ABSTRACT

Postoperative infections (surgical site infection SSI) have been found to pose a major problem in the field of surgery for a long time. Uncontrolled and rapidly spreading antimicrobial resistance among bacterial populations is a serious challenge for the management and treatment of post-operative wound infections in clinical and surgical practice. An important requirement in the prevention of these infections is the availability of current and recent data regarding the magnitude of SSIs and the resistant pattern to antibiotics commonly used in the treatment of these infections.

The present study is undertaken in an attempt to establish local data on the magnitude of post-operative wound infections due to antimicrobial resistant bacteria, their susceptibility pattern, common risk factors, different bacteria involved, proper sterilization, use of antibiotics and resistance pattern.

This was a descriptive cross sectional study conducted among patients with post operative wound infections in the general surgery and obstetrics/gynecology wards at various government and private hospitals in Omerga region of Maharashtra. The pathogenic bacterial isolates were identified by Gram staining, cultural, biochemical characteristics (VITEK-2). Antimicrobial susceptibility pattern of isolated bacterial pathogens was determined by Kirby Bauer disc diffusion method and VITEK-2. Most resistant isolates were further studied for their 16s rRNA sequence and plasmid profile.

*S. aureus, E. coli, K. pneumoniae, P. aeruginosa and A. baumannii* were associated with post surgical wound infections. Out of 83 isolates obtained from wound swab cultures 27.72% were Gram positive and 72.28 % were Gram negative organisms. *E. coli* and *S. aureus* were the most frequently involved pathogens, followed by *P. aeruginosa, K. pneumoniae*, and *A. baumannii*. Linezolid, Tigecycline, Nitrofurantoin, Gentamycin, Moxifloxacin, Quinupristion/Dalfopristion, Azithromycin, Minocycline and Doxycycline are the best therapeutic options to treat *Staphylococcal* infections because of the lesser resistance caused by these organisms and for the Gram negative isolates Colistin, Amikacin, Meropenem and Cefoperazone /Salbactum can be used for a more effective treatment.

Key words- Bacteria, Post operative, wound infection, Isolation, Characterization, 16s rRNA, Plasmids, Curing, identification of bacteria, Antibiotic susceptibility.