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**Management of multi-resistant microorganisms in the department
for the treatment of surgical complications**

Summary

Introduction

Home parenteral nutrition (HPN) is usually administered in patients who underwent several surgical procedures and long-term hospital stay, what is a risk of contamination with multi-drug resistant bacteria (MDR). The presence of a permanent catheter in the central vein increases the risk of recurrent catheter sepsis, thus this group of patients are exposed to broad spectrum antibiotic therapy. Gastrointestinal insufficiency is associated with impaired passage, which results in bacterial overgrowth and qualitative changes within it. Moreover, chronic parenteral nutrition may reduce immunocompetence.

Consequently, these patients are permanently or temporarily colonized with MDR bacteria, what increases the risk of septic complications of surgery due to ineffective standard antibiotic prophylaxis.

Aim

The aim of the study was to assess the carrier of multi-resistant bacteria and comparison of the efficacy of perioperative targeted prophylaxis in home parenteral nutrition patients with the empirical perioperative prophylaxis regimen according to existing recommendations for extensive abdominal surgery.

Material and methods

A retrospective study was conducted on 672 patients fed parenterally at home for a total of 732 920 parenteral nutrition days. 213 hospitalizations and 178 antibiotic therapies or prophylaxis and eighty complex gastrointestinal reconstruction operations has been analyzed. The study involved a group of 80 patients (42 women, 38 men, mean age 55, range 22-93 years) meeting the following criteria: parenteral nutrition at home, permanent catheter in the central vein, presence of an intestinal fistula, qualification for gastrointestinal reconstruction surgery. The number of septic complications in a group with Empirical Antibiotic Prophylaxis (EAP) as recommended by CDC, IDSA (cefazolin 1 g i.v. plus metronidazole 0.5 g i.v. – 34 patients)

was compared to the TAP group (Targeted Antibiotic Prophylaxis based on culture taken from the fistula or stoma – 46 patients). The prophylactic antibiotic was administered before surgery and continued for 24 hours.

Results

Eighty complex gastrointestinal reconstruction operations were performed. In all 80 patients, surgical stoma takedown and/or intestinal fistula resection was performed, in 65 patients extensive gastrointestinal reconstruction was performed during the same procedure, in 59 patients simultaneous abdominal wall reconstruction (including 15 Ramirez technique, 7 modification with double incision and transposition of rectus abdominis muscle), in 5 patients simultaneous reconstruction of urinary tract. The number of previous laparotomies was 1-17 (mean 3.6 operations). Surgery time was on average 185 minutes (65-352 minutes), number of anastomoses on average 2.2 (1-7 anastomoses), hospital stay revealed on average 18.2 days (4-65), mortality rate 1.2% (1 patient). In EAP group 5 wound infections (14.6%) and 2 intestinal fistulas (5.8%) occurred, whereas in TAP group 4 wound infections (8.6%) and 3 intestinal fistulas (6.5%) occurred. The paper presents MDR-strains contaminating gastrointestinal tract of HPN patients, strains causing septic complications and their correlation with the applied antibiotic therapy.

Conclusions

The frequency of carriage of multiresistant strains in the studied group of patients is high, which has significant clinical consequences. Perioperative targeted antibiotic therapy compared to standard empirical prophylaxis in the examined cohort reduced the risk of surgical wound infection but did not affect the frequency of anastomoses. Rational use of broad-spectrum antibiotics in perioperative prophylaxis based on fistula culture does not increase the risk of multiresistant strains in the surgical department.