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EFFLUENCE OF ANTIBIOTIC AMPICILLIN AGAINST *ACENETOBACTER*

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Abstract:
Gram negative hospital acquired infection are a major problem since last two decades *Acinetobacter baumanii* has emerged as a highly trouble pathogen for many institutions globally. As a consequence of its immense ability to acquired antibiotic drug resistance determinant .It has justifiably been propelled to the fore front of scientific attention. Rapid spread of multi drug resistant isolates causing infection. Several typing method have been described for *Acinetobacter* to establish a correlation between various epidemic strains and their source and mode of transmission some typing systems of *Acinetobacter* are profile of *Acinetobacter* are profile of biochemical tests, carbon source growth assays DNA-DNA hybridization, antibiotic susceptibility pattern (antibiograms), protein eletrophoretic patterns and electrophoretic mobilities of cellular enzymes. The most popular rapid and simple method is plasmid profile strains with similar plasmid profiles have been further analysis by restrictions endonuclease digestion of plasmid DNA to generate plasmid finger print .for typing of *Acinetobacter* PCR based methods were used. *Acinetobacter* isolates are also identified to genomic species level by technique called amplified ribosomal DNA restriction analysis (ARDRA). Although many of typing systemic are based on the last taxonomic development biotyping serotyping, antibiotic typing enzyme, electro-eretic typing and plasmid profile ribotyping. The treatment of multidrug resistant *Acinetobacter baumanii* is a serious therapeutic problem due to the limited penetration of antibiotic.

Keywords: *Acinetobacter* isolates, Antibiotic Ampicillin, Resistant to Antibiotic Ampicillin.

Introduction:

The gene *Acinetobacter* is defined as gram negative, cocco bacilli often difficult to destain strictly, aerobic, non-motile, catalase positive, and oxidase negative. Some strain are micro capsulated and rarely reduce nitrate growth occur even on simple medium between 20^0C to 30^0C without any growth factor.

Kingdom:-Bacteria
Phylum:-Proteobacteria
Class:-Gammaproteobacteria
Order:-Pseudomonasales
Family:-Moxaxellaceae
Genus:-*Acinetobacter*
Species:-*bumanii*

Many researchers have now supported that *A.baumanii* is the main genomic species, associated with outbreak of nosocomial infection followed by genomic species. *Acinetobacter* is ubiquitous organism which can be isolated from water .soil and recovered from variety of specimens of biotic origin.

These species are relatively harmless being commensales, but last two decade have emerged as nosocomial opportunistic pathogens and is responsible for numerous out breaks involving spread of multi resistance *Acinetobacter* (MRA). Virulence characteristics may be enhanced in some species these include polysaccharide capsulated the property of adhesion to human epithelial cells by fimbriae the production of lipolytic enzyme damaging tissue lipids the potential ,toxic role of lipopoly saccharide component of cell wall and presence of lipid A.

Ampicillin was developed in 1961. It is on the World Health Organization's List of Essential Medicines, the most important medication needed in a basic health system. **Ampicillin** is an antibiotic used to prevent and treat a number of bacterial infections. This includes respiratory tract infections, urinary tract infections, meningitis, salmonella infections, and endocarditis. Ampicillin is in the penicillin group of beta-lactam antibiotics and is part of the aminopenicillin family. It is roughly equivalent to amoxicillin in terms of activity. Ampicillin is able to penetrate Gram-positive and some Gram-negative bacteria. Ampicillin acts as an irreversible inhibitor of the enzyme transpeptidase, which is needed by bacteria to make their cell walls. It inhibits the third and final stage of bacterial cell wall synthesis in binary fission, which ultimately leads to cell lysis; therefore ampicillin is usually bacteriocidal.

Materials:

Media used:- Mueller-Hinton agar, Diagnostic sensitivity agar, Tryptic Soya Agar, MacConkey agar, Davis Mineral Broth, Nutrient Broth, Nutrient Agar, Antibiotic Ampicillin, Antibiotic disc, G-IV multi Antibiotic disc.

