

## **Procalcitonin Reveals Early Dehiscence in Colorectal Surgery: The PREDICS Study.**

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### **Abstract**

#### **OBJECTIVES:**

We designed a multicentric, observational study to test if Procalcitonin (PCT) might be an early and reliable marker of anastomotic leak (AL) after colorectal surgery (ClinicalTrials.govIdentifier:[NCT01817647](#)).

#### **BACKGROUND:**

Procalcitonin is a biomarker used to monitor bacterial infections and guide antibiotic therapy. Anastomotic leak after colorectal surgery is a severe complication associated with relevant short and long-term sequelae.

#### **METHODS:**

Between January 2013 and September 2014, 504 patients underwent colorectal surgery, for malignant colorectal diseases, in elective setting. White blood count (WBC), C-reactive protein (CRP) and PCT levels were measured in 3rd and 5th postoperative day (POD). AL and all postoperative complications were recorded.

#### **RESULTS:**

We registered 28 (5.6%) anastomotic leaks. Specificity and negative predictive value for AL with PCT less than 2.7 and 2.3ng/mL were, respectively, 91.7% and 96.9% in 3rd POD and 93% and 98.3% in 5th POD. Receiver operating characteristic curve for biomarkers shows that in 3rd POD, PCT and CRP have similar area under the curve (AUC) (0.775 vs 0.772), both better than WBC (0.601); in 5th POD, PCT has a better AUC than CRP and WBC (0.862 vs 0.806 vs 0.611). Measuring together PCT and CRP significantly improves AL diagnosis in 5th POD (AUC: 0.901).

#### **CONCLUSIONS:**

PCT and CRP demonstrated to have a good negative predictive value for AL, both in 3rd and in 5th POD. Low levels of PCT, together with low CRP values, seem to be early and reliable markers of AL after colorectal surgery. These biomarkers might be safely added as additional criteria of discharge protocols after colorectal surgery.