ELSEVIER

Blood 142 (2023) 3038–3039

The 65th ASH Annual Meeting Abstracts

POSTER ABSTRACTS

623.MANTLE CELL, FOLLICULAR, AND OTHER INDOLENT B CELL LYMPHOMAS: CLINICAL AND EPIDEMIOLOGICAL

The Prognostic Impact of Measurable Residual Disease Dynamics in Mantle Cell Lymphoma

Yanshan Huang[1,2], *Yuting Yan*[2,3], *Ying Yu*[4,5], *Li Yuxi, MD*[1,5], *Rui Lv*[1,5], *Tingyu Wang*[6,7], *Wenjie Xiong*[5,4], *Qi Wang*[8,4], *Wei Liu*[9,5], *Gang An*[5,4], *Weiwei Sui*[4,5], *Yan Xu, MD*[3,5], *Wenyang Huang*[4,5], *Dehui Zou*[4,5], *Lugui Qiu*[4,6], *Shuhua Yi*[3,5]

[1] State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology& Blood Diseases Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, tianjin, China
[2] Tianjin Institutes of Health Science, Tianjin, China, Tianjin, China
[3] State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology& Blood Diseases Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Tianjin, China
[4] State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology& Blood Diseases Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Tianjin, China
[5] Tianjin Institutes of Health Science, Tianjin, China, tianjin, China
[6] Tianjin Institutes of Health Science, Tianjin, China
[7] Institute of Hematology & Blood Diseases Hospital Chinese Academy of Medical Sci, Tian Jin, CHN
[8] State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology & Blood Diseases Hospital, Chinese Academy of Medical Sciences&Peking Union Medical College, Tianjin, China
[9] State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology & Blood Diseases Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Tianjin, China

Introduction Measurable residual disease (MRD) technologies have greatly enhanced our ability to guide treatment duration and predict outcome in various hematologic malignancies. However, drawing definitive conclusions on the benefits of achieving MRD-negative status in patients with mantle cell lymphoma (MCL) has been challenging due to the limited availability of large-scale MRD detection series. To address this, our study aimed to determine the optimal timing for MRD detection and explore the prognostic value of MRD dynamics in MCL.

Methods In present study, we included 102 patients diagnosed with advanced MCL demonstrating clonal B cell involvement in bone marrow (BM) detectable by multiparametric flow cytometry (MFC). 60/102 (58.8%) patients received high dose cytarabine-based intensive immunochemotherapy. BM aspirates were collected and MRD assessment was conducted at specific time points, including the initiation of cycle 3, cycle 5, at the end of induction, and every 6 months during maintenance therapy.

Results 77/102 (75.4%) patients reached MRD negativity throughout induction treatment. Of those with MRD^- vs MRD^+ status , 23.4% vs 68.0% were aged >65 years respectively, which was likely a consequence of the greater MRD^- rates observed in patients who received intensive immunochemotherapy and auto-transplantation. Besides, elevated lactate dehydrogenase (LDH) level, high-risk MIPI, blastoid/pleomorphic pathology type, and non-cytarabine containing regimen were associated with a lower rate of MRD negativity. Follow-up data revealed that MRD-negative patients had significantly better survival ($P<0.001$). In subgroup analyses, MRD negativity was prognostic in almost all subgroups. MRD detection serves as a valuable complement to the traditional response evaluation system, particularly benefiting patients who achieve partial remission (PR). This indicated the importance of assessing MRD during induction therapy for PR patients. However, for patients who achieve complete remission (CR), the presence or absence of MRD has minimal impact on prognosis ($P=0.921$ for progression-free survival (PFS), and $P=0.399$ for overall survival (OS).

Then we evaluated the optimum timing of MRD detection and impact of rapidity of MRD negativity. 31 of the 77 patients (40.3%) had a rapid reduction of tumor burden and achieved MRD negativity after two cycles of treatment. 35 patients (45.5%) were MRD negative after four cycles of treatment. In 14.2% of the patients, MRD turned negative only at the evaluation after six cycles of induction therapy or during maintance duration. Comparing MRD status at different time points, the MRD status after four cycles of therapy was the strongest predictor of survival prognosis (HR=5.37, C-index=0.673). However, the speed of reaching MRD negativity was not significantly correlated with survival prognosis.

Patients with high-risk features, such as high-risk MIPI, elevated LDH levels and complex karyotype, tend to achieve MRD negativity at a faster speed, often within two treatment cycles. However, faster rate of achieving MRD negativity did not confer any prognostic benefit to these patients. The overall MRD negativity rate was relatively low, and the prognosis for these patients was worse compared to other patients. In the high dose cytarabine-based intensive immunochemotherapy group, patients who achieved a rapid MRD negativity within two cycles of treatment showed a slightly longer PFS compared to those who achieved MRD negativity after 4-6 cycles (P=0.017). However, there was no significant difference in OS between the two groups.

Conclusions In summary,the optimal timing for MRD testing is after four treatment cycles, as this time point demonstrated the best predictive ability for survival prognosis. However, the speed of achieving MRD negativity was not found to be linked with survival prognosis. Although certain high-risk features may lead to faster achievement of MRD negativity, this rapidity did not confer any additional prognostic benefit to these patients. Importantly, our results suggest that the value of MRD negativity as a prognostic marker may be limited in patients who have achieved complete remission and those with blastoid/pleomorphic morphologies. These findings underscore the need for tailored approaches to MRD testing and interpretation in MCL, in alignment with individual patient characteristics and treatment responses.

Disclosures No relevant conflicts of interest to declare.

https://doi.org/10.1182/blood-2023-188881