



CLINICAL CASE

Bilingual edition English/Spanish

Pulmonary nocardiosis treated with tedizolid

Nocardiosis pulmonar tratada con tedizolid

Víctor Giménez-Arufe¹, José María Gutiérrez-Urbón¹, Marina Blanco-Aparicio², Enrique Míguez-Rey³, María Isabel Martín-Herranz¹

¹Servicio de Farmacia. ²Servicio de Neumología. ³Unidad de Infecciosas. Complejo Hospitalario Universitario de A Coruña (CHUAC), Sergas, A Coruña, Spain.

Author of correspondence

Víctor Giménez Arufe
Servicio de Farmacia. Complejo
Hospitalario Universitario A Coruña.
Avda. As Xubias, s/n
15009 A Coruña, Spain.

Email:
victor.gimenez.arufe@sergas.es

Received 15 April 2019;
Accepted 12 August 2019.
DOI: 10.7399/fh.11256

How to cite this paper

Giménez-Arufe V, Gutiérrez-Urbón JM, Blanco-Aparicio M, Míguez-Rey E, Martín-Herranz MI. Pulmonary nocardiosis treated with tedizolid. Farm Hosp. 2019;43(6):208-10.

Introduction

Nocardiosis is an acute or chronic infection, often disseminated, suppurative, or granulomatous, which is caused by several microorganisms of the genus *Nocardia*. It mainly affects immunocompromised patients. The typical clinical picture is pneumonia, but skin and central nervous system (CNS) infections are also common. Associated mortality rates are high, ranging from 14% to 40% increasing to 60-100% when CNS disseminated infection occurs.

Pulmonary nocardiosis remains a difficult diagnostic entity because of its clinical and radiological nonspecificity. Diagnosis is established from the identification of *Nocardia* species in tissues or cultures of samples obtained from the lesions. The choice of treatment should be based on antibiogram.

Trimethoprim-sulfamethoxazole (TMP/SMX) is the antimicrobial of choice to treat pulmonary nocardiosis. Other antimicrobial agents with activity against *Nocardia* species include amikacin, imipenem, meropenem, ceftriaxone, cefotaxime, minocycline, levofloxacin, linezolid, tigecycline, and amoxicillin/clavulanic acid. In order to minimize the risk of relapse, treatment duration is generally from 6 months to 12 months¹.

Tedizolid is an oxazolidinone-class antibiotic with activity against gram-positive microorganisms. It is indicated in skin and soft tissue infections at a recommended dosage of 200 mg oral or IV once daily for six days^{2,3}. Experience of tedizolid in the treatment of pulmonary nocardiosis is anecdotal but promising, due to its good in vitro activity⁴ and excellent oral bioavailability, despite limited evidence on prolonged treatment.

We describe the efficacy and safety of prolonged treatment with tedizolid in a case of pulmonary nocardiosis.

Case description

A 47-year-old woman with COPD treated with β_2 adrenergic agonists combined with inhaled corticosteroids. There was no other history of interest and renal function was normal. She had returned from Venezuela, where she had a clinical picture of at least 10-months duration of cough with scarce hemoptoic expectoration, asthenia, and weight loss of at least 10 kg, accompanied by dyspnea with moderate exercise. Chest CT scan showed a cavitary-abscess lesion in the left lower lobe suggestive of infectious disease. The scan also showed small homogeneous hilar/mediastinal adenopathies, probably inflammatory, as well as calcified and non-calcified granulomas in the right upper lobe. Biopsy ruled out neoplasia and only confirmed an acute inflammatory component: thus, a diagnosis of pulmonary nocardiosis without infiltration was assumed. In March 2018, we began outpatient treatment with TMP/SMX. However, on April 21, 2018, treatment was suspended after she developed a diffuse erythematous nonpruritic painless rash, jaundice of the skin and eyes, and choluria.

