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A cost-of-illness analysis of relapsed or refractory acute myeloid leukemia (R/R AML) with *FLT3* mutations in Chile: a public payer perspective

Juan Guillermo Ariza, MD, MBA, MS[1]; Kenny Arciniegas, MD, CPS, MS[2]; Giovanny Montoya, MS[3]; Joel Castellano, MBA[3]; Camilo Tamayo, MS[4]; Alexandra Gonzalez, MS, MD[4]

[1]Astellas Pharma International Markets, Bogotá, Colombia; [2]Astellas Farma South Cone - International Markets, Bogotá, Colombia; [3]Astellas Farma Colombia S.A.S., Bogotá, Colombia; [3]IQVIA LatAM, Santiago, Chile; [4]IQVIA LatAM, Bogotá, Colombia

INTRODUCTION AND OBJECTIVE

- Most newly diagnosed patients with acute myeloid leukemia (AML) will relapse or develop refractory (R/R) disease, despite complete response rates as high as 80% to first-line chemotherapy and targeted therapies[1]
- Patients with R/R *FMS-like tyrosine kinase 3* mutation-positive (*FLT3*$^{mut+}$) AML have particularly poor clinical outcomes with standard salvage chemotherapy, characterized by low response rates and dismal survival[2]
- A substantial proportion (40%) of patients with R/R *FLT3*$^{mut+}$ AML receive best supportive care services, incurring a heavy burden on the healthcare system[3,4]
- We estimated the direct costs associated with the treatment of patients with R/R *FLT3*$^{mut+}$ AML in the Chilean public health system

METHODS

- The target population was estimated, using cost-of-illness analysis model, based on the Chilean population in 2023[5]
  - AML prevalence was derived from the International Agency for Research on Cancer database 2020[6]
  - Proportion of patients with AML who received *FLT3* testing and proportion of patients with R/R *FLT3*$^{mut+}$ AML were estimated from published literature[7,8]
- Health resource utilization, frequency of usage, and quantities were estimated from literature review, clinical practice guidelines, and semi-structured interviews with five Chilean clinical hematology experts
- Cost inputs were based on the CENABAST public purchasing system, public hospital, and Chilean diagnosis-related group fees for relevant clinical events[9]
  - Costs were adjusted by inflation and converted to United States Dollars (USD)
  - The average November 2023 exchange rate was used, with 1 USD = 886.61 Chilean Peso
- Costs were calculated per patient per year for 2023 by using an "incident" approach and estimated for the overall target population

CONCLUSIONS

- **In the Chilean public health system, this cost-of-illness analysis demonstrated the substantial healthcare resource utilization and economic burden among patients with R/R *FLT3*$^{mut+}$ AML**
- **Treatment strategies that reduce drug administration and hospitalization costs among patients with R/R *FLT3*$^{mut+}$ AML may alleviate some of the economic burden associated with AML**

RESULTS

Estimation of target population

- A cohort of 15,492,606 (77.6%) adults (≥ 18 years) was estimated from the overall Chilean population[5] (**Table 1**)

Treatment distribution

- According to Chilean expert opinion, the most frequently used treatments in the target population were off-label venetoclax combination regimens (37%), followed by low-intensity chemotherapy (29%), targeted therapies (22%), and high-intensity chemotherapy (12%)

