Diseases (SEIMC) requested a panel of experts to provide an update on many of the issues involved, including the aetiology, microbiology, prevention, diagnosis, and treatment of various UTI syndromes. The related topic of prostatitis falls outside the scope of these guidelines. The present statement was written following SEIMC guidelines for consensus statements (www.seimc.org), as well as *Agree Collaboration* (www.agreecollaboration.org) recommendations for evaluating the methodological quality of clinical practice guidelines. Over various meetings, the authors selected a set of questions designed to form the basis of the document. Their recommendations are based on a systematic critical review of the literature including, when necessary, the opinion of experts, who are SEIMC members. Their recommendations have been adjusted according to the scientific evidence available ([Appendix A](#)). All the authors and the coordinators of the statement have agreed on the contents and conclusions of the document. Before final publication, the manuscript was made available online for all SEIMC members to read and to make comments and suggestions.

Clinical impact of resistance

What microbiological and clinical data should be used to guide empiric treatment of UTI?

Recommendations:

- Studies of the susceptibility of uropathogens in the community tend to overestimate resistance rates. To guide empiric treatment, susceptibility and clinical data (type of UTI (uncomplicated versus

complicated), sex, age and previous antibiotic therapy should be considered (**A-II**).

- An antimicrobial agent is not recommended for empiric treatment of urinary tract infections if local resistance prevalence is over 20% for cystitis (**B-II**) or 10% for pyelonephritis (**C-III**).

Diagnosis

When is a urine culture necessary for the diagnosis of uncomplicated cystitis?

Recommendations:

- In women with uncomplicated cystitis, empiric treatment should be initiated on the basis of symptoms alone. A urine culture is generally not necessary (**E-I**).
- A pre-treatment urine culture should be obtained when the diagnosis is not clear from the history and physical examination, when the episode represents an early symptomatic recurrence, when there is reason to suspect antimicrobial resistance or the patient's therapeutic options are limited due to medication intolerance (**A-II**).
- Routine post-treatment cultures are not indicated for asymptomatic women following treatment for cystitis (**E-II**) and should only be obtained if symptoms persist or recur soon after treatment (**A-II**).

Are blood cultures useful in the management of patients with acute pyelonephritis?

Recommendations:

- The available evidence suggests that there is no need to routinely take a blood culture from women with uncomplicated pyelonephritis (**E-II**). It seems reasonable, however, to obtain a blood culture from patients with complicated infections, those receiving antibiotics or who have severe sepsis (**B-II**).

What number of bacteria in urine is considered significant for the diagnosis of UTI?

Recommendations:

- Urine samples for culture should be collected in a manner that minimizes contamination (**A-II**).
- For symptomatic women, a culture definition for cystitis is $\geq 10^2$ CFU/mL (**A-I**) of a uropathogen, and for pyelonephritis $\geq 10^4$ CFU/mL (**A-II**). In non-catheter-related cystitis, counts of $\geq 10^2$ CFU/mL are significant in urine samples obtained by catheterization (**B-III**).
- In males with cystitis, a culture of $\geq 10^3$ CFU/mL is considered to be significant (**A-III**).

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