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Emergence of ST117 *Enterococcus faecium* carrying both *vanA* and *vanB* genes in GreeceE Petinaki¹, C Papagiannitsis² and A Skoulakis²¹University Hospital/Medical School, Greece²University of Thessaly, Greece

Statement of the Problem: Vancomycin-Resistant Enterococci (VRE) are recognized as an important nosocomial problem worldwide, posing a particular threat in healthcare facilities (HCF). On November 2016, one *E. faecium*, carrier of both *vanA/vanB* genes, was isolated from the blood cultures of a patient in the University Hospital of Larissa, Thessaly, Greece. The isolate, Efa-125, exhibited resistance to both vancomycin and teicoplanin (MIC_{vancomycin}: 256mg/L, MIC_{teicoplanin}: 256 mg/L), and was also resistant to various antimicrobial agents except, linezolid, daptomycin and tigecycline. Based on Multi Locus Sequence Typing (MLST), Efa-125 belonged to ST117 clone (Clonal Complex 17). Given that, few strains worldwide, were found to carry both *vanA* and *vanB* genes, the strain was further analyzed regarding the genetic units carrying *vanA* and *vanB* genes.

Methodology: The genomic DNA of *E. faecium* Efa-125 was extracted using the DNA-Sorb-B kit (Sacace Biotechnologies S.r.l., Como, Italy). Plasmids and chromosomes were sequenced using the Illumina MiSeq platform (Illumina Inc., San Diego, CA, USA). Initial paired-end reads were quality trimmed using Trimmomatic tool and assembled via de Bruijn graph-based *de novo* assembler SPAdes. The sequence gaps were filled by a PCR-based strategy and Sanger sequencing. For sequence analysis and annotation, the BLAST algorithm (www.ncbi.nlm.nih.gov/BLAST), the ISFinder database (www-is.biotoul.fr/), and open reading frame (ORF) finder tool (www.bioinformatics.org/sms/) were utilized. The nucleotide sequence of the plasmid pEfa-125gr has been assigned GenBank accession number KY320277.

Findings: The *vanA* gene was carried on a plasmid (29,320 bp) exhibiting high similarity to pA6981, previously characterized from *E. gallinarum* A6981, whereas *vanB* was part of a Tn1549-like transposon integrated into its chromosome.

Conclusion & Significance: In Greece is the first detection of a *vanA-vanB* genotype/*VanA* phenotype *E. faecium* caused bacteremia. Until now, *vanA/vanB E. faecium* strains are isolated in Middle East and express a *VanB* phenotype. This report indicates an evolving VRE epidemiology.

Biography

E Petinaki is a Clinical Microbiologist, Professor and Head of Department of Microbiology of the University Hospital/Medical School of University of Thessaly in Larissa (Central Greece). Her research interest is focused on the epidemiology of nosocomial infections, on the characterization of mechanisms of antimicrobial resistance and on the application of molecular methods for the identification of etiological agent of infectious diseases. She is responsible for the teaching of Microbiology in several Under-graduate and Post-graduate programs of Greek Universities and she is Coordinator in many national research studies.

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