ORIGINAL ARTICLE

Acute Non Lymphoblastic Leukemia in the Department of Child Health School of Medicine, University of North Sumatera/ Dr. Pirngadi Hospital Medan (1983-1988), A Preliminary Study

by

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Abstract

A retrospective study on Acute Non Lymphoblastic Leukemia (ANLL) was conducted at the Sub Division of Pediatric Hematology, School of Medicine, University of North Sumatera/Dr. Pirngadi Hospital Medan, in a period of 5 years (1983-1988).

There were 18 cases consisted of 14 (77.78%) males and 4 (22.22%) females with the age group of 0-2 years : 6 (30%), 2-8 years : 9 (50%), 8-15 years : 3 (30%). By the FAB classification, they were of FAB M-1 : 1 (5.55%), FAB M-2 : 1 (5.55%), FAB M-3 : 1 (5.55%), FAB M-4 : 2 (11.12%) and FAB M-6 : 13 (72.23%). Only 7 (38.88%) were treated with cytostatics while the others received only supportive therapy. The result of cytostatic treatment was unsatisfactory : 4 (57.14%) died within the first 2 months of treatment, 3 (42.86%) discontinued their cytostatics treatment.

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Introduction

Acute non lymphoblastic leukemia (ANLL) in children comprised about 20% - 30% of acute leukemic cases in children and were mostly found in older children [1,2,3].

By the FAB system, ANLL consists of 6 sub types: FAB M-1 - FAB M-6 and was differentiated cytomorphologically. The common subtypes are Mieloblast and Mielomonoblast [1,4,5]. Although cytologically different, their clinical signs and their response to therapy are similar, except that M-3, about 5% of ANLL, inclines to bleeding due to DIC [3].

The usual clinical signs were pallor, hepatomegaly, splenomegaly, fever, bleeding, and lymphadenopathy. The diagnosis is based on clinical signs, hematologic findings and bone marrow puncture [2,3]. Most diagnosis are established at the first admission, though the symptoms might have been present within 6 weeks [3]. Compared to the successful therapy of Acute Lymphoblastic Leukemia (ALL) in children, the result of ANLL treatment is very disappointing [1,2].

Most patients died during induction treatment or even before cytostatic therapy began. The patients who were treated only with supportive therapy, had a life expectancy of about 1.2 months. By established chemotherapeutic regimen and maximal supportive therapy, remission could be attained in 30% - 50% cases though it will be followed by a high frequency of relapses where the second remission will be more difficult to attain [2]. A recent study showed that by bone marrow transplantation on the first remission, cure can be expected in 50% - 70%, although this still needs further study [4].

The purpose of this study is to describe several aspects of Acute Non Lymphoblastic Leukemia (ANLL) in the Department of Child Health, School of Medicine, University of North Sumatera/Dr. Pirngadi Hospital in the period of 1983-1988, including the subtypes, age, major symptoms, WBC count and hemoglobin level at the first admission, treatment given and end result of treatment.

Materials and Methods

This study was done retrospectively by collecting the data of patients diagnosed as ANLL admitted to the Sub Division of Pediatric Hematology Department of Child Health, School of Medicine, University of North Sumatera/Dr. Pirngadi Hospital, Medan, in the period of 1983-1988.

The diagnosis of ANLL was based on the clinical signs, hematologic findings and bone marrow picture. The data consisted of several aspects such as the subtype of ANLL, age, sex, major symptoms and hematologic findings at the first admission, the treatment given and the end result of the treatment.

Result

During 1983–1988, we found 18 cases of ANLL. Distribution according to their sexes revealed 14 males (77.78%) and 4 females (22.22%). By the FAB classification, most were found as FAB M-6 (Table 1).

Distribution of patients according to age group showed : 0–2 years : 6 cases (30%), 2-8 years : 9 cases (50%), 8-15 years: 3 cases (20%) (Table 2). The youngest was 4 months and the oldest 14 years.

The major signs and symptoms at the first admission were pallor (83.33%), splenomegaly (61.11%), hepatomegaly (50%), fever 50% and bleeding – (33.33%) (Table 3).

The WBC count was low (below 10.000/ul) in 3 cases (16.6%) and high (above 10.000/ul) in 15 cases (83.33%). Hemoglobin level were below 5 g/dl in 14 cases (77.77%) and above 5 g/dl in 3 cases (22.22%).

The treatment that was given were cytostatic regimen with supportive therapy such as blood transfusions, antibiotics and antifungals, diet and fluid therapy.

