Safe and early discharge after colorectal surgery due to C-reactive protein: a diagnostic meta-analysis of 1832 patients

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OBJECTIVE
To assess the predictive value of C-reactive protein (CRP) level for postoperative infectious complications after colorectal surgery.

BACKGROUND
Postoperative infectious complications after colorectal surgery are frequent and associated with relevant short- and long-term sequelae. Therefore, the identification of a diagnostic tool for early recognition of postoperative infectious complications is of cardinal importance.

METHODS
A meta-analysis was performed for diagnostic studies evaluating CRP as a predictor for postoperative infectious complications on days 1 to 5 after colorectal surgery.

RESULTS
Six studies including a total of 1832 patients were identified. The best performance of CRP to predict postoperative infectious complications was on postoperative day 4, on which the mean CRP cutoff value was 135 mg/L (SD: 10 mg/L), the pooled sensitivity 68% (95% CI: 57%-79%), the specificity 83% (95% CI: 77%-90%) and the negative predictive value 89% (95% CI: 87%-92%). The pooled area under the receiver operating characteristic curve was 0.81 (95% CI: 0.73-0.89).

CONCLUSIONS
This diagnostic meta-analysis of 1832 patients--the first in the literature--provides compelling evidence that C-reactive protein on postoperative day 4 has a high negative predictive value for infectious complications of 89%. Therefore, CRP measurement allows safe and early discharge of selected patients after colorectal surgery.
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