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DARWINISM OF MULTIDRUG RESISTANCE IN THE COURSE OF *STAPHYLOCOCCUS AUREUS* OWING TO SEA CHANGE

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Abstract
The ministration of consequential infection trickery by *S. aureus* blooming of antibiotic resistance and incriminate in multifariousness of infection ranging from both community acquired and hospital acquired infection that have extension in past biennium ,rise to Darwinism in the course of MDR (multidrug resistance).
Keyword MDR , Darwinism, Sea change *S. aureus*.

Introduction:

It is very routinely clinical isolates of methicilline resistance *Staphylococcus aureus* (MRSA) resistance to beta lactum family of antibiotic is manifest in a peculiar heterogeneous mania. Such hetro resistance MRSA ,fatten from single cell inoculate fabricate cultures in which the majority of cell exhibit only low or moderate level of antibiotic resistance ,sometime scarcely the MIC portal effect of a susceptible strain.

Mechanism of *S. aureus*

All methicillin resistance *S.aureus* (MRSA) strain acquired genetic determinant mec A or mec C which encode for a low affinity binding protein PBP2A which can frequently catalytical peptidoglycan transpeptidation in the presence of high concentration of beta lactam antibiotic that inhibit the native PBPs which necessitated with the synthesis of Staphylococcal cell wall pepdidoglycan layer. Disparity to this common to this common genetic and biochemical mechanism carried by all MRSA strain, the strength of beta lactam antibiotic resistance loch a spacious strain to strain variation

The overwhelmed majority of MRSA strain that bring out unique heterogeous phenotype in which the great majority of these bacteria exhibit very poor resistance often close to the MIC value of susceptible *S. aureus* strain.

The expanding level of PBP2A and composed of bacteria in which the stringent stress response was induced the heterogeusly resist clone of MRSA isolates transform to express high strength and homogeneous resistance if stringent stress response.(3)

Genetics of Multidrug Resistance

Bacterial antibiotic resistance can be attained through intrinsic or acquired mechanisms. Intrinsic mechanisms are those specified by naturally occurring genes found on the host's chromosome, such as AmpC β-lactamase of gram-negative bacteria and many MDR efflux systems. (4) Acquired mechanisms involve mutations in genes targeted by the antibiotic and the transfer of resistance determinants borne on plasmids, bacteriophages, transposons, and other mobile genetic material (12) . In general, this exchange is accomplished through the processes of transduction (via bacteriophages), conjugation (via plasmids and conjugative transposons), and transformation (via incorporation into the chromosome of chromosomal DNA, plasmids, and other DNAs from dying organisms) (12). Although gene transfer among organisms within the same genus is common, this process has also been observed between very different genera, including transfer between such evolutionarily distant organisms as gram-positive and gram-negative bacteria (1). Plasmids contain genes for resistance and many other traits; they replicate independently of the host chromosome and can be distinguished by their origins of replication. Multiple plasmids can exist within a single bacterium, where their genes add to the total genetics of the organism.(14) Transposons are mobile genetic elements that can exist on plasmids or integrate into other transposons or the host's chromosome.(14,15) In general, these pieces of DNA contain terminal regions that participate in recombination and specify a protein(s) (e.g., transposes or recombines) that facilitates incorporation into and from specific genomic regions. Conjugative transposons are unique in having qualities of plasmids and can facilitate the transfer of endogenous plasmids from one organism to another (14,16) Integrase contain collections of genes (gene cassettes) that are generally classified according to the sequence of the protein (integrase) that imparts the recombination function (20). They have the ability to integrate stably into regions of other DNAs where they deliver, in a single exchange, multiple new genes, particularly for drug resistance. The super-integron, one which contains hundreds of gene cassettes.

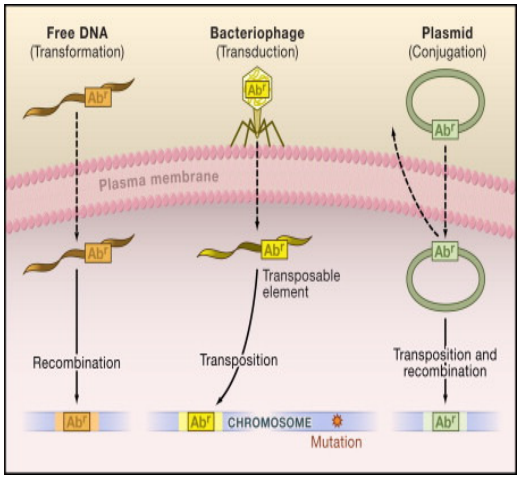

Figure 1. Acquisition of Antibiotic Resistance

Conclusion

Multidrug resistance is a worldwide problem that does not obey international borders and can indiscriminately affect members of all socioeconomic classes. More than half a century has passed since the first antibiotics were introduced commercially. It did not take long for microbes to develop "drug fastness" to the original "magic bullets," and widespread use of many antibacterial drugs provides ideal conditions for the spread of MDR organisms. .

A slew of epidemiological studies have documented the clonal, worldwide spread of infectious disease entities such as MDR S. Also, the use of antibiotics in animal husbandry has been shown to foster human colonization with drug-resistant microbes

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