Introduction:
Hyperthermic Intraperitoneal Chemotherapy with Cytoreductive Surgery (HIPEC-CRS) is a curative treatment modality for peritoneal carcinomatosis. Extensive debulking surgery, peritoneal stripping and multiple visceral resections followed by intraperitoneal installation of heated high-dose chemotherapeutic agents, a process leads to a ‘high-inflammatory’ syndrome. Serum procalcitonin (PCT), a biomarker for bacterial sepsis, in the heightened inflammatory state after HIPEC-CRS might be of limited utility. Our aim is to determine the trends of PCT in the early postoperative phase of HIPEC-CRS and to identify trends in patients with and without bacterial sepsis.

Methods:
In a case-control design, we reviewed all patients undergoing HIPEC-CRS over a 24-month period (2015-2017). Patients were divided into 2 groups based on whether they developed bacterial sepsis in the first 5 days after surgery (infected v/s non-infected). Summary data are expressed as medians and ranges. Two-tailed nonparametric tests were performed and considered significant at p values of less than 0.05.

Results:
82 patients’ data was analyzed. Infections developed in 16% (13 patients) with Escherichia coli as the predominant pathogen isolated (36% isolates). PCT levels (ngm/ml) were elevated postoperatively in both infected and non-infected patients; Day 1 infected 0.97 (IQR 0.5, 3.2) v/s non-infected 0.68 (0.2, 1.6) p=not significant (ns), Day 2 infected 1.14 (0.8, 4.2) v/s 1.2 (0.5, 3.4) p=ns, Day 3 infected 1.82 (0.6, 11.5) v/s 0.73 (0.3, 2.2) p=0.05. The differences became statistically significant only by the 4th day; Day 4 infected 1.32 (0.4, 8.2) v/s 0.53 (0.19, 1.1) p=0.012, Day 5 infected 0.85 (0.09, 3.9) v/s 0.28 (0, 0.7) p=0.047.

Conclusion:
HIPEC-CRS is associated with an early postoperative increase in PCT levels, independent of the presence of bacterial sepsis. The study demonstrate that HIPEC-CRS is a stimulus for PCT release and that decisions for antimicrobial therapy should not be based solely on elevated PCT values.
Daily serum Procalcitonin levels post HIPEC-CRS shows statistically significant difference between infected and non-infected patients only on the 4th post-operative day.