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Cartas científicas

Linezolid and vancomycin-resistant *Enterococcus faecium* peritonitis in a child after liver transplantation

Enterococcus faecium *resistente a linezolid y vancomicina aislado en un niño con peritonitis sometido a trasplante hepático*

We report the first case of linezolid-resistant and vancomycin-resistant *Enterococcus faecium* (LRVREF) in a child in Spain.[1–3] The patient was a 31 month-old boy who was admitted in our hospital in 2011, after a failed Kasai portoenteroanastomosis for biliary atresia. While awaiting a liver transplantation, he presented two episodes of fever with ascites, with negative blood cultures, both treated with vancomycin (10 mg/kg every 6 h) plus meropenem with resolution. Living-donor liver transplantation was performed in June 2012. Vancomycin plus meropenem was administered since liver transplantation as prophylaxis of perioperative infection. On the 10th postoperative (PO) day, he started with high fever and a neutrophil-rich fluid in abdominal drainages. Blood cultures rendered negative results. However in samples obtained from drainage a vancomycin-resistant *E. faecium* (VREF) was isolated. The isolate had also resistance to beta-lactams, levofloxacin and high resistance to aminoglycosides. Treatment was changed to linezolid (10 mg/kg every 8 h), plus amikacin and metronidazole. On the 4th PO week, after 22 days on linezolid, a LRVREF and *Pseudomonas aeruginosa* were isolated from the drainage. Treatment was changed to daptomycin (10 mg/kg/day) plus fosfomycin (50 mg/kg every 6 h × 8 days). Up to the resolution of bile leakage, by 52nd PO day, surveillance persisted in identifying the same two microorganisms. Daptomycin was stopped after a 33-days treatment, on PO day 67th. The patient was discharged without further complications up to the end of follow-up in December 2012. The VanA phenotype was confirmed by PCR.[4] The presence of the most common linezolid resistance mutation, G2576T, was analyzed by pyrosequencing. The presence of a *cfr* gene was discarded by PCR. *E. faecium* was identified by MALDI-TOF (MALDI Biotyper, Bruker Daltonics) and the antibiotic susceptibility testing was performed using the Microscan® cards (SIEMENS). Minimal inhibitory concentration (MIC, μg/mL) values of the first isolate of VREF were: ampicillin >8, vancomycin >256, teicoplanin 24 and linezolid ≤1. In the isolates of LRVREF, MIC value of linezolid was 16 μg/mL. MICs of linezolid, vancomycin and teicoplanin were confirmed by Etest® (Biomerieux) using the breakpoints recommended by the Clinical and Laboratory Standards Institute Guidelines (CLSI, 2012). The child was hospitalized in ICU where was another child with VREF culture from peritoneal fluid in the same period. As preventive measure, we carried out a colonization study to all patients in that ward and only one new patient was found to be colonized with VREF. Random Amplification of Polimorfic DNA (RAPD) patterns from the VREF isolates of the three patients were different, indicating a polyclonal spread of VREF. Multilocus sequence typing (MLST) was realized in the isolates of this patient. These belong to ST18 which in turn belong to clonal complex CC17, associated with nosocomial infections and outbreaks. The linezolid-resistant isolate from the case patient had the G2576T mutation in a 2:1 ratio of wild type to mutant alleles. This low mutation dosage might be related to the low MIC of this isolate. The safety and tolerability of linezolid favour its use in prolonged treatments, but it should be taken into account that continuous exposures during long periods increase the chance of selecting isolates with higher mutation dosages and higher linezolid MICs.[5–8]

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Verónica García-Gil[a], María Rosa Gómez-Gil[a,*], Luis Escosa-García[b], Loreto Hierro-Llanillo[c]

[a] *Department of Microbiology, Hospital La Paz, IdiPaz, Madrid, Spain*
[b] *Department of Pediatric Infection Disease, Hospital La Paz, IdiPaz, Madrid, Spain*
[c] *Service of Pediatric Hepatology and Transplantation, Hospital La Paz, IdiPaz, Madrid, Spain*

* Corresponding author.
E-mail address: mrosa.gomezgil@salud.madrid.org (M.R. Gómez-Gil).

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