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P1444 Antibacterial and antibiofilm activities of various antibiotics alone and in combination with diffusible signal factor against biofilm forming staphylococci

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Background: *Staphylococcus* species which are the important pathogenic bacteria leading to variety of infections in human body, can be colonized in the anterior nares, skin folds, upper respiratory tract, pharynx, digestive tract and vaginal perianal region of healthy adults. The most significant species methicillin- resistant *Staphylococcus aureus* and *S. epidermidis* can cause hospital and community acquired infections. Biofilms, formed by colonization and growth of microorganisms on surfaces, are one of the virulence factors associated with resistance, can often make it difficult to treat with antibiotics for chronic or recurrent staphylococcal infections.

In recent years, new studies related to the discovery of new molecules aid to the antibiotics are needed. In this study, antibiotics were assessed in combination with diffusible signal factor (cis-11-methyl-2-dodecenoic acid, DSF), known as a quorum sensing signal molecule and plays role in the regulation of biological functions like biofilm formation, swarming, antibiotic resistance and intra- and inter-species communication.

Materials/methods:
The biofilm formation of 17 clinical strains (MRSA, MSSA, MRSE, MSSE) were observed with crystal violet staining method and compared to biofilm positive control strain MRSA ATCC 43300. Minimum İnhibitory Concentrations (MIC) and Minimal Biofilm Eradication Concentration of antibiotics (Daptomycin, Vancomycin, Gentamycin, Linezolid, Ciprofloxacin, and Meropenem) alone and in combination with DSF against biofilm forming strains were determined with the microtiter plate assay.

Results: 8/17 clinical *Staphylococcus* sp. were observed as biofilm forming strains. The MIC values of Gentamycin, Meropenem, Vancomycin and Linezolid were between 0.25- 64 µg/ml, and are decreased about 2-8 fold in combination with 0,5 µM DSF against 2 to 5/10 strains. The MBEC values of Ciprofloxacin, Gentamycin, Meropenem, Vancomycin and Linezolid were found between 10-5120 µg/ml and decreased about 2-8 fold in combination with 0,5 µM DSF against 6 strains.

Conclusions: Consequently, in further research studies Diffusible signal factor and other Quorum Sensing Signal molecules which can be used as antibiotic adjuvants, should be assayed in combination with other antimicrobial agents.