Use of Complete Blood Count for Prognostic Evaluation of Peripheral T-Cell Lymphoma

Tao Jiang^{a, b} Li Wang^a Wei-Li Zhao^a

^aState Key Laboratory of Medical Genomics, Shanghai Institute of Hematology, Shanghai Rui Jin Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China; ^bDepartment of Hematology, Sichuan Academy of Medical Sciences and Sichuan Provincial People's Hospital, Chengdu, China

Although research on next-generation sequencing and gene expression profiling continues to deepen our understanding of the pathogenesis of peripheral T-cell lymphomas (PTCLs), routine blood tests are still helpful for risk stratification. It is reasonable to choose intensive therapies including hematopoietic stem cell transplantation for eligible high-risk patients and to avoid these treatment regimens in low-risk patients [1]. The International Prognostic Index was not exclusively developed for PTCLs; therefore, other clinical indexes were also proposed, such as the Prognostic Index for PTCL and the International T-Cell Lymphoma Project prognostic index.

In the study by Choi et al. [2], the major objective was to evaluate whether the components and derivatives of complete blood count could predict the prognosis of PTCLs. They found that thrombocytopenia, defined as a platelet count of $<15,000/\mu\text{L}$, was significantly associated with shorter overall survival (OS) and progression-free survival (PFS). As some may argue that this result could be confounded by bone marrow involvement, after ad-

justing with bone marrow involvement, thrombocytopenia was still found to be related to an inferior outcome of both OS and PFS. Our previous study, which included 105 patients with PTCL/not otherwise specified from January 1999 to December 2011, showed similar prognostic effects of thrombocytopenia with a cutoff platelet count of $10,000/\mu\text{L}$ [3]. Since our previous study did not include patients with angioimmunoblastic T-cell lymphoma and ALK-negative anaplastic large cell lymphoma, we analyzed another cohort of 96 patients from February 2013 to February 2018 in our institution with the same disease subtypes as described by Choi et al. [2] and confirmed the adverse prognostic effects of thrombocytopenia on OS and PFS (Fig. 1a, b). Better supportive care, using factors like recombinant human thrombopoietin and rhIL-11, must be applied to enhance the tolerance of patients to chemotherapy.

T.J. and L.W. contributed equally to this paper.

Fig. 1. Overall survival (OS) and progression-free survival (PFS) curves of a patient cohort from Rui Jin Hospital ($n = 96$), by platelet count (**a, b**) and by anaplastic large cell (ALC) count (**c, d**).

Immune surveillance and immune evasion are critically involved in the immune response of cancer development [4]. A reduction in the absolute lymphocyte count in peripheral blood can reflect immune insufficiency against malignant cells. Lymphopenia is associated with poor prognosis of PTCLs and natural killer/T-cell lymphomas [5]. Consistent with previous reports and data from the present cohort, Choi et al. [2] showed that patients without lymphopenia had longer median OS and PFS (Fig. 1c, d). As an essential component of the innate immune system, neutrophils play an important role in systemic inflammation. An elevated peripheral neutrophil-to-lymphocyte ratio (NLR) has been reported to predict a dismal outcome in solid tumors and lymphomas [6, 7]. Choi et al. [2] showed that elevated initial NLR, de-

fined as >3 , was only related to the shorter OS, but not to PFS. In our cohort, high NLR, defined as >4 , significantly indicated shorter OS in patients with PTCL/not otherwise specified.

Using components and derivatives of complete blood count together to predict the prognosis of PTCLs is quite appealing for its simplicity and applicability. However, multicenter studies need to be conducted to further confirm these criteria in clinical practice.

Disclosure Statement

The authors have no conflicts of interest to declare.

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