COSTS OF RELAPSED/REFRACTORY ACUTE MYELOID LEUKEMIA (AML) IN COLOMBIA

Lasalvia P[1], Gil Rojas Y[2], Arciniegas Moreno K[3], Saturnino LTM[3]
[1]NeuroEconomix, Bogota, CUN, Colombia, [2]NeuroEconomix, Bogotá, CUN, Colombia, [3] Astellas, Bogota, Colombia.

INTRODUCTION

• In **Colombia**, AML ranks twenty-second among the most prevalent tumors [1].
• Conventional treatment for AML has two phases, induction and consolidation [2]. Allogeneic transplantation is the treatment option in the first complete remission if a compatible donor is available [3].

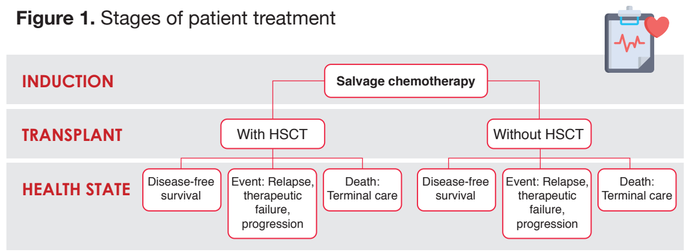
OBJECTIVE

To estimate cost of care for patients with relapsed/refractory AML from the perspective of the Colombian health system.

METHODS

• We considered costs for drug acquisition, administration, adverse events (AE), Hematopoietic Stem Cell Transplantation (HSCT), health conditions including post-progression and terminal care. The costs were expressed in 2019 US dollars (1USD = 3,281COP).
• We estimated healthcare resource utilization with clinical experts. Prices were obtained from local tariff manuals, SISMED and price regulation memos [4, 5].
• Differential costs were considered depending on disease status (Disease Free Survival (DFS), or post-event state) and whether patients underwent HSCT. Figure 1 summarizes included health states.
• For terminal care costs, we considered hospitalization and palliative services for end-of-life care.

Figure 1. Stages of patient treatment



RESULTS

• **Table 1** shows the costs per patients. Blood product transfusions accounted for 70.5% to 79.9% of costs, hospitalization for 9.8% to 13.5% and emergency department visits for 0.05% to 2.9% for DFS without HSCT post-progression patients, respectively.

Blood product transfusions **70.5% - 79.9% of costs**

Hospitalization **9.8% - 13.5%**

Emergency Department Visits **0.05% - 2.9%**

The highest costing individual adverse event was febrile neutropenia **$1,396** and the lowest one was fatigue ($95). (Table 2) **$95**

99.5% of HSCT cost was related to the procedure and the remaining for progenitor cell culture.

Terminal care cost was estimated a **$4.769**

Table 1. Cost per patient with AML in Colombia at different stages of treatment

CATEGORY	DETAILS	TOTAL
Cost of monitoring health status	Monthly cost in patients with HSCT in disease-free survival	$ 2,156.48
	Monthly cost in patients with HSCT in progression	$ 1,904.53
	Monthly cost in patients without HSCT in disease-free survival	$ 97.44
	Monthly cost in patients without HSCT in progression	$ 1.904.53
Acquisition and management costs	Salvage chemotherapy (1-2 cycles)	$ 1,997.33
Cost of adverse events	Salvage chemotherapy	$ 1,299.25
Cost of HSCT	One-off cost	$ 30,626.02
Terminal care	One-off cost	$ 4,769.69

Table 2. AE frequency and event cost.

ADVERSE EVENT	INCIDENCE	PRICES, PER EVENT
Anemia	30.3%	$333
Dyspnoea	2.8%	$596
Elevated alanine aminotransferase	4.6%	$324
Elevated aspartate aminotransferase	1.8%	$377
Elevated blood phosphocreatine kinase	0.0%	$539
Fatigue	1.8%	$95
Febrile neutropenia	36.7%	$1,396
Hyperglycaemia	8.3%	$293
Hypertension	3.7%	$394
Hypokalemia	11.0%	$160
Hyponatraemia	2.8%	$432
Hypophosphatemia	3.7%	$222
Hypotension	2.8%	$475
Leucopenia	0.0%	$154
Neutropenia	13.8%	$427
Neutrophil count decreased	11.0%	$412
Platelet count decreased	24.8%	$729
Pneumonia	4.6%	$533
Progressive acute myeloid leukaemia	3.7%	$326
Sepsis	0.0%	$615
Thrombocytopenia	16.5%	$1,286
White blood cell count decreased	17.4%	$135

CONCLUSIONS

• The **cost of care** for patients with relapsed/refractory AML has a **high impact on the health system.**

• In **patients who undergo HSCT**, the procedure is the **main drive otal costs.** However, it is important to consider that it substantially increases cure odds for most patients.

• In patients who are **not able to receive transplantation**, the **costs of care and hospitalization** are the main drivers of total costs.

• The costs of **adverse events** are an important item to consider in estimating the costs of care for this cohort of patients, due to the toxicity of the treatment.

• Impacting hospitalization, disease progression and allowing for HSCT are critical factors to be considered among treatment alternatives.

ACKNOWLEDGEMENTS

This study was funded by Astellas Pharma, Inc. Medical writing support was provided by Camilo Castañeda and Paola Posada from NeuroEconomix and funded by the study sponsor.

REFERENCES

[1] Instituto Nacional de Cancerología ESE. Situacion del cancer en Colombia 2015. Primera ed. Bogotá DC: Instituto Nacional de Cancerología ESE; 2017.
[2] Ferrara F, Schiffer CA. Acute myeloid leukaemia in adults. Lancet. 2013;381:484–495.
[3] Fleischmann M, Schnetzke U, Schrenk KG, et al. Outcome of FLT3-ITD-positive acute myeloid leukemia: impact of allogeneic stem cell transplantation and tyrosine kinase inhibitor treatment. J Cancer Res Clin Oncol. 2017;143:337–345.
[4] Ministerio de Salud y Protección Social (MSPS). Sismed - Sistema de información de precios de medicamentos. Reporte 2020-Q2. [Internet]. [2020; cited 2020 Sep 15]; Available from: http://www.sispro.gov.co/recursosapp/app/Pages/Precios de Medicamentos - Circular 2 de 2012 Excel.aspx.
[5]Comisión Nacional de precios de medicamentos y dispositivos médicos. Circular 07 de 2018: Por la cual se incorporan unos medicamentos al régimen de control directo con fundamento en la metodología de la Circular 03 de 2013 de la Comisión Nacional de Precios de Medicamentos y Dispositivos Médicos [Internet]. 2018. Available from: https://www.minsalud.gov.co/salud/MT/Paginas/circular-07-de-2018.aspx.
[6] Instituto de Seguros Sociales. Acuerdo 256 de 2001. Manual de tarifas de la Entidad Promotora de Salud EPS-ISS [Internet]. [2001; cited 2020 Jul 15]; 2001 [cited 2020 Jun 4]. Available from: https://lexsaludcolombia.files.wordpress.com/2010/10/tarifas-iss-2001.pdf.
[7] Ministerio de Salud y Protección Social (MSPS). Cubo de Suficiencia UPC. Consulta para el periodo 2016-2018. [Internet]. [2020; cited 2020 Oct 14]; Available from: https://www.sispro.gov.co/Pages/Home.aspx.