



COST-EFFECTIVENESS OF LIMITED SCREENING PANEL FOR ACUTE LYMPHOBLASTIC LEUKEMIA DIAGNOSIS IN A RESOURCE-LIMITED SETTING

Ivy Mae C. Medalla, MD; Maria Beatriz P. Gepte, MD; Daphne C. Ang, MD

Division of Pathology and Laboratory
Philippine Children's Medical Center

INTRODUCTION

Flow cytometry is an invaluable tool in the diagnostic evaluation of acute leukemia and post therapy monitoring; however, majority of Filipino population cannot afford the cost. The use of a minimal screening panel which is both cost-effective and provides an accurate diagnosis of acute lymphoblastic leukemia is seen as an alternative.

OBJECTIVES

We aim to determine the cost-effectiveness and accuracy of using a minimal screening panel for the diagnosis of acute lymphoblastic leukemia (ALL).

METHODS

We selected a limited panel of 9 antibodies comprising of CD45/CD19/CD20/ CD10 / HLADR/CD34/cCD3/CcCD79a/cTdt

and retrospectively reviewed newly diagnosed cases of B-cell and T-cell ALL from September 2016 to December 2019 using this panel.

RESULTS

Out of 719 bone marrow aspirates submitted for basic leukemia flow cytometric analysis we identified 268 ALL cases (239 B-ALL and 29 T-ALL). In all cases, a diagnosis was established using the limited panel. Compared to the current cost of our comprehensive panel (₱ 9,903.60), this limited panel cost ₱ 3,062.29, that offers a 69.08% savings per test, which translated to a ₱1.2 million savings a year (for an average of 238 annual cases).

CONCLUSION

We underscore the utility of a limited panel for the diagnosis of ALL. Although this panel remains to be assessed with a larger

Table 1. Cost of the basic leukemia panel compared with the limited screening panel.

COSTING	BASIC LEUKEMIA PANEL	LIMITED SCREENING PANEL
Cost Per Test	9,903.06	3,062.29
Annual Cost	1,782,550.8	551,212.2
Annual Savings		1,231,338.6

validation cohort, its application in resource-limited developing countries is diagnostically useful and cost-effective.

RECOMMENDATION

The use of a limited panel of 9 antibodies is recommended as a screening panel for patients who are highly suspected of having ALL both clinically and initial bone marrow smear assessment.

KEYWORDS

Limited Screening Panel, Acute Lymphoblastic Leukemia, Pediatric Population, Filipino