Introduction:
Biomarkers reflecting the extent of surgical tissue trauma should be investigated in an effort to predict and prevent postoperative complications. The aim of the present study was to investigate blood concentrations of selected alarmins in patients after colorectal surgery in comparison to healthy individuals. The secondary aim was to analyze the relationship between alarmins and inflammatory biomarkers during early postoperative period.

Methods:
The prospective, single-center, observational study consisted of non-surgical (NS) group (n=35) and surgical (S) group (n=38) undergoing colorectal surgery. Serum levels of selected alarmins (S100A8 and S100A12) and inflammatory biomarkers (leukocytes; C-reactive protein, CRP; interleukin-6, IL-6) were analyzed.

Results:
Proteins S100A8 an S100A12 had significantly higher serum values in the S-group during all three days after the surgery. The multidimensional model taking into account age, sex, weight, group and days revealed significant differences between study groups for both proteins S100A8 and S100A12 (p<0.001, p=0.001, respectively). Biomarkers (leukocytes, CRP, and IL-6) showed significant differences between study subgroups (p<0.001, p<0.001, and p<0.001, respectively). In S-group, moderate positive correlations were found between S100A8 and all biomarkers: leukocytes (r=0.6), CRP (r=0.5), and IL-6 (r=0.6). S100A12 had moderate positive correlation with leukocytes (r=0.5). Levels of S100A8 also positively correlated with intensive care unit and hospital length of stay (r=0.6, r=0.5, respectively)

Conclusion:
Protein S100A8 might be considered as early biomarker of first wave of immune activation elicited by surgical injury after colorectal surgery. The increase of the alarmins is reflected by the elevation of routine inflammatory biomarkers.