OMICS Group Conferences
Accelerating Scientific Discovery

International Congress on
Bacteriology & Infectious Diseases
November 20-22, 2013 DoubleTree by Hilton Baltimore-BWI Airport, MD, USA

Multidrug resistant *Staphylococcus* species isolated from neonates in neonatal intensive care unit, can be the soil the solution for this drama?

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Antibiotic resistance is a serious global public health problem. With increasing travel, transmission of drug-resistant organisms from one country to another became a possibility. Drug resistance is more frequently encountered in hospital-acquired pathogens; however the incidence of antibiotic-resistant pathogens in community acquired infections has been also on the rise in recent years.

In the present study we have focused on the presence of multi drug resistant *Staphylococci* species associated with septicemia in neonate intensive care unit (NICU) in Mansoura University children hospital, Egypt and the outcome of infections by these species. Moreover we tested various isolates of *Actinomycetes* bacteria obtained from different localities of Egyptian farming soils to evaluate their antagonistic capacity against Staphylococci multi drug resistant species

The study revealed the presence of 30 isolated *Staphylococci* species from NICU, 56.7% were isolated from early onset septicemia and 43.3% isolated from infants with late onset septicemia. The commonest species was *Staphylococcus epidermidis* (70%) followed by *Staphylococcus aureus* (*S. aureus*) (20%). Methicillin resistance was 90.9% and 95.7% among S. aureus and coagulase-negative Staphylococci respectively. Vancomycin resistance was 27.3% among *S. aureus* and 17% among coagulase-negative Staphylococci. There were the high attributable mortality rates among the neonates. Odds ratio for vancomycin-resistant Staphylococci indicates that cases with a laboratory-confirmed vancomycin-resistant *Staphylococcus* are 7.5 times more likely to die than those with other types of Gram-positive bacteremia.

Testing the activity of isolated *Actinomycetes* from soil showed that five of the isolated actinomycetes (i.e. *Streptomyces antimycoticus, Streptomyces malachiticus, Streptomyces rubiginosus, Streptomyces anulatus* and *Streptomyces rubiginosohelvolus*). exhibited strong activities against multidrug resistant bacteria. Two isolates KS6, and KS21 inhibited the growth of all the tested bacteria.

Future studies are needed to purify active compounds from these *Streptomyces* species and this could be the solution for extremely bad situation in multidrug resistant Staphylococci infections associated with life threatening infections.

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