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Blood 142 (2023) 1463–1465

The 65th ASH Annual Meeting Abstracts

POSTER ABSTRACTS

612.ACUTE LYMPHOBLASTIC LEUKEMIAS: CLINICAL AND EPIDEMIOLOGICAL

Mixed Phenotypic Acute Leukemia -Clinical Presentation, Prognosis and Outcomes of Patients Treated with Acute Lymphoblastic Leukemia like Protocols a Multi-Institutional Study from India

Santhosh Kumar Devadas, DM[1], *Venkatesh Kapu, DM*[2], *Lingaraj Nayak, MBBS, MD DM*[3], *Bhausaheb Bagal, MD DM*[4], *Prashant Tembhare, MDDM*[5], *Aby Abraham, MD DM*[6], *Rajan Kapoor, DM*[7], *Jina Bhattacharyya, MD*[8], *Parathan Karunakaran, MD DM*[9], *Smitha Carol Saldanha, MDDM,MBBS*[10], *Smita Kayal, MD DM*[11], *Sharat Damodar, MBBS, MD DM*[12], *Punit Jain, MDDM*[13], *Om Prakash*[14], *Mobin Paul, MD D.M*[15], *J John Samuel*[16], *Prasanna Samuel*[17]

[1] Ramaiah Medical College and Hospitals, University, Bangalore North, India
[2] Tata Memorial Centre, Mumbai, India
[3] Department of Medical Oncology, Tata Memorial Centre, MUMBAI, India
[4] Department of Medical Oncology, Tata Memorial Centre, Mumbai, India
[5] Department of Hemato Pathology, Tata Memorial Centre, Mumbai, India
[6] Department of Haematology, Christian Medical College Vellore, Vellore, India
[7] Clinical Hematology and Stem Cell Transplantation, Army Hospital Research and Referral, New Delhi, India
[8] Guwahati Medical College, Guwahati, IND
[9] Cancer Institute (WIA), Chennai, India
[10] Kidwai Memorial Institute of Oncology, Bengaluru, India
[11] JIPMER, Puducherry, IND
[12] Mazumdar Shaw Medical Centre, Narayana Health City, Bangalore., India
[13] Apollo Hospitals, Navi Mumbai, Mumbai, India
[14] CMC Vellore, Vellore, India
[15] Department of Clinical Haematology & Hemato - Oncology, Rajagiri Hospital, Kochi, India
[16] Christian Medical College, Vellore, India
[17] Biostatistics, Christian Medical College, Vellore, India

Mixed phenotypic acute leukemia (MPAL) is a rare and difficult to treat type of acute leukemia. Broad consensus favour use of acute lymphoblastic leukemia (ALL) like treatment protocols in the management of MPAL. Data regarding this rare diagnosis is limited mainly to retrospective studies and limited data available from low middle income countries (LMIC). We report epidemiology and real-world outcome data of MPAL patients treated with ALL like protocols among the multi-institutional data base set up by hematology cancer consortium (HCC) in India.

In this retrospective multicentric study of a prospectively maintained data set, we collected data from eleven member centers of HCC using an electronic database. Patients who fulfilled the WHO 2016 classification criteria for MPAL were included. Patients diagnosed between January 2018 and March 2022 were included in the study. The data included demographic details, performance status (ECOG), comorbidities, CNS involvement, testicular involvement, presence of mediastinal mass, phenotype of MPAL (B+M, T+M, T+B), karyotype, FISH, PCR and NGS abnormalities. If treatment was not received by patients the reasons were also captured. We also evaluated the treatment protocol used and use of tyrosine kinase inhibitors. The primary objective was to evaluate event-free survival (EFS) and overall survival (OS) at 1year. The impact of the treatment protocol used, age, baseline WBC count, LDH, performance status, CNS involvement on EFS and OS were studied.

A total of 114 patients were diagnosed to have MPAL during the study period. The baseline epidemiological features are tabulated in table-1. Sixty-six (58%) patients were treated with ALL like treatment protocols and 48(42%) patients did not receive any treatment due to various reasons at HCC centers. 49(74%) patients received paediatric inspired protocols and 17(26%) patients received adult-type of protocols. Forty three (65%) patients achieved a complete remission after induction. Ten(15%) patients died during induction. Six(9%) patients died after achieving CR of which 3 died due to infection,3 died due to progressive disease and rest were lost to follow up. Minimal residual disease (MRD) done using either flowcytometry or PCR was available in 37 patients. MRD negative status was achieved in 17(46%) patients post phase II of induction.

After a median follow up of 12 months, EFS was 61% and OS was 67%(figure1). Estimated EFS and OS at 24 months were 42% and 55% respectively. There were no significant differences in EFS and OS between different MPAL phenotypes. Allogeneic stem cell transplant (ASCT) was performed only in 3 patients. Negative MRD status at the end of second phase of induction was significantly associated with improved EFS with a Hazard ratio of 0.349(CI-0.117-1.036). Age, cytogenetic profile, LDH, baseline WBC count and CNS involvement were analyzed by univariate analysis for effect on treatment outcomes. There was no significant effect of these variables on both EFS and OS.

Our study is one of the largest studies conducted on MPAL patients in a resource limited setting. If patients received treatment, the outcomes were encouraging despite poor access to allogeneic stem cell transplant in first complete remission, when compared with similar real world multi-institutional analysis. Induction mortality of 10% was comparable to other similar studies. However, the worse 2-year EFS and OS may be explained by poor rates of allogeneic stem cell transplant (Allo-HSCT). The abandonment of treatment and limited use of Allo-HSCT in first complete remission were major limitations in improving overall outcomes in our patients.

Disclosures Abraham: *Pfizer:* Research Funding; *Sanofi:* Research Funding; *Novo Nordisk:* Membership on an entity's Board of Directors or advisory committees, Research Funding; *Roche:* Research Funding.

Variable	Overall (n=114)
Age(n=114)	Median-32.82±14.13
Gender (n= 114)	
Male	79(69.3%)
Female	35(30.7%)
LDH(n=99)	Median-446.00 IQR-294.00-905.00
Baseline WBC Count (in cells/μL)	Median-14,410 IQR-4015-49230
MPAL (Type)	
T+B	8(7.08%)
B+ myeloid	24(21.24%)
T+ myeloid	59(52.21%)
Unknown	23(19.47%)
CNS involvement	
CNS-1	56(50.45%)
CNS-2	5(4.5%)
CNS-3	5(4.5%)
Not Available	48(40.54%)
MPAL with t (9;22) (q34.1; q11.2); *BCR-ABL1*	18 (16%)

Table 1-Baseline Characteristics

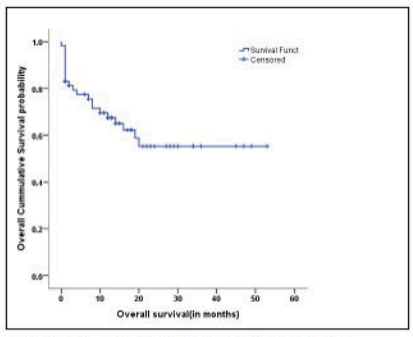

Figure 1-Overall survival analysis

Figure 1

https://doi.org/10.1182/blood-2023-187923