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# In vitro activity of multiple antibiotic combinations against Nocardia: relationship with a short-term treatment strategy in heart transplant recipients with pulmonary nocardiosis.

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## Abstract

M.-F. Tripodi, E. Durante-Mangoni, R. Fortunato, S. Cuccurullo, Y. Mikami, C. Farina, R. Utili. In vitro activity of multiple antibiotic combinations against Nocardia: relationship with a short-term treatment strategy in heart transplant recipients with pulmonary nocardiosis. Transpl Infect Dis 2010. All rights reserved Background/objectives. Pulmonary nocardiosis (PN) chiefly affects immunocompromised patients, particularly transplant recipients. Cotrimoxazole is still the mainstay of treatment, but it is associated with nephro- and myelo-toxicity, and can show unpredictable activity against Nocardia isolates. Methods. Over a 20-year period, Nocardia isolates were identified from 12 heart transplant (HTx) recipients with PN. The in vitro activity of various antibacterials, alone or in combination, was assessed using disk-diffusion, minimal inhibitory concentration (MIC), and time-kill methodology. The in vitro results were compared with the clinical outcome of the patients. Results. Seven different Nocardia strains were identified. Disk diffusion and MIC determinations showed that all isolates were susceptible to amikacin, netilmicin, and linezolid, and that moxifloxacin was the most active of the fluoroquinolones. All but 1 of the isolates were susceptible to imipenem. Time-kill studies showed that imipenem/amikacin and imipenem/moxifloxacin combinations were bactericidal for most isolates. Of 12 patients who received 3-4 weeks' intravenous (IV) treatment with amikacin or ciprofloxacin in combination with a beta-lactam, followed by 1-3 months' oral cotrimoxazole, moxifloxacin, or linezolid, 11 were cured; 1 patient died, but not related to Nocardia. Conclusion. Initial PN treatment in HTx recipients can be successfully carried out with bactericidal combinations such as imipenem plus amikacin or moxifloxacin, administered IV for 3-4 weeks. Within 1 month, a significant clinical and radiological improvement may be observed. In our experience, a <3 month oral regimen with cotrimoxazole, moxifloxacin, or doxycycline may then be used. This may allow a reduction of side effects and treatment-related burden, without any recurrence.



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