

Detection of Inducible Clindamycin Resistance in Community Associated *S. aureus* Isolated From Healthy Students at Arak University of Medical Sciences

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Background & Objectives: Therapeutic failure to clindamycin has been reported due to mechanisms which confer resistance constitutively, or by the presence of low level inducers which can lead to therapeutic failure. The increasing frequency of Methicillin resistant *Staphylococcus aureus* (MRSA) infections and the changing patterns in antimicrobial resistance have led to renewed interest in the use of macrolide lincosamide– streptogramin B (MLSB) antibiotics to treat such infections . Inducible MLSB resistance cannot be determined by using standard susceptibility test Methods. The disc diffusion test, based on the D test, showed four phenotypes.(1) D positive (iMLSb Phenotype), (2) D negative (MSB Phenotype), (3) Constitutive resistance (cMLSb Phenotype) (4) Sensitive phenotype. This study aimed to determine the prevalence of the macrolides-lincosamides-streptogramins B (MLSb) resistance in community associated *s.aureus* isolated from healthy students at Arak university of Medical sciences.

Methods: 82 *S. aureus* strains isolated from the anterior nares of 568 healthy students at Arak university of Medical sciences. All samples were subjected to *S. aureus*–specific isolation procedures (Catalase, Coagulase, Clumping factor, DNase, Thermostable nuclease, 162 bp of *sa442* gene), the double disc test was applied by placing erythromycin and clindamycin discs on these isolates to investigate the inducible and constitutive MLSB resistance phenotypes and MS phenotype as well as Methicillin resistance was detected by using a 30 µg cefoxitin disc.

Results: Among the 82 community acquired *Staphylococcus aureus*, 3.65%(3) were Methicillin resistant *Staphylococcus aureus* (CA-MRSA) and 96.35% (79) were Methicillin sensitive *Staphylococcus aureus* (CA-MSSA). of the 82 *S. aureus* strains, 11%(9) showed constitutive(cMLSb Phenotype) , 2.4%(2) the inducible phenotype (D positive) , 2.4%(2) D negative (MSB Phenotype) and 84.2%(69) Sensitive Phenotype. All of the CA-MRSA showed constitutive phenotype.

Conclusion: Our study shows that in community associated *s.aureus* strains, constitutive MLSB resistance rate was found to be higher than the rate of inducible resistance.

Keywords: Community Associated *S. aureus*, Clindamycin, Resistance