

Abstract

Analysis of the possibilities of influencing antibiotic prophylaxis on the basis of inflammatory markers II

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Introduction and aims: Periprosthetic joint infections are considered as the biggest complication of the implementation of the total arthroplasty which may be reduced by the observation of inflammatory and nutritional markers. The aim of this thesis is to analyse the possibilities of influencing the antibiotic prophylaxis (AP) on the basis of those markers observed on patients that underwent the total hip arthroplasty (THA) and the total knee arthroplasty (TKA).

Methods: Data was collected from a prospective study which began in March 2020 at the Department of Orthopedics at the University Hospital Hradec Králové. There were 118 patients from May 2021 to June 2022 older than 18 years with THA and TKA included in the analysis. The analysed data were sourced from the paper and electronic forms of medical documentary materials of those patients. Patients' personal and medical details (including the information about the operation, the thromboprophylaxis (TP), AP, and the results of physical and laboratory examinations) were analysed and described by using methods of descriptive statistics. The appraisal of the relations between individual markers and complications was realized by ROC (Receiver Operating Characteristics) curves.

Results: The postoperative complications were developed in 9 cases (7.6%) out of which 4 patients (44.4%) had the surgical site infection (SSI). The identified high-risk factors were obesity (44.1%), diabetes mellitus (21.2%), tobacco addiction (7.6%), male gender (40.7%), ASA (American Society of Anesthesiologists) ≥ 3 (33.0%), and a blood loss (36.4%). TP was administered to 100% of patients with the dominative position of nandroparin at the beginning of the therapy (96.6%) and of rivaroxaban postoperatively. AP was served to 100% of patients. In 79.7% the cefazolin was chosen. Nevertheless, for patients with a positive allergic anamnesis (20.3%), the vankomycin was indicated. Clinically relevant statistic conclusions reached the value of area under the curve > 0.7 – the preoperatively collected value of the total number of white blood cells in relation to postoperative complications (0.78), and also in relation to SSI and Intensive Care Infection Score collected during the medical check in relation to the origin of SSI (0.73).

Conclusions: The analysis revealed that the prolongation of AP used for patients who come under the high-risk group (because of the development of SSI and the value of markers) helps to reduce the risk of the occurrence of SSI.