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Changes in total lymphocyte count and neutrophil-to-lymphocyte ratio after curative pancreatectomy in patients with pancreas adenocarcinoma and their prognostic role

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Introduction : To assess the prognostic significance of postoperative changes in immune status represented by total lymphocyte count (TLC) and neutrophil-to-lymphocyte ratio (NLR) in resectable pancreatic cancer.

Methods : Patients who underwent curative pancreatectomy for pancreatic adenocarcinoma were divided into high and low groups according to cut-off values of TLC, and NLR measured preoperatively, immediately after surgery, and 1- or 6-month after surgery. Oncologic outcomes were compared between the two groups at different times, and prognostic roles of TLC and NLR were evaluated.

Results : Of 193 patients, the median follow-up time was 22 months, and median survival was 18 months. Their immunologic status deteriorated within 3-4 days after the operation and recovered after that. At 1- and 6-month postoperatively, overall survival rates were significantly lower in the group with high NLR (>2.535 and >3.21 , respectively) and low TLC ($<1.66 \times 10^9/L$ and $<1.62 \times 10^9/L$, respectively). In multiple regression analysis, elevated NLR at postoperative 1- and 6-month and decreased TLC at postoperative 1-month were significant prognosis predictors.

Conclusions : Changes in immune status such as decreased TLC and elevated NLR at postoperative 1- and 6-month are effective prognostic predictors after curative pancreatectomy in patients with pancreatic adenocarcinoma.

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