

C-Reactive protein on postoperative day one: a significant predictive marker for early deep surgical side infections after elective bariatric surgery

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INTRODUCTION

C-reactive protein (CRP) has been shown to be an effective early predictor for infectious complications after colorectal surgery (1). However, little is known about the predictive capacity of early CRP levels in patients undergoing laparoscopic sleeve gastrectomy (LSG) and laparoscopic Roux-en-Y Gastric bypass (LRYGB) (2,3). The aim of this study was, therefore, to evaluate the predictive value of early CRP levels in patients undergoing these procedures.

METHODS

Retrospective analysis conducted at a bariatric reference center. Patients undergoing LSG or LRYGB were included from October 2010 to October 2016. The predictive capacity of CRP levels on postoperative day one on early deep surgical site infection (SSI) was assessed using receiver operating characteristic (ROC) analysis. The CRP cut-off value with the best sensitivity and specificity for early deep SSI was calculated using Youden's index. Using the CRP cut-off value on postoperative day 1, univariate analysis for early deep SSI was subsequently performed.

RESULTS

A total of 494 patients were included in the study. 69.6% were female, median age was 40.0 years (IQR 20.0), and median BMI was 43.2 kg/m² (IQR 8.2). Early deep SSI were observed in 15 patients (3%). ROC analysis revealed a significant predictive capacity of CRP levels on postoperative day 1 for early deep SSI (AUC ROC 0.937, 95% CI 0.901-0.937, $p < 0.001$). A CRP cutoff at 70 mg/l achieved a sensitivity of 93% and specificity of 88% for early deep SSI (figure 1). Early deep SSI were significantly more frequent in patients with a CRP ≥ 70 mg/l than in patients with a CRP < 70 mg/l on postoperative day one (19.4% vs. 0.2%, $p < 0.001$). The negative predictive value (NPV) of CRP levels ≥ 70 mg/l was 100%.

CONCLUSIONS

This study revealed CRP levels ≥ 70 mg/l on postoperative day 1 as a significant predictor for early deep SSI in patients undergoing bariatric surgery. This CRP cut-off value on postoperative day one may be a useful marker for early complications in patients undergoing bariatric surgery within an enhanced recovery program.

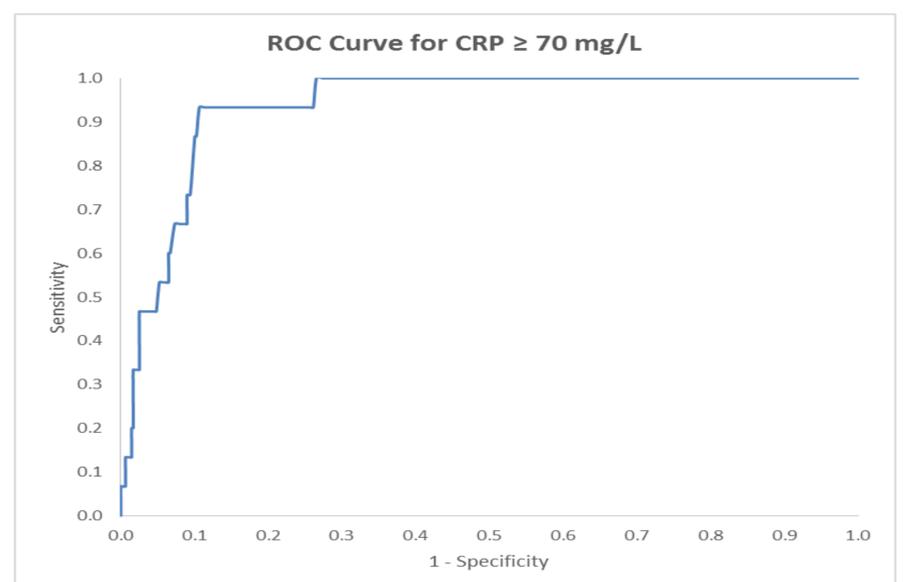


Figure 1: Plot of the receiver operating characteristic curve of the CRP level for the diagnosis of early deep surgical site infections, 1. postoperative day after bariatric surgery.