



**Comparisons of different antibiotics effect on the *Acinetobacter baumannii* by minimum inhibit concentration (MIC) method**

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**ABSTRACT**

*This study is comparison of different antibiotics effect on the *Acinetobacter baumannii* by minimum inhibit bacter(MIC) method<sup>1,2</sup>. This microorganism detected from a 16 year young old patient that his right medial malleolous bone was fractured in a car accident with total and severe shin skin defect. The patient wound was infected by *Acinetobacter* and there was not any response to primary &secondary antimicrobial management. We assessed and recorded minimum inhibit bacter(MIC) on the many kinds of antibiotics included : Imipenem ,Ciprofloxacin ,Ceftazidim ,Ceftirioxon,and Amikacin ; that recommended by orthopedic surgery team . Our comparative analysis reveals a highly threshold resistance to MIC in all antibiotics except Amikacin,incontrast of the past culture in new antibiogram we find sensitivity to tetracycline therefore the patient in a weekly attack period by taking 30 million crystal penicillin/12h/iv,1.5 gr amikacin/12h,/iv,200mg doxyciclin /12h/p.o treated successfully.*

**INTRODUCTION**

In recent years *Acinetobacter baumannii* is important from many views. The first of course not the most important t; it is one of hospital infection and occurred especially in intensive care units .at this wards ,there is serious statements for patient in treatment period that challenging to this bacteri could be dangerous.<sup>3-6</sup>

The second; Multidrug-resistant *Acinetobacter baumannii* is associated with a wide spectrum of infectious diseases ranging from nosocomial, community-acquired infections<sup>7-9</sup>to those acquired following war or natural disaster, Especially to military personnel with war wounds, *Acinetobacter* infection is a formidable threat<sup>2</sup>. The treatment has become exceedingly difficult,

not only because the bacterium can develop extensive antimicrobial resistance but because it also forms biofilms that are resistant to host defense and antimicrobial treatment. This resistance could be genetically or inherently induced.<sup>3,7,9, 10,11,12</sup> The third; this bacterium not only in hospital patients, war and natural disaster is important but also it is important in body defense barrier broke patient. (eg. cystic fibrosis, immune deficiency, neutropenia)<sup>9-14</sup> Attention to previous paragraph tell us *Acinetobacter baumannii* distribute in world with all of its difficulty. Unfortunately most of study have been shown resistance to often antimicrobial agent (eg: ampicillin, amoxicillin, clavulonic acid, anti-staphylococcal penicillin, cephalosporins generation except ceftazidim, tetracycline, macrolids, rifampin, and chloramphenicol)<sup>8,10-14</sup>

Ayan and *et al* over an 18 month period, the bacteriological, clinical and epidemiological characteristics of nosocomial *Acinetobacter baumannii* infections have been studied in a teaching hospital<sup>5</sup>. Typing studies were performed on 38 strains isolated from 36 patients. Twenty-two of the strains were isolated during the three outbreaks. Surgery, catheterization, mechanical ventilation, and antibiotic therapy for adult patients and respiratory distress syndrome, mechanical ventilation, and prematurity for paediatric patients were the main risk factors identified<sup>2-10</sup>. All isolates were resistant to penicillins (except ampicillin-sulbactam), cephalosporins, Gentamicin, and Aztreonam but susceptible to Carbapenems and Colistin. Resistance to Tobramycin, Ciprofloxacin, Ampicillin-Sulbactam, Trimethoprim-Sulfamethoxazole, and Amikacin was variable. Antibiotyping, arbitrarily-primed polymerase chain reaction (AP-PCR) and the pulse-field gel electrophoresis (PFGE) indicated the epidemiological relationship<sup>8</sup>. The outbreak strains, demonstrated genetic distinction between our three outbreaks and isolates from specific

### EXPERIMENTAL SECTION

After the patient was admitted, we beginning different empirical antibiotics contain: Cephalotin, Vancomycin, Clindamycin, Metronidazole and Imipenem but this attempting don't any result. *Acinetobacter baumannii* and *antrobacter* detected from wound culture. antibiogram results for *Acinetobacter baumannii* was resistance. we can't acquired optimal response by Debridement & irrigation of wound in control of the infection in contrast to this statement granulation tissue well growth and everything prepare to skin graft except infection control. The last antibiotic therapy dose was included: Vancomycin 2gr/q 12h, Metronidazole 500mg/q 8h, Clindamycin 600mg/q 6h without any response to treatment. Finally, we send our sample to new laboratory for MIC and result recorded<sup>16</sup>.

### RESULTS AND DISCUSSION

Cultured bacteria MIC for Imipenem, Ciprofloxacin, Ceftazidim, Ceftriaxone and Amikacin assessed to consist of:

Antibiotics	Concentration Microgram/mi	Threshold of resistance Microgram/mi
Imipenem	32	16
Ciprofloxacin	50	4
Ceftazidim	256	32
Ceftriaxone	256	64
Amikacin	15	64

Attack management began by Penicillin 30 million unit/q12h/iv ,Amikacin1.5 gr /q12h/iv , Doxycicllin200mg/po and local Penicillin . The Renal and sense of hearing control checked and thus we have an acceptable cure in my patient. After one week drug regime dosage was reduced to Amikacin 500 mg/q12h ,Penicillin 5 milion unit/q6h,Doxycicllin200mg /q12h/p.o

### CONCLUSION

Our comparative analysis reveals a highly threshold resistance to MIC in all antibiotics except Amikacin ,according to this finding , attention to MIC for using in difficult management due to resistant micro organisms may be helpful<sup>17</sup> .

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