

Introduction

The incidence of Chronic Lymphocytic Leukemia (CLL) is notably lower in Asian population, being 10- to 20-fold less than that in Western population. Previous research has indicated that CLL in China tend to be younger, exhibit more mutated immunoglobulin heavy-chain variable genes (IGHV), and possess a unique mutation landscape. However, there are few large series cohort to systematically illustrate difference of CLL between Chinese and Western population.

Methods

We analyzed clinical data from 2005 CLL patients treated at the Blood Diseases Hospital, Chinese Academy of Medical Sciences, from February 2000 to December 2020. Furthermore, we collected the Immunoglobulin heavy chain variable (IGHV) sequences of 1223 Chinese CLL patients and compared them to sequences from 7424 published CLL patients from Europe and the United States.

Results

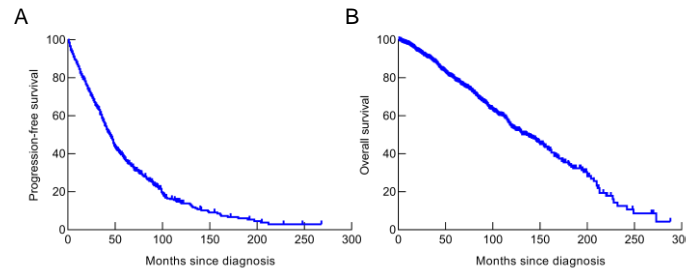


Fig.1 Kaplan-Meier curves of PFS (A) and OS(B) for patients with CLL.

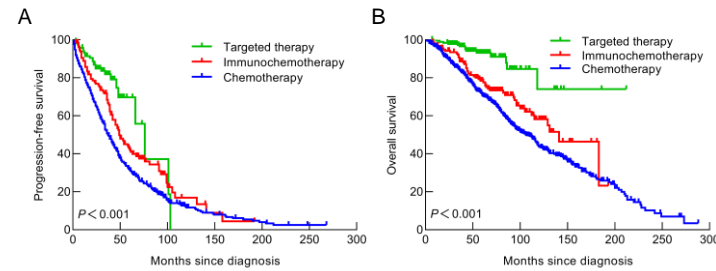


Fig.2 Kaplan-Meier curves of PFS (A) and OS(B) according to different treatment options.

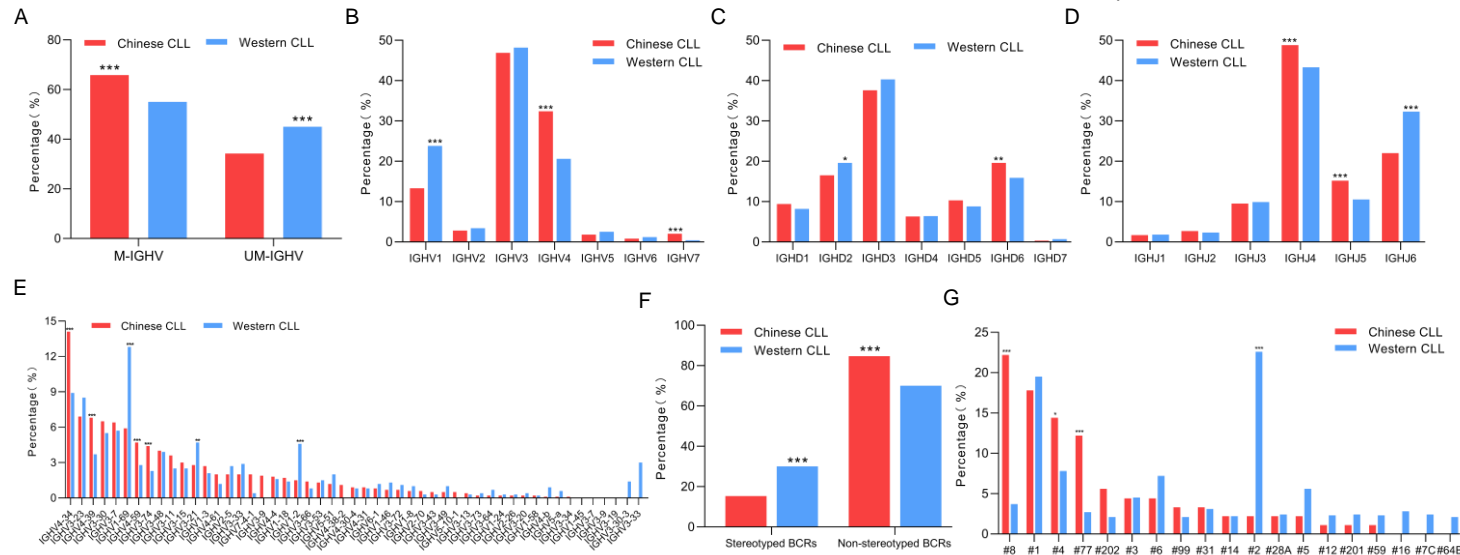


Fig.3 Comparison between Chinese and western CLL. (A) Frequency of the M-IGHV and UM-IGHV subgroups. (B) Frequency of the IGHV subgroups. (C) Frequency of the IGHD subgroups. (D) Frequency of the IGHJ subgroups. (E) Frequency of the IGHV genes. (F) Frequency of Chinese and western CLL stereotyped and non-stereotyped BCRs. (G) Frequency of major subsets in Chinese and western series. * marks the significant differences.

Table 1 Baseline clinical and biological characteristics in the entire cohort (n=2005)

Characteristics	n (%)
Age(year), median (range)	61 (20-92)
Male	1295 (64.6)
Binet stage	
A	441 (30.6)
B	392 (27.2)
C	606 (42.1)
Rai stage	
Low (0)	368 (21.3)
Intermediate (I , II)	670 (38.8)
High (III,IV)	689 (39.9)
FISH for del(17p)	125 (11.4)
FISH for <i>RB1</i> deletion	218 (20.9)
FISH for del(11q)	110 (10.8)
FISH for trisomy 12	156 (20.1)
Chromosome complex karyotype	127 (13.2)

Conclusions

This study, the largest real-world investigation involving Eastern CLL to date, provides an essential foundation for future clinical investigations of CLL in China. Despite patients being younger, having advanced stages at diagnosis, the outcomes did not deviate from those reported in Western studies. The biological difference may contribute to the discrepancy.