Cost of treatment

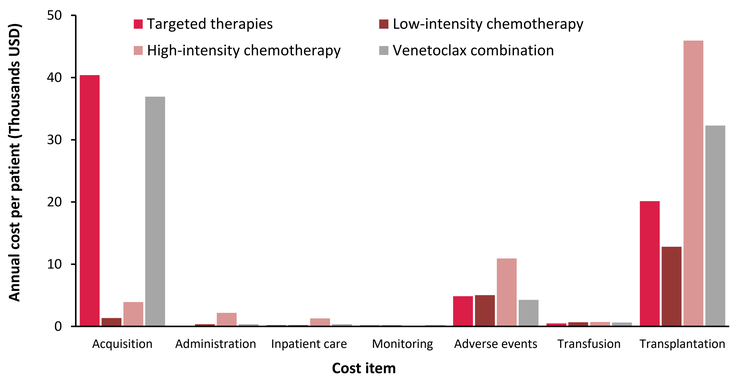
- Treatment-associated costs per patient varied across the four treatment categories analysed (**Figure 1**)
  - The costs associated with targeted therapies and venetoclax combination treatment were highest for drug acquisition, followed by hematopoietic stem cell transplantation (HSCT); whereas the costs associated with chemotherapy were highest for transplantation, followed by adverse events costs
  - Critical care hospitalization was the main driver for the post-progression AML care costs (**Figure 2**)
- The estimated annual per capita cost for a new patient with R/R *FLT3*$^{mut+}$ AML was USD 67,761.07 with an overall cost for the target population of USD 7,724,761.70 (**Table 2**)

Table 1. Estimation of target population

Eligible patients	Input value	Population flow
Chilean population in the year 2023	19,960,889	
Adults ≥18 years	77.6%	15,492,606
Adults with AML	0.0205%	3,175
Adult patients with AML receiving *FLT3* testing	45.0%	1,429
Adult patients with *FLT3*$^{mut+}$ AML	20.0%	286
Adult patients with R/R *FLT3*$^{mut+}$ AML	40.0%	114

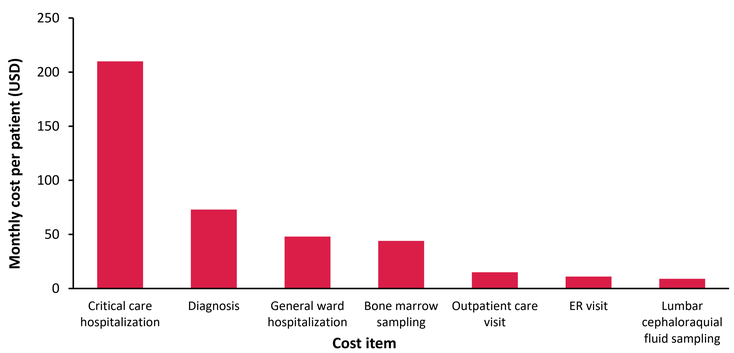
AML, acute myeloid leukemia; *FLT3*$^{mut+}$, *FMS-like tyrosine kinase 3* mutation-positive; R/R, relapse or refractory

Figure 1. Treatment-associated costs per patient with R/R *FLT3*$^{mut+}$ AML by treatment category



AML, acute myeloid leukemia; *FLT3*$^{mut+}$, *FMS-like tyrosine kinase 3* mutation-positive; R/R, relapse or refractory

Figure 2. Post-progression monthly costs of treating patients with R/R *FLT3*$^{mut+}$ AML



AML, acute myeloid leukemia; *FLT3*$^{mut+}$, *FMS-like tyrosine kinase 3* mutation-positive; R/R, relapse or refractory

Table 2. Overall treatment costs of treating patients with R/R *FLT3*$^{mut+}$ AML*

Cost item	Cost per patient per year, USD	Cost for the target population per year, USD (N = 114)	Percentage of overall cost, %
Drug administration and hospitalization	36,238.14	4,131,148.29	53
Monitoring	1,027.90	117,180.40	2
Adverse event	5,007.50	570,855.40	7
Blood and platelet transfusion	634.74	72,360.38	1
Subsequent HSCT	20,079.78	2,289,094.58	30
Post-progression	4,773.01	544,122.65	7
Overall	67,761.07	7,724,761.70	100

*Results in the accepted abstract have been updated here based on revised assumptions for transplantation and some medication costs.
AML, acute myeloid leukemia; *FLT3*$^{mut+}$, *FMS-like tyrosine kinase 3* mutation-positive; HSCT, hematopoietic stem cell transplantation; R/R, relapse or refractory; USD, United States Dollar

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