Abstract

Analysis of antibiotic administration in prophylaxis VII
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Introduction and aims: Preventive measures play an important role in minimizing the risk of surgical site infection (SSI). One of these measures is antibiotic prophylaxis (AP), thus the administration of an appropriate antibiotic or antibacterial chemotherapy (ATB) at the prescribed time, in sufficient dose and for sufficient duration to produce the desired effect. The aim of this study was to analyze the antibiotic administration in prophylaxis in relation to surgical procedures in a district type hospital and to compare these results with the hospital's recommended practice (DPNM), international recommended practices (ASHP-G) and a review of the latest scientific knowledge in this area (NVP). The results obtained were further compared with the results of a previous study that assessed the adherence rate to ASHP-G and NVP before the implementation of the hospital's recommended practice.

Methods: In the cross-sectional observational study, data collection was performed between 8th and 16th July 2021 on a cohort of patients aged ≥ 18 years who underwent a procedure in general surgery, orthopaedics, traumatology, urology or gynaecology. These patients consented to be included in the study. The following information was recorded into a prepared electronic form: patient identification and gender, diagnosis, type of surgery, date of surgery, start and end time of surgery, indication for AP, choice of ATB, ATB dose, dilution, start and stop time of infusion or bolus, repeat dose and information on any additional doses of ATB. In the next phase of the study, important information about patients' risk factors and AP were searched in the medical records. The obtained data were compared with DPNM, ASHP-G and NVP using descriptive statistics. Mann-Whitney test was used to compare the results from this study with those from the previous study (statistical significance $P < 0.05$).

Results: A total of 112 patients – 55 women and 57 men participated in the study. The mean age of the patients was 57.93 ± 18.64 years. The referring department was mostly orthopaedics. At least 1 risk factor was present in 91.96 % of patients. AP was administered in 89.29 % of patients and the most frequently administered ATBs were cefazolin (61.05%) and co-amoxicilin (24.21%). In more than 90% of the cases, AP was indicated in accordance with the reference standards (the highest compliance rate was observed for gynaecological and orthopaedic procedures). The overall adherence rate with ASHP-G was 73.89 %, with NVP 74.81 % and 69.47 % with DPNM. Compared to the previous study, there was an increase in the overall adherence rate to the reference standards (in the case of NVP statistically significant). The lowest adherence rates were found in timing of the initial dose (45.05 % for all reference standards) and dose repetition (52.00 % according to ASHP-G and NVP, 53.00 % according to DPNM).

Conclusions: Certain errors in AP performance were evaluated. Particularly low specification of surgical procedures, disregard for patient weight when choosing an adequate dose and poor timing of the initial dose of ATB were identified. Furthermore, excessive dose repetition was found in half of the surgical procedures.

Key words: clinical pharmacy, antibiotics, rational pharmacotherapy.