Method:

All isolates and control strains which were revived in Mueller –Hinton Broth, Inoculate selected strain into liquid Muller –Hinton broth with vigorous shaking during incubated is needed to give growth, after incubation for 24 to 48 hrs at 30^0c a loopful of culture broth is inoculated into selective plates. *Acinetobacter* colonies are identified as described in morphological characteristics. Morphological and cultural characteristics of isolates were studied as per bergey manual of systemic bacteriology. For confirmation ribotyping was used. A restriction analysis of 16 rRNA genes were done by PCR (polymer chain reaction). The reference strain used during study was *E.coli*.

For antibiotic sensitivity testing the culture was inoculate on Muller-Hinton agar plates ,0.1 ml of culture suspension were spread over these plates with the help glass spreader After 1hr incubation at 37^0C the ampicillin antibiotic containing disc were spotted with all aseptic precautions, these plates were incubated at 37^0C and observed for the zone of inhibition at the end of 18 hrs and 24 hrs .The plates were incubation at 37^0C the ampicillin antibiotic containing disc were spotted with all aseptic precautions. These plates were incubated at 37^0C and observation at the end of 18 hrs and 24 hrs. The plates were further incubated for 48 hrs in order to determine if prolonged incubation may affect result.

Repeat twice and all observations were considered for interpretation of zone of inhibitions around disc.

Results:

Susceptibility to all antimicrobial agent tested is shown in table-1. The antibiotic which are commercially available and routinely used were tested against all isolates of *Acinetobacter*. The zone of inhibition were measured and interpreter to zone of diameter in cm. A disc concentration of each antimicrobial agent is also shown in both the table. The majority of isolates showing resistance towards Ampicillin when tested in vitro.

Discussion:

Acinetobacter which was a saprophytic organism once upon has gained increasing pathogenenic importance by virtue of its capacity to as a reservoir of ampicillin resistance.

The early isolate of *Acinetobacter* which were sensitivity to antibiotics turmid resistance during the span of two years.

Table 1-Antibiotic sensitivity survey of isolate *Acinetobacter* by disc diffusion method using zone size interpretation:-

Antibiotics	Abb	Disc	sensitive	intermediate	Resistant
Ampicillin	A	10 mcg	13.3%	14.4%	83.3%

Antibiograma by using multi disc antibiotic:-Table 2.1-Multi Antibiotic disc used G-4 (OD-014) (Hi Media 8 in 1) ready antibiotic combination modules.

Ampicillin	A	10mcg
Cephalothin	Ch	5mcg
Colistin sulphate	Cl	25mcg
Gentamicin	G	10mcg
Streptomycin	S	10mcg
Sulphotriad	Si	10mcg
Tetracyclin	T	20mcg
Co-Trimozole	Co	25mcg

Table 2.2 -Showing result of Antibiogram by using multiple antibiotic discs towards *Acenetobacter*:-

Antibiotic	Abbreviation	content	Zone of Diameter (cm)
Ampicillin	A	10	Nil
Cephalothin	Ch	5	0.8
Colistin Sulphate	Cl	25	1.4
Gentamicin	G	10	1.1
Streptomics	S	10	1.0
Sulphatraid	Sl	20	1.0
Tetracycline	T	25	1.6
Co-trimaxazole	CO	25	1.8

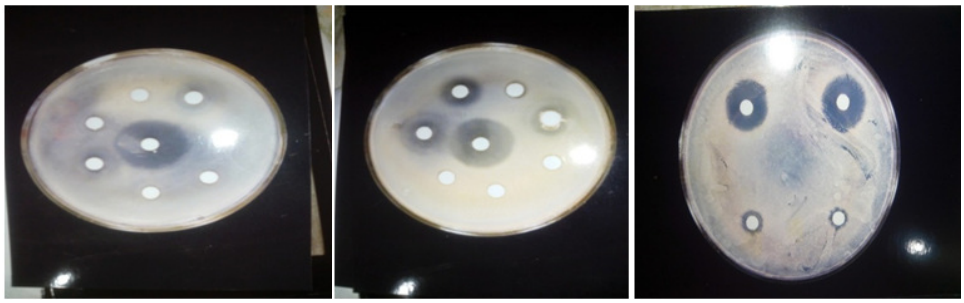

Figure 1

Figure 2 Plate showing multi disc antibiotic towards bacteria:-

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