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Association of Epstein-Barr virus infection with peripheral immune parameters and clinical outcome in advanced nasopharyngeal carcinoma

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Introduction
The purpose of this study was to investigate the association of Epstein-Barr virus (EBV) with peripheral blood immune cell counts and clinical outcomes in advanced nasopharyngeal carcinoma (NPC) patients. In a retrospective design, 146 patients with NPC at stage IV were enrolled in this study. The association of EBV status with peripheral blood immune cell counts, distant metastases, and long-term survival in patients with advanced NPC were determined. Eighty-seven (59.6%) of all patients were positive for EBV. Compared with patients with normal NK cell count, patients with lower NK cell count showed a significantly lower EBV viral load (median: 614.0 vs. 2190.0 copies/mL, P = 0.024). EBV-positive patients showed a significantly higher incidence of liver metastasis than EBV-negative patients (32.6% vs. 23.7%, P = 0.021). Multi-variant regression analysis showed that EBV infection was independently associated with liver metastasis (OR: 2.33, P = 0.043). EBV positive patients showed a significantly worse PFS (P = 0.001) and OS (P = 0.001) than EBV negative patients. Multivariate Cox regression analysis revealed that EBV infection was independently associated with a worse PFS (HR: 1.94, P = 0.003), and OS (HR: 2.12, P = 0.014) in advanced NPC. In conclusion, EBV infection is associated with a high risk of liver metastasis and is also an independent negative predictor for PFS and OS in patients with advanced NPC. EBV infection is associated with lower CD8% and higher NK%, while lower NK cell count is associated with lower EBV viral load.

Keywords: Distant metastases, NK cell

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