Enferm Infecc Microbiol Clin. 2015;33(10):680–687

Enfermedades Infecciosas y Microbiología Clínica

www.elsevier.es/eimc

Consensus statement

Executive summary. Management of urinary tract infection in solid organ transplant recipients: Consensus statement of the Group for the Study of Infection in Transplant Recipients (GESITRA) of the Spanish Society of Infectious Diseases and Clinical Microbiology (SEIMC) and the Spanish Network for Research in Infectious Diseases (REIPI)

Elisa Vidal[a,*,◊], Carlos Cervera[b,◊], Elisa Cordero[c], Carlos Armiñanzas[d], Jordi Carratalá[e], José Miguel Cisneros[c], M. Carmen Fariñas[d], Francisco López-Medrano[f], Asunción Moreno[b], Patricia Muñoz[g], Julia Origüen[f], Núria Sabé[e], Maricela Valerio[g], Julián Torre-Cisneros[a], Study Group of Infection in Transplant Recipients (GESITRA) of the Spanish Society of Infectious Diseases, Clinical Microbiology (SEIMC), Spanish Network for Research in Infectious Diseases (REIPI)

[a] *Unidad Clínica de Gestión de Enfermedades Infecciosas, Instituto Maimónides de Investigación en Biomedicina de Córdoba, Hospital Universitario Reina Sofía, Universidad de Córdoba, Córdoba, Spain*
[b] *Servicio de Enfermedades Infecciosas, Hospital Clínic-Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS), Universidad de Barcelona, Barcelona, Spain*
[c] *Unidad Clínica de Gestión de Enfermedades Infecciosas, Microbiología y Medicina Preventiva, Instituto de Biomedicina de Sevilla, Hospital Universitario Virgen del Rocío, Universidad de Sevilla, Sevilla, Spain*
[d] *Unidad de Enfermedades Infecciosas, Hospital Universitario Marqués de Valdecilla, Universidad de Cantabria, IDIVAL, Santander, Spain*
[e] *Servicio de Enfermedades Infecciosas, Hospital Universitario de Bellvitge, Instituto de Investigación Biomédica de Bellvitge (IDIBELL), Universidad de Barcelona, Barcelona, Spain*
[f] *Unidad de Enfermedades Infecciosas, Hospital Universitario 12 de Octubre, Instituto de Investigación Biomédica 12 de Octubre, Departamento de Medicina, Universidad Complutense, Madrid, Spain*
[g] *Departamento de Microbiología Clínica y Enfermedades Infecciosas, Hospital General Universitario Gregorio Marañón, Madrid, Spain*

ARTICLE INFO

Keywords:
Urinary infection
Transplantation
Consensus
Prophylaxis
Treatment

ABSTRACT

Urinary tract infections (UTI) are one of the most common infections in solid organ transplant (SOT) recipients. A systematic review was performed to assess the management of UTI in SOT recipients.

Recommendations are provided on the management of asymptomatic bacteriuria, and prophylaxis and treatment of UTI in SOT recipients. The diagnostic–therapeutic management of recurrent UTI and the role of infection in kidney graft rejection or dysfunction are reviewed. Finally, recommendations on antimicrobials and immunosuppressant interactions are also included.

Executive summary. Abordaje de la infección urinaria en receptores de trasplante de órgano sólido: documento de consenso del Grupo de Estudio de la Infección en Receptores de Trasplante (GESITRA) de la Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica (SEIMC) y la Red Española para el Estudio de Patología Infecciosa (REIPI)

Palabras clave:
Infección urinaria
Trasplante

RESUMEN

Las infecciones del tracto urinario (ITU) son muy frecuentes en los receptores de un trasplante de órgano sólido (TOS). Hemos realizado una revisión sistemática para determinar el abordaje de la ITU en receptores de TOS.

* Corresponding author.
E-mail address: vidal.elisa@gmail.com (E. Vidal).
◊ Coordinators of the document. These authors contributed equally to this work.

http://dx.doi.org/10.1016/j.eimc.2015.03.020

Consenso
Profilaxis
Tratamiento

Se realizan recomendaciones sobre el abordaje de la bacteriuria asintomática y sobre la profilaxis y tratamiento de las ITU en receptores de TOS. Se han revisado el abordaje diagnóstico-terapéutico de las ITU recurrentes y el papel de la ITU en el rechazo o disfunción del injerto renal. Finalmente, se incluyen recomendaciones sobre las interacciones entre antimicrobianos e inmunosupresores.

