

Antimicrobial Prophylaxis in Surgery and Its Financial Expenditure

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Prophylactic antibiotics add some cost to the routine care of surgical patients. Prolonged use of prophylactic antimicrobials is associated with emergence of resistant bacterial strains. The aim of this study was to assess the adherence of surgeons to major aspects of surgical prophylaxis and to measure costs and appropriate use of antibiotics in surgical wards of five training hospitals in central province of Iran. The appropriateness of antibiotic determined by American Society of health-system pharmacists guidelines [1].

From 1750 patients that included in the study the mean age was 39.4 ± 19.6 years and the range of ages was 4 to 85 years. About 54.3% were men and 45.7% women. Among 1750 surgical patients 1030 (58.9%) underwent a clean-contaminated and 720 (41.2%) underwent a clean operation. The duration of the majority of surgical operations (91.4%) did not exceed three hours. The single drug that was most frequently used was cefazolin (71.2%). Antibiotic prophylaxis was indicated in 83.5% of patients, but in our survey, it was administered to 96.6% of patients. Concerning the antimicrobial agent, 46.9% of patients received an antimicrobial that was recommended by guidelines. The physician administered the antimicrobials intravenously to 45.1% of patients appropriately. The route of antimicrobial administration in 70.3% of patients was consistent with the recommendations of guidelines and guideline adherence on length of antibiotic prophylaxis was 15.7%. The mean length of antibiotic prophylaxis was 8.6 ± 3.4 days with a range of variation from one dose of antimicrobials to more than fourteen days. It was concluded that the compliance rate of surgeons with guidelines on antibiotic prophylaxis was 11.8% and the average price of antibiotic prescription per surgical operation was 158,980 Iranian Rials (corresponding to 15.3 USD or €10.7). The average cost of antibiotic was prescribed with guideline was 28,410 Rials (corresponding to 2.7 USD or €1.9). The average distinction between the price of antibiotic was prescribed with guideline was 130,570 Rials

(corresponding to 12.6 USD or €8.8). In total inappropriate prescribing of antibiotics in 1750 hospitalized patients led to the imposition of 228,497,500 Iranian Rials (corresponding to 22,050 USD or €15,400) of direct additional costs to patients.

Our results showed the excessive use of antibiotics because in 88.2% of all procedures antibiotics were used inappropriately. This finding is according to other studies conducted in countries with middle income [2]. Bugnon-Reber et al. identified that the lack of indication may be a common reason for inappropriate use of antibiotic [3]. Hence, consultation and approval of antibiotic prescription by infectious diseases consultants could be a good option in significant reduction of costs. The main parameter of interest in our study was the prolonged length of antibiotic prophylaxis. Overall only 15.7% of the patients received one or two doses of antibiotic where it was necessary consistent with guidelines. Our findings showed that the rate of consuming an antibiotic costs 5.6 times as much as that suggested by ASHP guideline. Implementation of the guidelines is expected to reduce the incidence of postoperative infections, the inappropriate use of antibiotics and costs to hospitals.

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