Lysophosphatidylcholine as a predictor of postoperative complications after colorectal cancer surgery

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Abstrak

ABSTRACT
Purpose
Lysophosphatidylcholine (LPC), which is generated from phosphatidylcholine (PC) and metabolized by autotaxin (ATX), modulates immune responses via its anti-inflammatory property. We investigated the association between LPC and postoperative complications (POCs) after colorectal cancer surgery (CRC).
Methods
The subjects of this study were 43 patients who underwent surgery for CRC. Peripheral blood samples were collected preoperatively and immediately after surgery, and on postoperative days (PODs) 1, 3, 5, and 7. Patients were divided into a No-POC group (n = 33) and a POC group (n = 10). Blood LPC, IL-6, PC, and ATX levels were measured by specific enzymatic assays or ELISA.
Results
The postoperative to preoperative LPC ratios were lowest on POD 1 in both groups. The POC group had significantly lower LPC ratios throughout the perioperative period than the No-POC group. The LPC ratios were inversely correlated with IL-6. The predictive impact of LPC ratios on POCs was demonstrated by ROC analysis (cut-off 51.2%, AUC 0.798) and multivariate analysis (OR 15.1, P = 0.01). The postoperative PC ratios decreased more after surgery in the POC group. ATX levels did not change significantly in either group.
Conclusions
Decreased postoperative LPC is associated with increased postoperative inflammatory response and POCs. The decreased PC supply to the circulation is a mechanism of the postoperative LPC decrease.