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P2082 Activity of chlorhexidine against Enterococcus faecium from different origins, clonal lineages and antibiotic resistance phenotypes

Ana P. Pereira[1], Ana Raquel Freitas[2], Patricia Antunes[2 3], Barbara Duarte[1], Teresa M. Coque Gonzalez[4 5], Luisa Maria Vieira Peixe[2], Carla Novais*[2]

[1]Faculdade de Farmácia. Universidade do Porto., Porto, Portugal, *[2]UCIBIO/REQUIMTE. Faculdade de Farmácia. Universidade do Porto., Ciências Biológicas, Porto, Portugal*, *[3]Faculdade de Ciências da Nutrição e Alimentação. Universidade do Porto. , Porto, Portugal*, *[4]Instituto Ramón y Cajal de Investigación Sanitaria (IRYCIS), Servicio de Microbiología, Madrid, Spain*, *[5]CIBER Epidemiología y Salud Pública, Madrid, Spain*

Background: Chlorexidine-gluconate (CHX) is used in the hospital, community and animal production settings (hand hygiene, skin antisepsis, oral care and patient washing; 0.12-4%). Its activity against *Enterococcus faecium*, a major nosocomial pathogen, has been scarcely described, with most available data not addressing strain's genetic background. Three clades are currently described for *E. faecium*: A1-mostly includes infection-derived strains; A2-associated with sporadic human infections and animals; and B-human commensal strains. This study aimed to evaluate CHX activity against representative well-characterized antibiotic resistant *E. faecium* from diverse sources and clades.

Materials/methods: Fifty-three *E. faecium* isolates obtained in Portugal, Spain and Angola (1995-2016) were included. They corresponded to 37 sequence types clustering into clades A1 (clinical-n=8 isolates, long-term care patients-n=5, hospital sewage-n=1), A2 [clinical-n=3, healthy-humans-n=2, animal-production-setting (piggery, aquaculture, aviary)-n=17, raw poultry for human consumption-n=11] and B [long-term care patients-n=2, hospital-sewage-n=1, animal-production-setting (piggery)-n=3]. Multidrug-resistance (MDR) was observed in 87% (n=46/53) of them and resistance to the clinically relevant antibiotics vancomycin (*vanA*-VRE) in 36% (n=19/53) and ampicillin (AmpR; *pbp5* mutations) in 81% (n=43/53). CHX minimum inhibitory concentration (MIC) was determined by broth microdilution (adapted from EUCAST guidelines) (CHX range: 2-32mg/L; ECOFF: MIC≤32mg/L-PMID:24466194).

Results: CHX-MIC ranged between ≤2-16mg/L: MIC≤2mg/L (n=9 isolates), MIC=4mg/L (n=13), MIC=8mg/L (n=16) and MIC=16mg/L (n=15). MIC50/MIC90 for isolates from clades A1, A2 and B were 16/16mg/L, 4/16mg/L, 8/8mg/L, respectively. VRE (clades A1, A2) and vancomycin-susceptible (clades A1, A2, B) isolates presented a MIC50/MIC90=8/16mg/L and 4/16mg/L respectively. AmpR (A1, A2, B) or ampicillin-susceptible (A1, A2, B) isolates showed the same values of MIC50/MIC90=8/16mg/L. The MIC50/90 of isolates from clinical (clinical, long-term-patients, hospital-sewage, n=20, clades A1, A2, B) or community (healthy-human, animal-production-setting/food, n=33, clades A2, B) were 8/16mg/L and 4/16mg/L, respectively.

Conclusions: CHX presented good activity against MDR *E. faecium* from different origins and clonal background, with all isolates classified as wild type. Despite its very good activity against *E. faecium*, those strains from clade A1 seem to be somewhat less susceptible, stressing the need of evaluating the impact sub-inhibitory concentrations in the selection of such strains in the clinical setting.