

**P2328 Trends in antimicrobial resistance among *Enterococcus faecium* and *Enterococcus faecalis* isolated from blood cultures in haematological patient in Russia**

Anastasia Fedorova Mironova<sup>1</sup>, Galina Klyasova\*<sup>1</sup>, Svetlana Khrulnova<sup>1</sup>, Irina Frolova<sup>1</sup>, Svetlana Vereschagina<sup>2</sup>, Tatiana Kaporskaja<sup>3</sup>, Irina Molchanova<sup>4</sup>

<sup>1</sup> National Research Center for Hematology, Moscow, Russian Federation, <sup>2</sup> Irkutsk Regional Clinical Hospital, <sup>3</sup> Irkutsk Regional Clinical Hospital, Irkutsk, Russian Federation, <sup>4</sup> Chelyabinsk Regional Clinical Hospital, Chelyabinsk, Russian Federation

**Background:** The aim of this study was to determine antimicrobial resistance trends of *E. faecium* and *E. faecalis* isolated from blood cultures in hematological patients (2002-2009 versus 2010-2017).

**Materials/methods:** Prospective multicenter study included *Enterococcus* spp. collected from 10 hospitals in 8 cities of Russia. Antimicrobial susceptibility was tested by the broth microdilution method (CLSI, 2018), to daptomycin by Etest (bioMérieux, France). High-level gentamicin resistance (HLGR) and high-level streptomycin resistance (HLSR) was performed by the agar dilution method (CLSI, 2018). Minimum inhibitory concentrations (MICs) were analyzed using CLSI 2018, tigecycline – EUCAST version 8.1, 2018. Vancomycin resistance genes were detected by PCR. Linezolid-resistant isolates were examined for the presence of the G2576T mutation in the 23S rRNA genes and mutation in ribosomal proteins L3 by sequencing, the *cfr* and *optrA* genes were tested by PCR.

**Results:** Overall, 366 *E. faecium* (157 in 2002-2009 and 209 in 2010-2017) and 86 *E. faecalis* (44 in 2002-2009 and 42 in 2010-2017) were tested. The results of susceptibility testing are presented in the figure. Resistance to vancomycin among *E. faecium* increased from 8.3% (2002-2009) to 23.4% (2010-2017),  $p=0.0001$ . Vancomycin-resistant *E. faecium* carried *vanA* (97.2%) or *vanB* (7.7 %) in 2002-2009 and *vanA* (55.1%) or *vanB* (44.9%) in 2010-2017. In 2012 the first linezolid-resistant *E. faecium* was detected, in 2017 - the second. G2576T mutation in 23S rRNA was determined in both linezolid-resistant *E. faecium* (linezolid MICs 8-16 µg/ml), one of them was vancomycin-resistant with *vanA* genes, another was vancomycin-susceptible. All vancomycin-resistant isolates were susceptible to daptomycin (MIC<sub>50/90</sub>, 1/3 µg/ml), seven (11.3%) of them had MICs of 3–4 µg/ml. In *E. faecalis* HLGR has increased from 52.3% to 73.8%, HLSR – from 47.7% to 69%, to levofloxacin – from 40.9% to 68%, to penicillin from 2.3% to 23.8% (2002-2009 vs 2010-2017). Resistance of *E. faecalis* to ampicillin and vancomycin remained low (<2.5%) and unchanged in two periods.

**Conclusions:** Resistance to vancomycin in *E. faecium* increased from 8.3% (2002-2009) to 23.4% (2010-2017). Two *E. faecium* isolates were resistant to linezolid. Daptomycin and tigecycline were active against all vancomycin-resistant and linezolid-resistant *E. faecium*. HLGR, HLSR and levofloxacin resistance increased among *E. faecalis*.

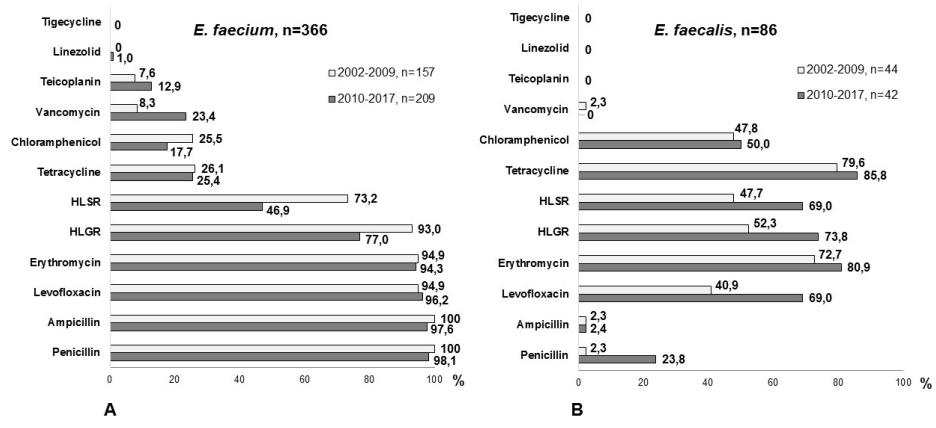


Figure. The trend of antimicrobial resistance (resistant + intermediate resistant) among *E. faecium* (A) and *E. faecalis* (B)

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