IMMUNOPHENOTYPIC AND HEMATOLOGIC PROFILE OF PEDIATRIC ACUTE LYMPHOBLASTIC LEUKEMIA IN THE PHILIPPINES.

Qareem G. Pido, MD; Daphne C. Ang, MD,FPSP
Division of Pathology and Laboratory, Philippine Children's Medical Center

INTRODUCTION

In the Philippines Acute Leukemia has a reported incidence of 109 per 100,000 and accounts for 47.8% of pediatric malignancies in the country. The diagnosis of Leukemia is dependent on the cells immunophenotype.

OBJECTIVES

We aim to characterize and determine the relationship of the flow cytometric immunophenotype and the patient's hematologic parameters in ALL patients.

METHODOLOGY

Hematologic parameters (CBC), bone marrow studies and immunophenotyping by flow cytometry analysis were retrieved from 229 consecutive naïve ALL cases at PCMC, between September 2016 - August 2019.

RESULTS

Of the 229 subjects, 206(90%) had B-ALL and 23(10%) had T-ALL. There were 148(64.6%) males and 81(35.4%) females, with a mean age of 6.4±4.4 years old. The mean hemoglobin, white blood cell counts, platelet counts and bone marrow blast percentage were 80.52±26 mg/dL, 61.6±104.6x10^9/L and 66.2±79.8x10^9/L and 77.9±18.7%, respectively. Blast was present in the peripheral smears in 57.2% of the cases.

Among B-ALL cases, cCD79a, CD10, CD19, cTdt expression were seen in 200(97%), 198(96%), 198(96%) and 198(96%), respectively. The most common aberrant myeloid marker expressed is CD13 (32%). Among the T-ALL cases, CD10, CD5, cTDT, CD34, CD8 and CD4 expression were seen in 8(35%), 23(100%), 16(69%), 7(30%), 7(30%) and 7(30%), respectively.

Two-tailed Chi-Square demonstrated statistically significant correlation in B-ALL between CD10, CD20 and cTdt immunophenotypes with the WBC count(P=0.0149), peripheral blood blast(P=0.0485), and platelet count(P=0.00005), respectively. T-ALL antigens including CD8 (WBC count *P=0.014*, platelet count *P=0.021*, peripheral blast *P=0.104*), CD13 (Bone marrow blast *P=0.024*) and CD33 (WBC count *P=0.023* and Platelet count *P=0.006*) also displayed significant hematologic alterations.

CONCLUSION

Our findings supported significant aberrations in the patient's hematologic parameters in the presence of ALL.

Exploring the cytogenetic and molecular aspect of ALL is recommended to improve treatment and prognosis.