

Abstract

Analysis of antibiotic administration in prophylaxis I

Author: Petr Domecký

Tutor: PharmDr. Josef Malý, Ph.D.

Consultant: PharmDr. Lucie Hauschke, Ph.D.

Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University

Introduction and aims: Antibiotic prophylaxis (AP) plays an important role in reduction of surgical site infection (SSI). It is the administration of an eligible antibiotic or chemotherapeutic (ATB) in a single dose, usually 30 minutes before surgery, followed by two to three doses during or after the surgery, regarding the selected ATB and the surgical procedure. The aim of this work was to analyse the AP in surgical procedures at the Masaryk Hospital in Ústí nad Labem (MNUL) in the context of the MNUL guideline (DP) and the research on available AP work.

Methods: A cross-sectional observational study ran from January 2018 to March 2018 in surgical departments at MNUL. The study included patients aged ≥ 18 years who underwent surgery in a defined period (5 February 2018 to 9 February 2018) and gave their consent to the study. The practicability of the study was verified by a pilot part. Initially, a research of published studies concerning AP was carried out which provided outputs for AP establishment (PPA). Subsequently, a form for perioperative AP record was prepared. The following data were collected: patient gender, patient identification, date of surgery, type and duration of surgical performance, transmitting and receiving department, ATB selection, ATB dose, ATB route of administration, ATB administration time, and ATB dose information. Then the medical documentation was used. These data were used for patient characteristics and to complete information about AP. The obtained data were compared with DP MNUL and PPA and were processed using descriptive statistics.

Results: 197 patients (103 men and 94 women) with average age of 56.5 ± 15.72 years attended the study. Patients were hospitalized on average for 7 ± 5.21 days. The presence of the implant was identified in 40 (20.3%) patients. In 6 (3.0%) patients the risk of malnutrition was determined. 21.8% of patients underwent urological procedure, 16.2% general and abdominal surgery procedure and 14.2% neurosurgery procedure. 125 (63.5%) patients received AP, 9 (4.6%) patients without prophylaxis should have received AP and, in contrast, in 14 (7.1%) patients AP was indicated excessively. Cefazolin was administered in 52% of operations and co-amoxicillin in 25.6% of operations. The choice of ATB did not correspond in 20.0% to the DP MNUL and in 22.4% to the PPA. The dosage of ATB did not correlate in 20.0% with the DP MNUL and in 67.2% with the PPA. The time of the first dose administration did not correspond in 83,2% to the DP MNUL, but it corresponded in 86.5% to the PPA. The total adherence rate was 67.0% to the DP MNUL and to the PPA 65.8%.

Conclusions: Some shortcomings in real performance of AP and in DP MNUL have been identified. These included the low specification of surgical procedures, the time of the first dose administration, and disregard for the patient's weight in ATB dose selection.

Key words: antibiotic prophylaxis, surgical site infections, adherence.