On May 8, 2018, she was admitted to our hospital with TMP/SMX hepatotoxicity and persistent pulmonary lesion. We were unable to isolate and determine the *Nocardia* species, so antibiotic coverage was begun with imipenem and amikacin. The patient developed a skin rash after the administration of amikacin, which was replaced by linezolid 600 mg/12 h. On 23 May, 2018, the patient was discharged under a Home Hospitalization program and treated with intravenous imipenem, oral linezolid, and her usual inhaled treatment. On June 15, 2018, she developed anemia, thrombocytopenia, and neutropenia. We decided to maintain treatment with imipenem but suspend linezolid until hematologic recovery.

KEYWORDS

Oxazolidinones; Nocardiosis; Long Term Treatment; Tedizolid; Adverse reactions.

PALABRAS CLAVE

Oxazolidinonas; Nocardiosis; Larga duración; Tedizolid; Efectos adversos.



Los artículos publicados en esta revista se distribuyen con la licencia
Articles published in this journal are licensed with a
Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.
<http://creativecommons.org/licenses/by-nc-sa/4.0/>
La revista Farmacia no cobra tasas por el envío de trabajos,
ni tampoco por la publicación de sus artículos.

Bibliography

1. Fatahi-Bafghi M. Nocardiosis from 1888 to 2017. *Microb Pathog.* 2018;114:369-84. DOI: 10.1016/j.micpath.2017.11.012
2. Prokocimer P, De Anda C, Fang E, Mehra P, Das A. Tedizolid phosphate vs linezolid for treatment of acute bacterial skin and skin structure infections: the ESTABLISH-1 randomized trial. *JAMA.* 2013;309:559-69. DOI: 10.1001/jama.2013.241
3. Moran GJ, Fang E, Corey GR, Das AF, De Anda C, Prokocimer P. Tedizolid for 6 days versus linezolid for 10 days for acute bacterial skin and skin-structure infections (ESTABLISH-2): a randomized, double-blind, phase 3, noninferiority trial. *Lancet Infect Dis.* 2014;14(8):696-705. DOI: 10.1016/S1473-3099(14)70737-6
4. Brown-Elliott BA, Wallace RJ Jr. In Vitro Susceptibility Testing of Tedizolid against Isolates of *Nocardia*. *Antimicrob Agents Chemother.* 2017;61(12):e01537-17. DOI: 10.1128/AAC.01537-17
5. Moylett EH, Pacheco SE, Brown-Elliott BA, Perry TR, Buescher ES, Birmingham MC, *et al.* Clinical experience with linezolid for the treatment of *Nocardia* infection. *Clin Infect Dis.* 2003;36:313-8. DOI: 10.1086/345907
6. Matin A, Sharma S, Mathur P, Apewokin SK. Myelosuppression-sparing treatment of central nervous system nocardiosis in a multiple myeloma patient utilizing a tedizolid-based regimen: a case report. *Int J Antimicrob Agents.* 2017;49(4):488-92. DOI: 10.1016/j.ijantimicag.2016.11.032
7. Shorr AF, Lodise TP, Corey GR, De Anda C, Fang E, Das AF, *et al.* Analysis of the phase 3 ESTABLISH trials of tedizolid versus linezolid in acute bacterial skin and skin structure infections. *Antimicrob Agents Chemother.* 2015;59(2):864-71. DOI: 10.1128/AAC.03688-14
8. Lee EY, Caffrey AR. Thrombocytopenia with tedizolid and linezolid. *Antimicrob Agents Chemother.* 2018;62:e01453-17. DOI: 10.1128/AAC.01453-17
9. Kim T, Wills A, Markus A, Prevots DR, Olivier KN. Safety and Tolerability of Long Term Use of Tedizolid for Treatment of Nontuberculous Mycobacterial Infections. *Open Forum Infect Dis.* 2016;3(Suppl 1):S77. DOI: 10.1093/ofid/ofw172.440
10. Nigo M, Luce AM, Arias CA. Long-term Use of Tedizolid as Suppressive Therapy for Recurrent Methicillin-Resistant *Staphylococcus aureus* Graft Infection. *Clin Infect Dis.* 2018;66(12):1975-6. DOI: 10.1093/cid/ciy041