



The 65th ASH Annual Meeting Abstracts

ONLINE PUBLICATION ONLY**618.ACUTE LYMPHOBLASTIC LEUKEMIAS: BIOMARKERS, MOLECULAR MARKERS AND MINIMAL RESIDUAL DISEASE IN DIAGNOSIS AND PROGNOSIS****IDH1/2-Mutated B-ALL Presents As Burkitt's Leukemia/Lymphoma-like ALL**Yu Qian¹, Jie Jin²¹Department of Hematology, The First Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou, China²The First Affiliated Hospital of Zhejiang University School of Medicine, Hangzhou, China

Background: Burkitt leukemia/lymphoma (BL) is a highly aggressive hematological malignancy, which is characterized by the FAB L3 morphology of monotonous medium-sized cells containing abundant basophilic cytoplasm and lipid vacuoles, with mature B cell immunophenotype. Interestingly, some B-cell acute lymphoblastic leukemia (B-ALL) could resemble BL in morphology, but with immature B-cell immunophenotype. In this study, we aimed to explore the molecular and clinical characteristics of these "BL-like B-ALL" patients.

Methods: We analyzed the molecular and clinical characteristics of B-ALL patients in the First Affiliated Hospital of Zhejiang University. RNA-seq analysis of BL-like B-ALL was performed to study the mechanisms of L3 morphology.

Results: We analyzed the population of patients with B-ALL of FAB L3 morphology, among 68 patients, 17 cases with IDH1 mutation and 1 case with IDH2 mutation. In subgroups of 260 B-ALL patients, OS and EFS were significant shorter in BL-like patients compared with others (median 567 days vs not reached, median 238 days vs 566 days; $p=0.0024$, 0.0122 , respectively). Gene set enrichment analysis (GSEA) analysis of RNA-seq with 27 cases of BL-like B-ALL patients revealed significant enrichment in fatty acid metabolism pathway, compared with 203 B-ALL patients in TARGET database. Therefore, we measured levels of serum triglyceride (TG), total cholesterol (TC), low-density lipoprotein-cholesterol (LDL-C), high-density lipoprotein-cholesterol (HDL-C) in 251 B-ALL patients at diagnosis, among which TG and TC levels of 62 BL-like B-ALL patients were significant higher ($p=0.0006$, $p=0.0040$), while LDL-C and HDL-C levels showed no significant differences between two groups. Furthermore, we tracked a IDH1-mutated BL-like patient and found that IDH1 mutation and L3 morphology were not detected in remission, but both reappeared with disease relapse. Meanwhile, IDH1/2-mutated B-ALL patients in our center had significant shorter EFS compared with other B-ALL patients ($p=0.0087$).

Conclusion: IDH1/2-mutated B-ALL presents as Burkitt's leukemia/lymphoma-like ALL. BL-like ALL patients have higher levels of lipid metabolism with worse prognosis.

Disclosures No relevant conflicts of interest to declare.

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