Comparative cross-sectional study evaluating four different single antibiotic prophylaxis in orthopedic surgeries for prevention of surgical site infection

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Background: Surgical site infection prevalence is estimated to be 7.81% in developing and African countries

This problem adds to pre-existing health problems and worsen the cost of care in hospitals must be studied well in any country suffering from extensive health and economic problems. The best method to handle such problem is to prevent it and so the world health organization mentioned six measures to prevent it and of these measures the prophylactic antibiotic use and selection is what concerns us as clinical pharmacists. As different and variable types of infection and susceptibility patterns exist in Egypt, a study evaluating the different antibiotics used for that purpose will aid in improving clinical and economical outcomes.

Method: In this cross-sectional study 69 patients who had orthopedic surgeries in 6 different hospitals in Egyptian Delta area were studied after they matched the inclusion criteria and their medical records were used while maintaining their confidentiality and anonymity. There were 4 prophylactic antibiotics (Cefazolin, Cefotaxime, Ceftriaxone and Vancomycin) used and a comparative statistical analysis was done

Results: showed that 75% of patients who received Vancomycin developed surgical site infection with statistically significant association (P value <0.001). The highest effective antibiotics with statistically significant association were Cefotaxime followed by Ceftriaxone, where 8.3% and 14.3 developed surgical site infection after orthopedic surgeries, (P value = 0.04 and 0.02) respectively. 25% of patients treated with Cefazolin developed surgical site infection without significant association (p value= 0.515).

Conclusion: This is to say that according to this study, in Egyptian hospitals and among these four antibiotics cefotaxime is the best and vancomycin is the worst antibiotics used in orthopedic surgical site infection prophylaxis

Key words: surgical site infection, antibiotic prophylaxis, vancomycin, cefotaxime.

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The main purpose of the study was to assess glycemic control among statin users versus non-users in type 2 diabetes patients for a nine-year follow-up period.

Method: A retrospective cohort study was used on 204 study subjects in Tikur Anbesa Specialized Hospital. Medical records of eligible patients were followed from January 1, 2011 until the occurrence of the outcome, date of administrative censoring or April 24, 2019. An assumption for proportional hazard was met after testing through a graphical method by log minus log curve and the time-dependent Cox-model. A sensitively analysis and propensity score analysis was also performed. In this propensity-matched cohort, Kaplan-Meier analysis was repeated. An independent samples t-test was used to compare the mean of the continuous variables between the two cohorts. Moreover, incidence rates per 100 person-years were employed to crudely determine rates of the poor glycemic control. Lastly, Cox regression analysis was done to find out the effects of independent variables on the outcome variables.

Result: The mean fasting blood glucose of statin users and non-statin users were 176.2 mg/dL (standard error of mean [SEM]: 2.9 mg/dL) and 163.9 (SEM: 3.1 mg/dL, respectively. The Kaplan- Meier analysis showed that non-statin users had a better glycemic control than patients who were taking statins at all levels of time (Log Rank Chi-Square=19.1, p < 0.001). Besides this, after propensity score matching, there was a statistically significant difference in mean FBG time between statin users and non-statin users (t202 = 2.901, p<0.004). Concerning the predictors, there were statistically significant difference for glycemic control for ages ranging 50 to 54 years (adjusted hazard ratio [AHR] =0.401; 95% CI [confidence interval]: 0.195–0.823), metformin 1000 mg (AHR=0.410; 95% CI: 0.243–0.693) and simvastatin 40 mg (AHR=0.396; 95% CI:

0.229–0.686) compared to their corresponding controls (75 to 79 years and the absence of the medications,respectively

Conclusion: This study provides statins with poor glycemic control tt ahe

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