Unfortunately, only 7 cases (38.88%) received cytostatic treatment, while others received supportive therapy only. From the 7 cases above, 4 cases (57.14%) died in the first two months and 3 cases (42.86%) discontinued their treatment. For this reason, the end result of the treatment could not be evaluated, since not even one of the cases received cytostatic regimen as planned, so that remission could not be attained. The same thing happened to the patients who just received supportive therapy, since all of them discontinued their treatment.

Table 1 : *Distribution of patients according to subtype of ANLL and sex*

Subtype	Sex		Number	%
	Male	Female		
FAB M-1	–	1	1	5.55
M-2	1	–	1	5.55
M-3	1	–	1	5.55
M-4	1	1	2	11.12
M-5	–	–	–	–
M-6	11	2	3	72.23
Total	14	4	18	100.00
%	77.78	22.22	100.00	

Table 2 : *Distribution of patients according to age group*

Subtype	Age (Years)							Number
	0–2	–4	–6	–8	–10	–12	–14	
FAB M-1	–	1	–	–	–	–	–	1
M-2	1	–	–	–	–	–	–	1
M-3	–	1	–	–	–	–	–	1
M-4	1	–	–	–	1	–	–	2
M-5	–	–	–	–	–	–	–	–
M-6	4	4	1	2	–	1	1	13
Total	6	6	1	2	1	1	1	18

Table 3 : *Major signs and symptoms at first admission*

Signs/Symptoms	Number	%
Pallor	15	83.33
Splenomegaly	11	61.11
Hepatomegaly	9	50.00
Fever	9	50.00
Bleeding	6	33.33

Discussion

From 18 cases of ANLL in our study, we found that males were more frequent than females, and that most of the patients were of subtype FAB M-6. Earlier studies reported that there were no sex predominance in ANLL, and the common subtypes were FAB M-1 and FAB M-2, besides FAB M-4 and FAB M-5, while FAB M-3 and FAB M-6 were infrequent [1,4,5].

The distribution of patients according to age were mostly 2–8 years (50%), where Creutzig (1987) [1] found 8-10 years, and Kobrinsky (1980) [2] at the age above 10

years.

The sign/symptoms such as pallor, splenomegaly, hepatomegaly, fever, bleeding and hematologic findings since WBC count and hemoglobin level, were similar to earlier studies, except that there was no hyperleucocytosis usually found in FAB M-5.

The result of treatment were unsatisfactory, since no remission could be attained, which was consistent with that found by Creutzig (1987) [1] and Kobrinsky (1980) [2].

Conclusions

Eighteen ANLL cases were found in a preliminary study in 1983-1988. There was male predominance, mostly sub type FAB M-6, and at the age 2-8 years. We need to continue this study with more cases.

REFERENCES

1. CREUTZIG U, RITTER J, RIEHM H, BUDDE M, SCHELLONG G. The Childhood AML. Studies BFM-78 and -83: Treatment Results and Risk Factor Analysis; in BUCHNER, SCHELLONG, HIDDEMANN, URBANITZ, RITTER, eds, Haematology and Blood Transfusion, Berlin, Heidelberg : Springer-Verlag, 1987: 71-5.

2. KOBRINSKY, N.L.; ROBISON, L.L.; NESBIT, M.E.: Acute Nonlymphocytic Leukemia. In the Pediatric Clinics of North America. Altman, A.J.

3. LEVENTHAL BG. Neoplasm and Neoplasm-Nelson Text Book of Pediatrics 13th ed, Philadelphia: WB Saunders, 1987: 1079-110.

4. HERMANN J, PLENERT W, ZINTL F, et. all. Improved Treatment Result in Childhood Non Lymphoblastic Leukemia with the BFM-AML Protocol 78 in a Multicenter Study in the GDR; in BUCHNER, SCHELLONG, HIDDEMANN, URBANITZ, RITTER, eds, Haematology and Blood Transfusion, Berlin, Heidelberg: Springer-Verlag, 1987: 76-82.

5. WEINSTEIN H, GRIER H, GELBER R, CAMITTA B, LINK M, DELOREY M, PRICE K. Psotremission Induction Intensive Sequential Chemotherapy for Children with AML - Treatment Results and Prognostic Factors; in BUCHNER, SCHELLONG, HIDDEMANN, URBANITZ, RITTER, eds, Haematology and Blood Transfusion, Berlin, Heidelberg: Springer-Verlag, 1987: 88-92.