

## ABSTRACT:

**Problem:** The recent increase in multidrug resistant (MDR) and extensively drug resistant (XDR) strains of Gram-negative bacilli, particularly *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* and *Acinetobacter* spp. has prompted and renewed interest in the use of colistin as a last resort drug in patients who are critically ill. Re-emergence of colistin to treat infections due to XDR gram negative organisms is recently impeded by occurrences of colistin resistance. This may be due to excessive and prolonged use of colistin. Since there is no new drug for gram negative bacteria in the pipeline, this last resort drug should be used judiciously and efforts should be taken to identify their resistance at the earliest and appropriate infection control measures should be taken to preserve it.

**Objectives:** To know the sensitivity of colistin against extensively drug resistant (XDR) gram negative bacilli clinical isolates by Minimum inhibitory concentration (MIC) and also determine the gene responsible for resistance in various clinical isolates.

**Methodology:** IHEC approval was obtained. About 219 gram negative isolates identified as XDR (that is organism which are resistant to all antibiotics except one/two) by disc diffusion, Vitek 2 compact at the Diagnostic Microbiology laboratory was subjected to colistin sensitivity by minimum inhibitory concentration by Micro Broth dilution method (gold standard reference method) as per CLSI (Clinical and laboratory standards institute) and agar dilution method.

## Results:

Out of 219 XDR gram negative isolates, 40 isolates had an increase in MIC value of 2 µg/ml by broth dilution method and agar dilution method. Out of 219 XDR isolates 11 isolates were colistin resistant by broth dilution method and agar dilution method. Those 11 colistin resistant isolates were exposed to molecular detection of MCR-1 plasmid mediated gene but it was found to be negative, colistin resistant gene may be due to other gene plasmid mediated gene.

## Outcome:

Early detection of colistin resistance will improve the patient outcome and also this last high end antibiotic can be preserved.

## KEYWORDS:

Colistin sulphate, cation adjusted Mueller Hinton broth, Isosensitest agar, MCR – 1 gene