BMC Cancer

Meeting abstract

Clonal evolution in a patient with CML detected by FISH precedes imatinib treatment failure

Virginia Enriquez[1], Judith Cruz[1], Olga Gutierrez[1], Maria Teresa Salles[1], Pablo Vargas[2], Arturo Martínez[2], Myrna Candelaria[1], Rafael Hurtado[2] and Eduardo Cervera*[1]

Address: [1]Instituto Nacional de Cancerología, México, D.F and [2]Hospital Angeles del Pedregal, México, D.F

Email: Eduardo Cervera* - isabel.ec@gmail.com

* Corresponding author

from 24th Annual Meeting of the National Cancer Institute of Mexico
Mexico City, Mexico. 14–17 February 2007

Published: 5 February 2007

BMC Cancer 2007, **7**(Suppl 1):A41 doi:10.1186/1471-2407-7-S1-A41

This article is available from: http://www.biomedcentral.com/1471-2407/7/S1/A41

Background

Imatinib (IM) inhibits the TK protein from chromosome Philadelphia (Ph). However, less than 10% of IM-treated patients become resistant. Second generation TK inhibitors are on active clinical research aimed to overcome most, but not all, important mutations.

Case report

A 61 year-old male was diagnosed on Sep/98 with CML chronic phase, he was treated with hydroxiurea, interferon and Ara-C. On July/01 the patient was on complete hematological response (CHR), but Ph positive in karyotyping (Ky) and fluorescence *in-situ* hybridization (FISH), there were not additional abnormalities. Patient began IM treatment, 400 mg/day. After 4 months of treatment, +der(22) was detected, but the patient was still on CHR. On subsequent visits, the patient had an increased frequency of chromosomal abnormalities, and after 2 years he lost CHR, regardless of the increase IM dose and the concomitant use of Ara-C. The patient was included on a dasatinib phase II protocol. 2 weeks after he had a profound cytopenia and 2 months after had CHR. Table 1 shows clinical and hematological and Ky and FISH follow-up.

Conclusion

Additional abnormalities found on Ky and FISH could preceed treatment failure. Molecular monitoring is required to guide treatment decisions. The role of second generation TK inhibitors needs to be defined.

Table 1: Clinical and hematological and Ky and FISH follow-up

Sample	Date	Ky	FISH	Treatment & clinical condition
1	Jul/01	Only Ph	Only Ph 35%	Began IM 400 mg/d CHR
2	Nov/01	Ph plus double Ph	Not enough material	IM 400 mg/d CHR
3	Jan/02	No growth	Only Ph 26%	IM 400 mg/d CHR
4	Sep/02	Hipodiploid plus Ph	Only Ph 22% Clone BCR amplified without Ph 3% Clone ABL amplified and Ph 5%	IM 400 mg/d Leucocytosis
5	Jun/03	Only Ph	Only Ph = 28% Clone BCR amplified without Ph = 1% Clone ABL and/or BCR amplified with Ph = 28% Clone ABL and/or BCR amplified and double Ph = 51% Clone ABL and BCR amplified with triple Ph = 11% Clone ABL lost with Ph = 5%	IM 600 mg/d
6	Nov/03	Ph plus lost Y, marker chromosome, trisomy chr 19, double Ph and trisomy chr 8.	Only Ph = 4% Clone ABL amplified without Ph = 1% Clone ABL and/or BCR amplified with Ph = 18% Clone ABL and/or BCR amplified with double Ph = 74% Clone ABL and BCR amplified with triple PH = 1% Trisomy chr 8 = 72%	IM 600 mg + Ara-C
7	Jul/04	No growth	Only Ph = 44% Clone ABL amplified with Ph = 6% Clone ABL and/or BCR amplified with double Ph = 17%	IM 800 mg/d
sample	Jan/ 05			Began with dasatinib
8	Dec/05	No growth	Only Ph = 18%	Dasatinib