

## LETTER TO THE EDITOR

**Surgical Site Infection**

Surgical Site Infection (SSI) accounts for 15% of all nosocomial infections.<sup>1</sup> Post surgical infection leads to higher readmission, increased length of postoperative hospital stay which drastically escalate expenses and jeopardize health outcomes.<sup>2</sup> In majority of SSI cases, the pathogen source is the native flora of the patient's skin, mucous membranes, or hollow viscera.<sup>3</sup> Many factors influence surgical site wound infection which broadly comprises of factor relating to surgery, patient and sterilization techniques. Among them, duration of surgery, tissue handling and level of bacterial burden are important and most significant risk factors. Fewer bacteria are required to produce an infection in the presence of necrotic tissue, foreign bodies, hematomas, seromas and poor tissue perfusion.<sup>4,5</sup> There is also a considerable variation in infection rate according to the type of surgery performed, surgical technique, skin preparation and timings of wound closure.<sup>4</sup> Antibiotic prophylaxis has also a positive impact after certain types of surgical procedures. Many other factors have also been identified as having an effect on the potential for infection. Healthcare professionals should consider these before, during and after surgery. The modern surgical techniques and the use of prophylactic antibiotics have reduced the risk of surgical site infection significantly.<sup>6,7,8</sup>

The classification for operative wounds (clean, clean-contaminated, contaminated and dirty) based on the degree of microbial contamination which was developed by the US National Research Council group in 1964 is still used.<sup>1</sup> The simplicity of this system of classification has resulted in it being widely used to predict the rate of infection after surgery and help to reduce the prevalence of SSI. In past, before the routine use of prophylactic antibiotics infection rate was 1-2% for clean, 6-9% for clean-contaminated, 13-20% for contaminated and about 40% for dirty wounds.<sup>1,8</sup> Since the introduction of routine prophylactic antibiotics, infection rates in all wounds and especially in clean contaminated and contaminated groups have reduced drastically.<sup>1,7,8</sup> Prophylactic antibiotics are used according to type of surgical wound and hospital antibiotic protocols. The hospital antibiotic protocol is usually developed and reviewed regularly according to the native flora, present trends in microorganisms causing wound infection and their sensitivity pattern. Literature review shows extensive work on Surgical Site

Infection (SSI) or nosocomial infections suggesting responsible factors, guidelines to minimize infection rate and antibiotic protocols. This topic has been widely studied and discussed extensively in literature and there is a consensus that the use of prophylactic antibiotics has significantly reduced the incidence of surgical wound infection.<sup>1,2,6,7,8</sup> Now majority of health institutions all over the world follow the almost same wound classification and guidelines for the use of prophylactic antibiotics before surgery. In spite of the use of prophylactic antibiotics, SSI are still a real risk of surgery and represent a substantial burden of disease for both patients and healthcare services in terms of morbidity, mortality and economic cost. Changes in definition have focused attention on infection of the surgical incision, and factors associated with SSIs are now being studied with a view to limiting the risk of infection. In our country, majority of hospitals have no hospital based antibiotic protocols. There is lack of regular institutional audits showing present trend in microorganisms responsible for surgical site infection or other nosocomial infection and their sensitivity pattern. There is a dire need to conduct institutional based regular audits or studies to see the pattern of micro-organism and their sensitivity responsible for wound infections. In the light of these audits or study data, the hospital should develop its own guidelines and antibiotic protocols. To minimize the incidence of SSI, instead of conducting repeated studies on the role of prophylactic antibiotics in SSI, having almost no new contribution to the field, there is a need to work for the hospital based guidelines and antibiotic protocols.

**REFERENCES**

1. Reichman DE, Geeburg JA. Reducing surgical site infection: A review. *Rev Obst Gynaecol* 2009; 2(4):212-21.
2. Broex EC, van Asselt AD, Bruggeman CA, van Tiel FH. Surgical site infections: how high are the costs? *J Hosp Infect.* 2009; 72:193-201.
3. Van Rijen M, Bonten M, Wenzel R, Kluytmans J. Mupirocin ointment for preventing *Staphylococcus aureus* infections in nasal carriers. *Cochrane Database Syst Rev.* 2008; 4 CD006216.
4. Swenson BR, Hedrick TL, Metzger R. Effects of preoperative skin preparation on postoperative wound infection rates: a prospective study of 3 skin preparation protocols. *Infect Control Hosp Epidemiol.* 2009; 30:964-71.
5. Hadiati DR, Hakimi M, Nurdianti DS. Skin preparation for preventing infection following caesarean Section. *Cochrane Database of Systematic Reviews* issue 9; 2012: CD0074622.

6. BunnF, Jones DJ, Bell-Syer S. Prophylactic antibiotics to prevent surgical site infection after breast cancer surgery. Cochrane Database of Systematic Reviews issue 1; 2012: CD005360.
7. Cabaluna ND, Uy GB, Galicia RM. A randomized, double-blinded placebo-controlled clinical trial of the routine use of preoperative antibiotic prophylaxis in modified radical mastectomy. World J of Surg 2013; 37: 59-66.
8. Sanchez-Manuel FJ, Lozano-García J, Seco-Gil JL Antibiotic

prophylaxis for hernia repair. Cochrane Database of Systematic Reviews issue 2; 2012: CD003769.

-----  
**Correspondence:**

Prof. Dr Ishtiaq Ahmed  
Consultant surgeon  
Al-nafees Medical College, Islamabad  
E-mail: surgish2000@yahoo.com