Central Nervous Relapse Risk in Acute Promyelocytic Leukemia Diagnosed From 2018 to April 2023 in a Mexican Medical Institution

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INTRODUCTION

Acute Promyelocytic Leukemia (APL) represent about 5-10% of acute myelogenous leukemias (AML) and it is distinguished by the presence of the translocation between chromosomes 15 and 17. The current treatment allows for complete remission in 90% of patient. (1) The risk of relapse is around 2-3% and central nervous system (CNS) relapse is the most common site. There are several prognostic factors for CNS relapse that have been described, these are white blood cell (WBC) count above $10x10^9$/L, high blast count on peripheral blood count above $10x10^9$/L, clinical CNS hemorrhage during induction therapy, elevated serum lactate dehydrogenase (LDH), FLT3 mutation detection and expression of CD56 in Flow Cytometry.

OBJECTIVE

To determine the risk factors for CNS relapse in newly diagnosed APL from 2018 to April 2023

METHODS

Design: Retrospective analysis from 2018 to April 2023.

Patients: Data was retrieved from twenty-seven patients with newly diagnosed APL in Centro Medico Nacional 20 de Noviembre in Mexico City

RESULTS

The population analyzed consisted of 63% (17) of female and 37% (10) male, median age was 45 (19-72) years old. With the known CNS relapse risk factors, we analyzed the population obtaining that the average leukocytes at diagnosis was 10.5 (0.3-98), average blast count on peripheral blood smear was 27% (0-97), average LDH was 478 (169-1796), (normal upper range 246), FLT3 mutation detection was performed in 59% (16) with 4 patients with a positive result. Only one patient had a documented CNS hemorrhage and expression of CD56 was present in 11 (3) of the Flow Cytometry performed. An average of 1.9 risk factors was identified in these patients, ranging from zero to four.

Image I

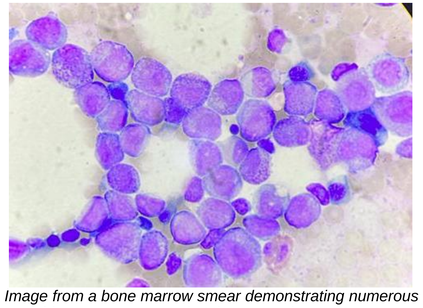


Image from a bone marrow smear demonstrating numerous myeloid precursos arrested at the promyelocyte stage. Image courtesy of Dr. Arantxa Montalvo. CMN 20 de Noviembre, Mexico City.

Table 1: Patients characteristics.

Patient	Age	Sex	WBC x10⁹/L	Blasts on peripheral blood %	CNS Hemorrhage	LDH (120-240 U/L)	FLT3	CD56
1	32	F	3.6	12	No	600	NA	Pos
2	51	F	4.04	13	No	1265	NA	Pos
3	72	F	7.4	10	No	407	NA	Neg
4	35	F	3.6	20	No	441	Neg	Pos
5	28	M	1.12	8	No	388	NA	Neg
6	58	M	2	10	No	204	NA	Neg
7	37	F	1.1	2	No	216	Neg	Neg
8	25	F	0.72	18	No	218	Neg	Neg
9	38	F	71	97	No	660	Neg	Neg
10	45	F	1	6	No	173	Neg	Neg
11	46	M	1.8	64	No	353	Neg	Neg
12	68	F	0.4	3	No	221	Neg	Neg
13	54	M	3.2	43	No	323	NA	Neg
14	64	F	1.51	12	Yes	373	Pos	Neg
15	68	M	0.38	3	No	230	Neg	Neg
16	54	M	0.42	1	No	169	Neg	Neg
17	65	M	12	88	No	1796	Pos	Neg
18	44	M	0.97	2	No	399	Neg	Neg
19	50	F	0.3	0	No	237	Pos	Neg
20	19	M	15	82	No	269	Pos	Neg
21	35	F	4.5	74	No	377	NA	Neg
22	52	F	0.4	25	No	312	NA	Neg
23	49	F	98	64	No	803	NA	Neg
24	33	F	28	82	No	515	NA	Neg
25	60	F	1.2	7	No	217	Pos	Neg
26	27	M	20	6	No	1476	NA	Neg
27	29	M	1.2	2	No	268	Neg	Neg

CONCLUSIONS

With current treatments, up to 90% of patients with APL can achieve complete remission. A subset of risk factors for CNS relapse have been described. We believe that identifying these factors could lead to improvement in follow-up and close monitoring in patients considered with high risk.

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