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O0987 Staphylococcus lugdunensis: phenotypes and genotypes of antimicrobial resistance, clinical implications and bacteriocin production

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Background: *Staphylococcus lugdunensis* (SL) is a coagulase-negative-staphylococci (CoNS) that lately has gained attention as human pathogen and also as bacteriocin producer (BP), what could have interest in public health. The objective was to characterize clinical SL isolates of two hospitals located in two different Spanish regions, determining their phenotypes/genotypes of antimicrobial resistance and their capacity of bacteriocin production.

Materials/methods: 39 clinical SL isolates of two hospitals (mostly in 2016-2017, representing 2.8% of CoNS) were characterized. Susceptibility-testing for 21 antimicrobials was performed (MicroScan®) and resistance genes by PCR/sequencing. BP was tested by the spot in the lawn method against 40 indicator bacteria (different genera/species), including multi-drug-resistant bacteria (MDR).

Results: S*. lugdunensis* isolates were recovered of skin and soft-tissue infections (n=12), catheter (n=8), blood (n=7), urine (n=5), exudates (n=4), surgical wounds (n=2), and epidemiological-sample (n=1). 28% of SL isolates showed susceptibility for all antibiotics tested and the following resistances were detected: penicillin (43.6%), fosfomycin (25.6%), tetracycline (12.8%), erythromycin-clindamycin (7.7%), tobramycin (5.1%), methicillin/cefoxitin (2.6%), gentamicin (2.6%), linezolid (2.6%), and others (0%). The *tet(*L) +/- *tet*(K), *erm*C, *ant*(4´)-(4") and *mec*A genes were detected in most of tetracycline, erythromycin, tobramycin and methicillin resistant isolates, respectively. The linezolid-resistant isolate was negative for *optr*A and *cfr* genes. Bacteriocin production was tested in the 39 SL isolates against 40 gram-positive and gram-negative bacteria that included different species of *Staphylococcus*, *Enterococcus, Listeria, Escherichia,* and *Pseudomonas*. Bacteriocin production was detected 12 of these SL isolates (BP-SL) and seven of them showed a very intense antimicrobial activity against a series of 10 *S. pseudintermedius* isolates tested (new zoonotic opportunistic pathogen), as well as for other indicators. One of these BP-SL isolates (C9954) showed a high antimicrobial activity against 72% of indicator tested, including MDR bacteria, and could be of interest in future applied studies.

Conclusions: SL are frequently detected in soft-tissue infections and hemocultures in the analyzed hospitals. Although approximately 1/3 of SL are susceptible to antibiotics, they can also present phenotypes of antimicrobial resistance, including methicillin and linezolid. BP has been detected in 30% of SL, emphasizing the strong activity against the zoonotic opportunistic pathogen *S. pseudintermedius.*