

دراسة التأثير التآزري للمضادات الحيوية على بكتريا

Staphylococcus aureus المعزولة من عينات سريرية في بابل

Staphylococcus aureus

Abstract

Ten isolates of *Staphylococcus aureus* were isolated and characterized from different clinical specimens of Al-Hilla General Teaching Hospital of Babylon Governorate . Most of these isolates were resistant to five antibiotics (penicillin-G, amoxicillin, erythromycin, tetracycline and trimethoprim) except one isolate (isolate no.2) was resistant to eight antibiotics (penicillin-G, amoxicillin, erythromycin, tetracycline, trimethoprim, cefotaxime, chloramphenicol and gentamicin). This isolate was chosen to study synergism effect of some antibiotics, the results of this test were revealed that isolate no.2 was sensitive to penicillin-G and erythromycin together, amikacin and erythromycin together, tetracycline and erythromycin together and ciprofloxacin and chloramphenicol together, while it was resistant to all these antibiotics when it used separately.

Introduction

(*Staphylococcus aureus*)

(Huebner and Goldman,1999)

(Foster,1994)

.(Christof *et al.*,2001)

(Patel *et al.*,2000)

National Nosocomial Infection Surveillance

(Nosocomial infection)

. %70

(Sieradzki *et al.*,1998)

. (Groves,1979;Forbes and schaberg,1983;Arian and Marcus,1998) (Transposons)

Materials and Methods

Bacterial isolates .١

S. aureus

Blood agar base (Oxoid) Nutrient agar (Difco)

Mannitol salt agar (Oxoid)

(Macfaddin,2000)

Antibiotic susceptibility test .٢

-) .

((Sigma, USA)

MIC . - (1989) Sambrook

(2000) NCCLS

Synergism effect test of antibiotics .٣

(2)

-

. (Eliopolous and Moellering,1991;Ida *et al.*,2002)

Results and Discussion

- : . *S. aureus*

1

(2) .(2004) Oscar (1999) Gerard

24

B-lactumase

B-lactum

.(Wesley,1998) pump system Efflux

()

(Ida,et al2002)

50S

)

()

(28

32

18

NCCLS

28

)

()

28

24

(

(Wesley,1998)

S. aureus

.1

Tp	CTX	Ci	G	Ak	E	Tc	Cm	Ax	PG	رقم العزله
-	-	-	+	-	+	+	-	+	+	1
+	+	-	+	-	+	+	+	+	+	2
+	-	+	-	-	+	+	-	+	+	3
+	-	-	-	-	-	+	-	-	+	4
+	+	-	+	-	+	+	+	-	+	5
+	-	-	+	-	-	-	+	+	+	6
-	-	+	+	-	+	+	-	+	+	7
+	-	-	-	-	+	+	-	+	+	8
-	-	-	+	-	+	+	+	+	+	9
+	+	-	+	-	+	-	-	-	+	10

:+

:-

References

- Arian, D. and Marcus, J.S. (1998). Nosocomial infection caused by staphylococci. Molecular Bacteriology. Homana press Inc., Totowa. p.431-468.
- Christof, V.E.; Richard, A.; Proctor, M.D. and George, P.M. (2001). Coagulase-negative staphylococci pathogens have major role in nosocomial infection reactions. **110**(4):63-76.

- Eady, E.A.; Ross, J.I.; Tipper, J.L. and Noble, W.C.(1993). Distribution of genes encoding erythromycin ribosomal methylases and erythromycin efflux pump in staphylococci. *Antimicrob. Agents Chemother.*, **31**:211-217.
- Eliopolous, G.M.and Moellering, R.C.(1991). Antimicrobial combinations. p.432-461. *In. V. Lorian (ed.)*."3rd ed.": antibiotics in laboratory medicine. The Williams and Wilkins co., Baltimore, USA.
- Forbes, B.A. and Schaberg, D.R. (1983). Transfers of resistance plasmids from *Staphylococcus epidermidis* and *S. aureus* evidence for conjugative exchange of resistance. *J. Bacteriol.*, **153**:627-634.
- Foster, M.K.(1994). Coagulase-negative staphylococci clinical manifestation. *Antimicrobial Agents and Chemother.*, **1**:309-320.
- Gerard, L.; Alain, Q. and Jerome, F.(1999). Distribution of gene encoding resistance to macrolides, lincosamides and streptogramins among staphylococci. *ASFM.*, **43**:1062-1066.
- Groves, D.J.(1979). Interspecific relationships of antibiotic resistant in staphylococci isolation and comparison of plasmid determining tetracycline resistance in *Staphylococcus aureus* and *S.epidermidis*. *Can. J. Microbiol.* **25**:1468-1475.
- Huebner, J. and Goldman, D.A.(1999). Coagulase-negative staphylococci role as pathogens . *Annu. Rev.* **50**:223-236.
- Ida, T. ; Okamoto, R. ; Nonoyama, M. ; Irinoda, K. ; Kurazono, M. and Inoue, M. (2002). Antagonism between aminoglycosides and β -lactams in a methicillin – resistant *Staphylococcus aureus* isolate involves induction of an aminoglycoside – modifying enzyme. *Antimicrob. Agents Chemother.* May; **46**(5):1516-1521.
- Macfaddin, J.F.(2000). Biochemical test for identification of medical bacteria. "3rd ed."The Williams and Wilkins co., Baltimor, USA.
- National Committee for Clinical Laboratory Standards (2000). Methods for dilution antimicrobial susceptibility tests for bacteria that grow aerobically."5th ed.": approved standard M7-A5.NCCLS, Wayne, Pa, USA.
- National Committee for Clinical Laboratory Standards (2000). Performance standards for antimicrobial disk susceptibility test."7th ed.": approved standard M2-A7.NCCLS, Wayne, Pa, USA.
- National Nosocomial Infections Surveillance(NNIS) system report. Summary 1990-1999. **27**(6):520-532.
- Oscar, C.; Emilia, C. and Jesus, G.(2004). Evolution of the antimicrobial resistance of *Staphylococcus* spp. In Spain : Five nationwide prevalence studies, 1986-2002. *American Society for Micribiology.* **48**:4240-4245.
- Patel, R.; Piper, K.E. and Rouse, M.S.(2000). Frequency of isolation of *Staphylococcus lugdunensis* among staphylococcal isolates causing endocarditic. *J. Clin. Microbiol.*, **38**:4262-4263.
- Sambrook, J.; Fritsch, E.F. and Miniatis, T.(1989). Molecular cloning: a laboratory manual. "2nd ed." Cold Spring Harbor Laboratory Press. Cold Spring Harbor, NY.
- Sieradzki, K.; Villar, P. Tomasa, A.(1998). Decreased susceptibilities to ticoplanin and vancomycin among coagulase-negative methicillin resistant clinical isolates of staphylococci. *Antimicrob. Agent Chemother.* **42**:100-107.
- Wesley ,A.V.(1998).Basic microbiology 7th edition school of medicin Uni.of Virginia.