Reports of Biochemistry & Molecular Biology
Vol.11, No.1, Apr 2022

Original article

www.RBMB.net

Constitutive and Inducible Clindamycin Resistance Frequencies among *Staphylococcus sp.* Coagulase Negative Isolates in Al-Basrah Governorate, Iraq

Saad Shakir Mahdi Al-Amara*[1]

Abstract

Background: Antibiotics called macrolide, lincosamide and streptogramin B (MLS_B) are being used to treat staphylococci infections. Multiple pathways that impart resistance to MLS_B antibiotics have been confirmed to cause clinical failure. The present work aimed to determine the frequency of constitutive and inducible clindamycin resistant among coagulase-negative staphylococci (CoNS) isolates of different clinical samples in Al-Basrah governorate, Iraq.

Methods: The 28 CoNS, traditional techniques and the Vitek®2 system were used to identify the isolates. The disk diffusion technique was used to detect methicillin resistance and antibiotic sensitivity patterns via cefoxitin, gentamicin, ciprofloxacin, amikacin, teicoplanin, linezolid, doxycycline and vancomycin disks. Erythromycin and clindamycin antibiotic disks was used to detect the inducible and constitutive clindamycin resistance as well as a D-test according to CLSI guidelines.

Results: Among 28 CoNS isolated, the *Staphylococcus aureus* 11(39.29%), *Staphylococcus epidermidis* 7(25 %), *Staphylococcus haemolyticus* 4(14.29%) and *Staphylococcus saprophyticus* 3 (10.71%) were predominant isolated species. Out of 28 CoNS isolates, 15(53.57%) were methicillin resistant coagulase-negative staphylococci (MRCoNS) isolates and 13(46.43%) were methicillin sensitive coagulase-negative staphylococci (MSCoNS) isolates. The 15(53.57%) isolates out of 28 CoNS, showed erythromycin resistance while 6(40%) isolates out of 15 CoNS, showed inducible macrolide-lincosamide-streptogramin B ($iMLS_B$) and 2(13.3%) of CONS isolated showed constitutive macrolide-lincosamide-streptogramin B ($cMLS_B$).

Conclusions: In order to achive the best result in choosing the suitable treatment and avoiding the loses the money and time, it is better to use the D-test for inducible clindamycin resistance in the daily routine work of antibiotic susceptibility testing in hospital and private clinical laboratories.

Keywords: Anti-Bacterial Agents, Clindamycin, *Staphylococcus*.

Introduction

Since the 1950s, coagulase-negative staphylococci (CoNS) have been recognised as an important cause of human infection (1-5). Antimicrobials macrolide-lincosamide-streptogramin B (MLS_B) family are commonly used to treat skin and soft tissue infections caused by CoNS (2), and also as a penicillin substitute in individuals who are allergic to penicillin (6).

Resistance to antibiotics in the MLS_B family by clinical isolates of *S. aureus* could be either constitutive ($cMLS_B$) or inducible ($iMLS_B$). Although rRNA methylase is only produced in the presence of an inducing agent, which can also be another antibiotic from MLS_B family, like erythromycin, or macrolide, and rRNA methylase is frequently created in the absence

1: Department of Biology, College of Science, University of Basrah, Iraq.
***Corresponding author: Saad Shakir Mahdi Al-Amara; Tel: +96 4783 107 2028; E-mail: ha3848853@gmail.com.**
Received: 5 Oct, 2021; Accepted: 20 Oct, 2021