Medical Journal of the
Islamic Republic of Iran

Volume 2
Number 4
Zemestan 1367
Jamadiolawwal 1408

F.A.B.CLASSIFICATION OF CHILDHOOD LEUKEMIA IN IRAN

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ABSTRACT

Bone marrow specimens from leukemic patients were studied in a 5 year period beginning in 1982 in Children's Medical Center of Teheran, a teaching and referral center for pediatric medicine. The slides were stained by Giemsa-Wright stains, read by at least two persons experienced in bone marrow pathology and classified according to F.A.B. recommendations. Peroxidase or Sudan black-B and P.A.S. reaction were used for differentiation of myeloblasts from lymphoblasts when required. Acute lymphoblastic leukemia is the most prevalent childhood leukemia in Iran, as it is in other countries, but the incidence is relatively lower compared to western countries. The percentage of all leukemic subtypes are almost similar to other reports except for L_2, M_1 and M_2 where L_2 has a relatively lower occurrence with M_1 and M_2 being more prevalent.

MJIRI, Vol. 2, No. 4, 263-264,

INTRODUCTION

Leukemia is the most common malignancy in children and comprises one third of all malignancies in this age group. According to western reports 76% of childhood leukemias are acute lymphoblastic, 20% myeloblastic and the rest are chronic leukemias of all types, mainly CML.

Various classifications of leukemias are based on morphology, cytochemistry, enzyme and antigenic markers and chromosome phenotypes, but the most popular is morphologic classification recommended by the F.A.B. group. Its prognostic value has been proven clinically.

MATERIALS AND METHODS

Bone marrow aspirates from 169 leukemic patients were stained with Giemsa or Wright stain and evaluated by two pathologists according to F.A.B. recommendation. Controversial cases were seen by a third pathologist. P.A.S. and peroxidase (or Sudan black) reactions were used to differentiate myeloblastic from lymphoblastic leukemia.

The patients were admitted to Children's Medical Center in a five year period beginning in 1982. The hospital is the largest teaching center for pediatric medicine in Iran and a referral center from all parts of Iran. Less than 30% of patients were natives of Teheran and for that reason the results of our study are representative of the whole country.

RESULTS

Results are presented in Tables I and II. Table I shows distribution of frequency of leukemia in Chil-

Table I. Distribution of frequency of childhood leukemia in Children's Medical Center.

	ALL	ANLL	CML-other	TOTAL
NUMBER	113	46	10	169
percent	67	27	6	100

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Table II. Distribution of frequency of subgroups of acute childhood leukemia according to F.A.B. recommendations.
Results of this study are compared with those of Hungarian and Dutch groups.

F.A.B. CLASSIFICATION		ALL			ANLL								
		L_1	L_2	L_3	Mo	M_1	M_2	M_3	M_4	M_5	M_6	M_7	TOTAL
our	NO:	80	30	3	1	13	20	5	5	2	--	*	159
group	%	50	19	2	0.75	8	13	3	3	1.25	--	--	100
Hung.	NO:	143	83	3	--	14	10	2	8	4	3	--	270
Study	%	53	30	1	--	5	4	1	3	2	1	--	100
Dutch	NO:	46	39	2	--	1	5	--	4	3	--	--	100
Study	%	46	39	2	--	1	5	--	4	3	--	--	100

* Two cases could not be differentiated as M_1 or M_7 with available facilities and were included in M_1.

dren's Medical Center. 67% of patients suffered from acute lymphoblastic leukemia and 27% from acute non-lymphoblastic leukemia. The remaining were involved by various chronic leukemias including CML (4) CML in blastic crisis (1) and congenital leukemia (1).

In Table II the F.A.B. classification is adapted and the results are compared with two other reports from Hungarian group (270 cases)[5] and Dutch group (100 cases).[6]

DISCUSSION

Comparing our results to those of Hungarian and Dutch groups there are statistically significant differences in frequency of myeloblastic and lymphoblastic leukemias using chi-square test for Hungarian group ($X^2 = 11.11$, $dF = 1$, $P<0.001$) and for Dutch group ($X^2 = 22.88$, $dF = 1$, $P<0.001$). It is concluded that although ALL is the most common childhood leukemia in Iran, it's frequency is lower than that of European studies. ANLL is a little more prevalent. The appropriate percents are 71 and 29 respectively.

The lower incidence of ALL in Iran compared to foreign cases is due to lower incidence of L_2 forms. Higher M_1 and M_2 frequencies are responsible for higher incidence of ANLL.

As we know L_2 forms of A.L.L. are usually of T-cell type or secondary to lymphoma and have a poorer prognosis. In other words lower incidence of L_2 and higher incidence of M_1 and M_2 doesn't alter significantly the response to therapy and prognosis and has only academic or epidemiologic value.

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