soho2023
ELEVENTH ANNUAL MEETING

CML-418: Determination of Treatment-Free Remission in Adult Patients with Chronic Myeloid Leukemia: Experience from an Institution in Western Mexico

Jesús Manuel Ramírez Acuña MD, Francisco Ariel Domínguez Bejarano MD, Frania Norzagaray Orduño MD, César Borjas Gutiérrez MD
Department of Hematology, High Specialty Medical Unit, Hospital de Especialidades, Centro Médico Nacional de Occidente, Guadalajara, Mexico

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INTRODUCTION

Chronic myeloid leukemia (CML) is a myeloproliferative neoplasm that accounts for approximately 15% of newly diagnosed leukemia cases in adults. It is characterized by a reciprocal genetic translocation t(9;22)(q34;q11.2), resulting in the generation of the *BCR-ABL1* fusion oncogene. Treatment of CML has improved with the advancement in molecular biology understanding and the discovery of targeted therapy to inhibit the phosphorylation of the BCR-ABL1 chimeric protein. This has modified the natural history of the disease, achieving a survival rate similar to the general population. Currently, discontinuation of tyrosine kinase inhibitors (TKIs) is possible for patients who have achieved a deep and sustained molecular response of the *BCR-ABL1* transcript, demonstrating the feasibility of treatment-free remission.

AIM

To determine treatment-free remission after discontinuation of TKIs in adult patients with CML at the Hospital de Especialidades Centro Médico Nacional de Occidente.

METHODS

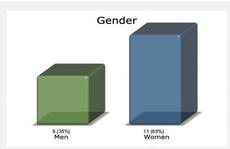
Retrospective cohort study conducted at the Hospital de Especialidades Centro Médico Nacional de Occidente, including patients diagnosed with CML and treated with TKIs since diagnosis. Molecular monitoring of the *BCR-ABL1* fusion gene transcript was performed using quantitative polymerase chain reaction (qPCR) according to the International Scale. Patients who achieved a deep molecular response for at least 2 years were included.

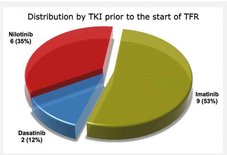
RESULTS

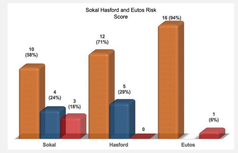
Patient Characteristics and Interventions: A total of 17 patients with CML who met the inclusion criteria were studied, including 6 males and 11 females, with a mean age of 36 years. The average time in deep molecular response with TKIs was 4 years.

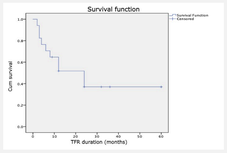
Outcomes: The primary outcome evaluated was treatment-free remission at 24 months after discontinuation of TKIs.

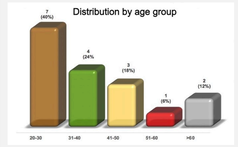
The overall treatment-free remission rate at 24 months was 41%. The variable associated with treatment-free remission was female sex, while no other clinical or laboratory variables showed statistically significant differences.











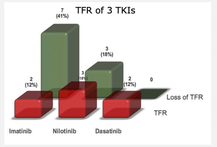


Table 1. Follow up in months after TKI discontinuation comparing 1G and 2G TKI.

	Molecular Relapse		TFR persistence	
TKI	Range	Mean	Range	Mean
Imatinib	2-24	11	12-32	22
Nilotinib	3-12	7	24-60	48
Dasatinib	0	0	9-36	23
Mean		9		31

Table 2. Mean survival time acording to age in CML patients en TFR.

Gender	Mean	Standard error estimate	CI 50%	
			Inferior limit	Superior limit
Man	14.333	8.448	0.000	30.892
Woman	36.682	7.453	22.074	51.290
Total	28.817	6.243	16.581	41.053
General comparison (sex) Log Rank (Mantel-Cox)	$X^{2=}$ 4.632	P= 0.031		

CONCLUSIONS

With more prolonged and sustained deep molecular responses, it is possible to achieve more durable treatment-free remissions and eventually achieve the definitive discontinuation of TKIs. Approximately half of patients remain in a TFR after discontinuing a TKI, according to multiple prospective discontinuation trials. All patients who are intending to TKI discontinuation should meet eligible criteria (Age >18, TKI for ≥3 years, No prior resistance to a 2G TKI that required switching to another agent, prior evidence of a quantifiable *BCR::ABL1* transcript, MR4 *BCR::ABL1* ≤0.01 by the International Scale [IS]) for ≥2 years, by ≥4 separate tests performed ≥3 months apart, access to (qPCR) test.

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ACKNOWLEDGEMENTS

The authors would like to extend sincere appreciation to Dr. César Borjas, whose expertise, guidance, and support were invaluable throughout the course of this study, as well as IMSS CMNO for providing the necessary resources and infrastructure that facilitated the implementation of this study.

CONTACT INFORMATION

- Jesús Manuel Ramírez Acuña MD, email: jesusm.ra94@gmail.com
- César Borjas Gutiérrez MD, email: medinhemato@hotmail.com