

Prognostic Value Of Neutrophil-to-lymphocyte Ratio In Hepatocellular Carcinoma After Major Hepatectomy

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Background : Neutrophil-to-lymphocyte ratio (NLR) may be a useful predictor of recurrence and survival in hepatocellular carcinoma (HCC) patients. This study aimed to evaluate the prognostic value of NLR in HCC patients who underwent major hepatectomy.

Methods : This was a retrospective study of prospectively collected dataset. All HCC patients who underwent major hepatectomy from 2005–2016 were analyzed. Optimal cut-off of preoperative NLR was calculated by receiver operating characteristics curve. Patients were stratified according to NLR. The hypothesis was high NLR was associated with greater tumor recurrence and poorer survival.

Results : 565 HCC patients underwent major hepatectomy. Optimal NLR cut-off was 2.41 (AUC 0.606, $P < 0.001$). 204 patients had low NLR (< 2.41) while 361 had high NLR (≥ 2.41). High NLR group had a higher alpha-fetoprotein (AFP) level (127 vs. 40ng/ml, $P = 0.002$). There were more operative blood loss and longer hospital stay but similar complication (29.1% vs. 22.5%) and 90-day mortality (4.4% vs. 2.5%) compared with low NLR. High NLR group also had larger tumors (9 vs. 5.5cm, $P < 0.001$), more poorly differentiated tumors (24.8 vs. 16.7%, $P = 0.03$), and more microvascular invasion (67.6 vs. 49.5%, $P < 0.001$). There was less recurrence in low NLR group (57.7% vs. 72.6%, $P < 0.001$). Low NLR group had better overall and disease-free survival at 1-/3-/5-year respectively (89.1%/73.3%/64.6% vs. 80.3%/52.9%/43.2%, $P < 0.001$; 64.4%/54.2%/49% vs. 44.9%/31.8%/26.7%, $P < 0.001$).

Conclusions : High NLR was associated with higher AFP and unfavorable tumor biology. As a results, patients had higher recurrence and worse survival after major hepatectomy. NLR should be explored prospectively as a biomarker for tumor aggressiveness.

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