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Identification and Comparison of Prophylactic Antibiotic Usage Patterns in a Surgical Unit as the Initial Step to Establish a Guideline for the Antibiotic Prophylaxis

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Background: Use of prophylactic antibiotics is the most common intervention to avoid surgical site infections (SSI). Indiscriminate use of antibiotics may lead problems including, increasing cost and the emergence of resistance of microorganisms. Current guideline recommends intravenous (IV) cefuroxime 1500 mg, metronidazole 500 mg and co-amoxiclav 1200 mg for surgical prophylaxis.

Objectives: To identify prophylactic antibiotic usage pattern in surgical unit of Teaching Hospital Peradeniya. Further, the study focused to find out surgical site infection rate, risk factors for post-operative surgical site infections and common causative microorganisms for those infections.

Methodology: Prophylactic antibiotic usage pattern for vascular, upper and lower gastro-intestinal, urological and general surgeries were observed in patients who underwent surgery, within three months and were followed up for three months period to observe surgical site infections. Wound swabs were collected from infected patients and causative microorganisms were identified. Information on risk factors was identified using bed head tickets. All the results were subjected to statistical evaluation using Statistical Package for Social Sciences 20.

Results: Out of 350 surgeries, only 38% were given antibiotic prophylaxis. IV cefuroxime 750 mg was the most frequently used antibiotic for prophylaxis (58.1%). Others are IV metronidazole 500 mg (26.82%) and co-amoxiclav 1200 mg (11.72%). SSI rate was reported as 8%. Lower GI surgeries were reported to have highest number of infections (28.75%). Most prevalent organism was *Pseudomonas* spp. (45.5%). Only the duration of the surgery ($p<0.05$) was observed as the risk factor for reported SSIs.

Conclusions: Although the standard regime of IV cefuroxime is 1500 mg, the current usage is 750 mg. Other than that the usage pattern of antibiotic prophylaxis is much similar to current national guidelines.

Keywords: *Antibiotic prophylaxis, Surgical site infections, Microorganism, Risk factors*