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ORIGINAL ARTICLE

Corinebacterium urealyticum: increased incidence of infection and encrusted uropathy☆

F.M. Sánchez-Martín*, J.M. López-Martínez, A. Kanashiro-Azabache, E. Moncada, O. Angerri-Feu, F. Millán-Rodríguez, H. Villavicencio-Mavrich

Servicio de Urología, Fundació Puigvert, Barcelona, Spain

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KEYWORDS
Obstructive uropathy;
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Abstract

Introduction: Corynebacterium urealyticum (CU) affects patients who are immunosuppressed, chronically ill or have undergone numerous operations. Obstructive uropathy (OU) is a complication of infection.

Study objective: To demonstrate the growing increase in cases of infection by CU and OU in the past 5 years.

Material and methods: A descriptive study was conducted of urological patients with CU-positive urine cultures (January 2009–December 2014). We calculated the annual distribution and clinical characteristics of infection by CU and OU. Minimum follow-up: 6 months. We obtained the statistical means and ranges of clinical parameters pre/post-therapy.

Results: The total number of patients with CU was 115 (men, 87; women, 28). The mean age was 67.9 years (range, 6–95 years), and the annual distribution of cases for 2009, 2010, 2011, 2012, 2013 and 2014 was 9 (7.8%), 13 (11.3%), 9 (7.8%), 20 (17.4%), 31 (27%) and 33 (28.7%), respectively. The increase in cases for 2009–2014 was 300%. Multiple urological surgeries were performed in 89 cases (77.3%), with surgical complications in 77 cases (66.9%). Eighteen (15.6%) patients had OU (men, 13; women, 5), 12 had pyelitis (66.7%), 3 had cystopathy (16.6%), 2 had prostatic capsule disease (11.2%) and 1 had mesh calcification (5.5%). The analysis of the 18 cases with OU showed pre/postantibiotic therapy urine pHs of 8 (*r*, 6–9) vs. 6 (*r*, 5–7). All postantibiotic cultures were negative. Acidifying solution was applied in 5 cases, and surgery was performed in 13 cases (72.2%). The results from before/after the multimodal therapy showed renal impairment in 12 (66.6%) vs. 9 cases (50%) and glomerular filtration rates (GFR) of 45.8 (*r*, 6 to >90) vs. 52.7 (*r*, 13 to >90). The improvement in GFR was 6.94 points (T Wilcoxon; $p = .102$). The radiology results (incrustations) showed improvement in 13 patients (72.2%) and no change in 5 (27.8%). There was no specific mortality for CU.

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* Corresponding author.
E-mail address: fsanchez@fundacio-puigvert.es (F.M. Sánchez-Martín).

Conclusions: The prevalence of infection by CU and OU is increasing. Antibiotic treatment is highly effective. Acidifying solutions are an acceptable option for reducing calcifications.

PALABRAS CLAVE
Uropatía incrustante;
Pielitis;
Tratamiento acidificante;
Incidencia;
Infección Urinaria

Corynebacterium urealyticum: aumento de la incidencia de infección y uropatía incrustante

Resumen

Introducción: Corynebacterium urealyticum (CU) afecta a pacientes inmunodeprimidos, crónicos o multioperados. La uropatía incrustante (UI) representa una complicación de la infección.
Objetivo del estudio: Demostrar el aumento creciente de casos de infección por CU y UI en los últimos 5 años.
Material y métodos: Estudio descriptivo de pacientes urológicos con urocultivo positivo a CU (enero de 2009-diciembre de 2014). Cálculo de distribución anual y características clínicas de infección por CU y UI. Seguimiento mínimo: 6 meses. Obtención de medias y rangos estadísticos de parámetros clínicos pre/postratamiento.
Resultados: Total de pacientes con CU: 115 (hombres 87: mujeres 28). Edad: 67,9 años (rango 6-95). Distribución anual (casos) 2009: 9 (7,8%), 2010: 13 (11,3%), 2011: 9 (7,8%), 2012: 20 (17,4%), 2013: 31 (27%), 2014: 33 (28,7%). Incremento 2009-2014: 300%. Cirugía urológica múltiple: 89 casos (77,3%). Complicaciones quirúrgicas: 77 casos (66,9%). Pacientes con UI: 18 casos (15,6%) (hombres 13: mujeres 5): pielitis 12 (66,7%), cistopatía 3 (16,6%), *prostatic capsule disease* 2 (11,2%), calcificación de la malla uno (5,5%). Análisis de 18 casos con UI: PH orina pre/postantibiótico: 8 (r = 6-9) vs 6 (r = 5-7). Cultivo negativo postantibiótico: 100%. Aplicación de solución acidificante: 5 casos. Cirugía: 13 casos (72,2%). Resultados pre/postratamiento multimodal: insuficiencia renal: 12 (66,6%) vs 9 (50%), filtrado glomerular (FG): 45,8 (r = 6- > 90) vs 52,7 (r = 13- > 90). Mejoría del FG: 6,94 puntos (T Wilcoxon p = 0,102). Radiología (incrustaciones): mejoría 13 (72,2%), igual 5 (27,8%). No mortalidad específica por CU.
Conclusiones: La prevalencia de infección por CU y la UI está aumentando. El tratamiento antibiótico es muy eficaz. Las soluciones acidificantes son una opción aceptable para reducir calcificaciones.

Introduction

Corynebacterium urealyticum (CU) is a Gram positive, non-sporulated strict aerobic, slow-growing, opportunistic in immunocompromised, chronic, or undergoing multiple operations patients in whom it produces from asymptomatic bacteriuria (0.2% of urine cultures) to urological sepsis. 60% of positive cultures for CU have clinical significance.[1] It has a wide distribution in nature, being the mechanism of infection in hospitals by air pollution or contact. CU infection manifests with cystitis, pyelonephritis, urinary sepsis, and eventually with fouling uropathy (FU). Not all cases of infection by CU are accompanied by FU. This occurs on a previous urothelial inflammatory process.

In urological literature on CU, there are many isolated clinical cases or small series,[2–4] but until today there are no conclusive data on its incidence. The aim of this paper is to demonstrate the growing increase of cases of infection by CU and FU over the past 5 years.

Material and methods

Descriptive study (SPSS) of urological patients with positive urine culture for CU between January 2009 and December 2014. Population (age and sex) and pathological data (urological and surgical history, complications, examinations, therapy) were collected. Annual distribution of the infection by CU and percentage of FU were calculated. FU cases (clinical presentation, treatment, and evolution) with a minimum follow-up of 6 months were analyzed, considering clinical improvement criteria: overall status, negativized culture, decreased urinary pH, radiological and functional renal improvement. Statistical averages and ranges of the pre/post treatment clinical parameters were obtained. It was considered positive culture after verifying the Gram and observing slow growth of pinpoint colonies (CFU/ml) on blood agar. The culture was repeated a week, 3 and 6 months after beginning the antibiotic. FU diagnosis was based on CT in all cases, which was repeated after 3–4 weeks and 3 months after starting the multimodal treatment. In the FU, evolution of GFR was analyzed with Wilcoxon *T* test.

Results

We collected a total of 115 patients with CU infection, corresponding to 87 men and 28 women; age: 67.9 years (*r* = 6–95). The annual distribution is shown in Fig. 1.