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617.ACUTE MYELOID LEUKEMIAS: BIOMARKERS, MOLECULAR MARKERS AND MINIMAL RESIDUAL DISEASE IN DIAGNOSIS AND PROGNOSIS

How Induction Cycles before Remission Influence Long-Term Survival in Acute Myeloid Leukemia

Feng Zhu [1,2], *Nianci Chen* [1,3,4], *Yile Zhou* [3,1,4], *Yi Zhang* [1,3,4], *Jian Huang* [1,3,4,5,5], *Wanzhuo Xie* [1,3,4,5], *Haitao Meng* [1,3,4,5], *Wen-Juan Yu* [4,1,3,5], *Liping Mao, MD* [1,3,4], *Wenyuan MAI* [1,3,4], *Chunmei Yang* [1,3,4], *Juying Wei* [1,4,3], *Yinjun Lou, MD* [1,3,4], *Min Yang, MD* [1,3,4], *Jiejing Qian, MD* [1,4,3], *Gaixiang Xu* [1,3,4], *De Zhou* [1,3,4], *Liya Ma* [1,3,4], *Xingnong Ye, MD* [1,3,4], *Yanling Ren, MD* [1,3,4], *Hongyan Tong, PhD* [4,3,1,5], *Huafeng Wang* [1,3,4,5], *Jie Jin* [1,3,4,5]

[1] Department of Hematology, the First Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou, PR China;, Hangzhou, China
[2] Zhoushan Hospital, Zhejiang University School of Medicine., Zhoushan, China
[3] Zhejiang Provincial Key Lab of Hematopoietic Malignancy, Zhejiang University, Hangzhou, Zhejiang, PR China;, Hangzhou, China
[4] Zhejiang Provincial Clinical Research Center for Hematological disorders, Hangzhou, China;, Hangzhou, China
[5] Zhejiang University Cancer Center, Hangzhou, China

Background :
Acute myeloid leukemia (AML) is an aggressive hematologic malignancy characterized by accumulation and expansion of immature myeloid cells in the bone marrow, peripheral blood and other tissues. Despite the progress made in mechanisms and approval of new therapeutics, the clinical outcome of AML remains suboptimal. The achievement of complete remission (CR) after induction chemotherapy is critical because the prognosis of refractory AML was especially unfavorable. However, little is known about the association between remission after first induction therapy and the overall survival (OS) in different subgroups of AML.

Study Design and Methods:
We retrospectively analyzed patients with newly diagnosed AML from January 2019 to August 2022. The diagnosis and treatment strategies were based on European Leukemia Net (ELN) criteria and National Comprehensive Cancer Network (NCCN) guideline. Composite complete remission (CRc) rate (CR+CR with incomplete recovery [CRi]) were assessed at the completion of induction or re-induction therapy. Minimal residual disease (MRD) was assessed using multiparameter flow cytometry with a minimum sensitivity of 0.1%. OS was measured from the day of diagnosis until death or the last follow-up date.

Results :
In total, 679 patients were included and the median age was 59.0 (range, 14.0-93.0) years old. There were 56.8% (386/679) of patients who achieved CRc after the induction therapy (group A), 18.1% (123/679) achieved CRc after the re-induction therapy (group B).
The median follow-up period was 24.2 months. Even though there was no significant difference between group A and group B on OS, group A exhibited improved OS when censored at allogenic hematopoietic stem cell transplantation (HSCT) compared to that in group B (group A vs group B:3-year OS rates 65.7% vs 51.1%,p=0.004,Figure A). We further explored the effects of remission depth on survival. The results showed that, after induction therapy, patients achieved CR exhibited superior OS compared with that in CRi (CR vs. CRi, 3-year OS rates 69.4% vs 51.6%, p=0.006). Also, compared with these patients who failed to achieved MRD negativity within re-induction therapy, patients achieved MRD negativity within re-induction therapy showed superior OS when censored at HSCT (MRD- vs. MRD+, 3-year OS rates 64.7% vs 34.9%, p=0.040). After the first reduction therapy, patients achieved CRc but MRD positive benefit from HSCT (HSCT vs Non-HSCT, 3-year rates 83.0% vs 57.9%, p=0.017), but in patients with MRD negativity, HSCT did not improve the survival outcomes (HSCT vs Non-HSCT, 3-year rates 76.8% vs 65.7%, p=0.078).
The next-generation sequencing (NGS) results were available in 520 patients. Based on the 2022 ELN risk stratification, the 3-year OS rates were 60.3%, 44.2% and 35.0% in favorable, intermediate and adverse group, respectively. Moreover, there were 43, 47, 60 patients in favorable, intermediate, and adverse subgroups underwent HSCT subsequently. In intermediate risk subgroup, patients who failed to achieve CRc after the first induction therapy, HSCT may serve as an effective intervention

to prolong survival (3-year rates 100% vs 12.1%, P<0.001,). On the contrary, patients who achieved CRc in induction therapy, the overall survival were not influenced by HSCT status (3-year rates 81.5% vs 31.7%, p=0.153, Figure B).

Conclusion:

Our finding indicated that remission after the first cycle of induction therapy may be a prognostic factor for OS. Moreover, earlier and deeper remission may lead to improved survival. For those patients in intermediate risk group, who achieved CRc in induction therapy or achieved CRc with MRD negativity within re-induction therapy, HSCT may not influence the survival outcome.

Disclosures No relevant conflicts of interest to declare.

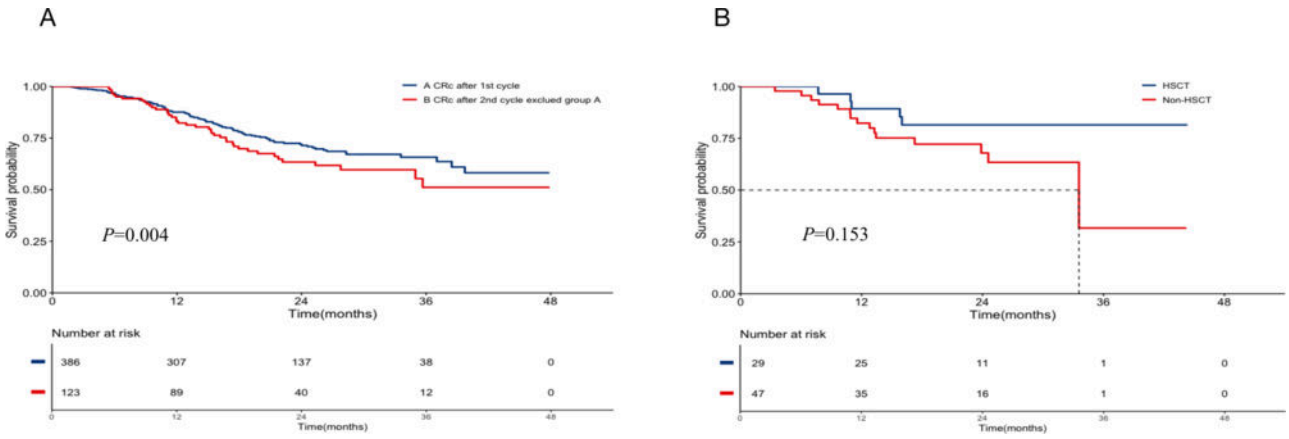

Figure 1

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