Introduction

The use of solid organ transplantation (SOT) has been established as accepted therapy for end-stage disease of the kidneys, liver, heart, and lungs for nearly 30 years. Intestinal and pancreas transplantation are also generally available but are provided on a more limited basis.

Infections remain a major cause of morbidity and mortality in transplant recipients. Urinary tract infections (UTI) are one of the most common infections in SOT, with a high prevalence, reaching 75% in some series involving kidney recipients. Experienced SOT researchers and clinicians have developed and implemented this consensus document in support of the optimal management of these patients.

The target population of this document are adults receiving SOT. The intended guideline audience is physicians involved in the care of SOT recipients (including primary care physicians). Here we report a consensus with the objective of assessing the overall available evidence and to propose recommendations on the following key issues:

1. Definitions.
2. Epidemiology and risk factors for UTI in SOT recipients.
3. Should SOT recipients receive primary prophylaxis for UTI?
4. What should be the management of asymptomatic bacteriuria in SOT recipients?
5. What is the best empirical treatment of UTI in SOT recipients?
6. What is the best definitive treatment of UTI in SOT recipients?
7. How long should SOT recipients receive antibiotics for a UTI?
8. What should be the management of UTI caused by *Candida* spp. in SOT recipients?
9. What should be the diagnostic–therapeutic management of recurrent UTI in SOT recipients?
10. What role does UTI play in kidney graft rejection or dysfunction?
11. Antimicrobial and immunosuppressant interactions.

Methods

We conducted a systematic review to assess the management of UTI in SOT recipients. Data for this document were identified through a search of PubMed and references from relevant articles using the search terms “transplant” and “urinary tract infection”. The search criteria included articles in English that involved human participants. We selected and revised a total of 3043 articles from 1968 to June 2014.

The evidence level based on the available literature is given for each recommendation to assess the strength of the evidence for risk and benefits of the procedure. This article was written in accordance with international recommendations on consensus statements (Table 1) and the recommendations of the Appraisal of Guidelines for Research and Evaluation II (AGREE II). The authors met twice to discuss the consensus and establish formal recommendations. The coordinators and authors agree on the content and conclusions. The consensus statement was sent to the 96 members of GESITRA for external revision of the manuscript. The board of directors of GESITRA will designate the coordinators to update the statements within 5 years. The full version of the consensus document of this executive summary is available at Ref. 1.

Definitions

Bacteriuria

Bacteriuria is defined according to the criteria proposed by the Infectious Diseases Society of America guidelines. For asymptomatic women, bacteriuria is defined as 2 consecutive voided urine specimens with isolation of the same bacterial strain in quantitative counts $\geq 10^5$ colony-forming units (cfu)/ml. A single, clean-catch voided urine specimen with 1 bacterial species isolated in a quantitative count $\geq 10^5$ cfu/ml identifies bacteriuria in men. A single catheterized urine specimen with 1 bacterial species isolated in a quantitative count $\geq 10^2$ cfu/ml identifies bacteriuria in women or men. Asymptomatic bacteriuria (AB) is defined by the presence of bacteriuria in the absence of any symptoms of lower or upper UTI.

Cystitis

Cystitis is defined by the presence of bacteriuria and clinical manifestations such as dysuria, frequency, or urinary urgency in the absence of pyelonephritis criteria.

Pyelonephritis

Pyelonephritis is defined by the simultaneous presence of a urine bacteria count $\geq 10^5$ cfu/ml and/or bacteremia and fever with

Table 1
Classification of the recommendations of this consensus document based on the strength and quality of the evidence analyzed.

Category, grade	Definition
Strength of recommendation	
A	Solid evidence of efficacy and clinical benefit
B	Solid or moderately solid evidence of efficacy, but clinical benefit is limited
C	Insufficient evidence of efficacy or possible benefits in terms of efficacy do not outweigh the cost or risks (toxicity and drug interactions), valid alternatives are available
D	Moderately solid evidence of a lack of efficacy or poor outcome
E	Strong evidence of a lack of efficacy or poor outcome
Quality of evidence	
I	Evidence from at least 1 well-designed and performed trial
II	Evidence from at least 1 well-designed non-randomized clinical trial, cohort study, or a non-controlled experimental study with non-conclusive results
III	Expert opinion based on clinical experience, descriptive studies, or reports from expert panels