Frequency of Inducible Clindamycin Resistance in *Staphylococcus haemolyticus* Isolated from Surgical Wounds Infections Using D-test and Molecular Methods in Al-Basrah, Iraq

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ABSTRACT

Aims *S. haemolyticus* is generally considered an opportunistic pathogen that is strongly associated with immunocompromised individuals. *S. haemolyticus* is ranked as a highly antibiotic-resistant pathogen for various types of antibiotics. Current study aimed to investigate the frequency of inducible clindamycin resistance in *S. haemolyticus* isolated from surgical wounds infections using D-test and molecular methods in Al-Basrah, Iraq.

Materials & Methods 200 surgical wound swabs were collected from Ports General Hospital in Basrah, Iraq. The coagulase-negative staphylococcal strains were identified using methods like oxidase, catalase, hemolysis, and coagulase tests and confirmed by Vitek®2 system. Methicillin resistance and inducible clindamycin resistance were detected according to disk diffusion method based on CLSI guidelines. Moreover, molecular approaches was performed to confirm methicillin and inducible clindamycin resistance results.

Findings Out of 200 cases, 75 surgical wound swabs (37.5%) showed positive bacterial cultures. The highest frequency of isolates belonged to *Pseudomonas aeruginosa* (25.3%), *Staphylococcus epidermidis* (17.3%), *Staphylococcus aureus* (14.7%) and *Escherichia coli* (13.3%), respectively. Out of eight *S. haemolyticus* isolates, only 5 isolates (62.5%) showed inhibitory resistance criteria for both oxacillin and cefoxitin. Furthermore, 3 *S. haemolyticus* isolates (37.5%) were erythromycin-resistant and clindamycin sensitive with D-test positive with $iMLS_B$ resistance phenotype. While 2 isolates (25.0%) showed $cMLS_B$ resistance phenotype and 3 (37.5%) isolates were shown MS_B resistance phenotypes. The most frequent resistance genes of *S. haemolyticus* strains were *mecA* (62.5%), *ermA* (62.5%), *ermB* (50.0%), respectively.

Conclusion D-test and molecular technique are appropriate for detection of inducible clindamycin resistance in *S. haemolyticus* strains.

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CITATION LINKS

[1] Methicillin-resistant Staphylococcus ... [2] Assessment of antibacterial ... [3] Global patterns of cancer ... [4] Colonization pattern of coagulase-negative staphylococci ... [5] Whole genome sequencing revealed ... [6] Investigation of glycopeptide ... [7] Staphylococcus haemolyticus-an emerging ... [8] Pathogenesis of Staphylococcus ... [9] Diversity of plasmids and ... [10] Multiplex PCR assay to identify ... [11] Prevalence of methicillin-resistant ... [12] Characterization of clinical ... [13] Nosocomial spread of linezolid-resistant ... [14] Antimicrobial resistance in nosocomial ... [15] Catheter related recurrent ... [16] Clinical infections, antibiotic ... [17] The antimicrobial susceptibility ... [18] Staphylococcus haemolyticus ... [19] Whole-genome sequencing ... [20] Staphylococcus colonization ... [21] Characterization and antimicrobial susceptibility ... [22] Evaluation of prevalence of inducible ... [23] Detection of constitutive- and ... [24] Practical disk diffusion method ... [25] Distribution and expression of macrolide ... [26] Pattern of infection and antibiotic ... [27] Coagulase-negative ... [28] Prevalence and molecular determinants ... [29] Impact of insertion sequences ... [30] Staphylococcus haemolyticus as ... [31] Whole-genome sequencing ... [32] Non-susceptibility trends among staphylococci ... [33] Recommended minimal standards for ... [34] Performance standards for antimicrobial ... [35] Identification of methicillin-resistant ... [36] Distribution of genes encoding ... [37] Patterns of multidrug resistance ... [38] Antimicrobial resistance and production ... [39] Biofilm formation in medical ... [40] Molecular characteristics of ... [41] Detection of inducible clindamycin ... [42] Prevalence of inducible ... [43] Use of the D test method to detect ... [44] Detection of inducible clindamycin ... [45] Prevalence of methicillin resistance ... [46] High prevalence of Staphylococcus ...