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## LOW RATES OF FIRST LINE HAART FAILURE IN A RESOURCE-LIMITED COUNTRY (RLC) ASSOCIATED TO AGE, GENDER, BASELINE CONDITIONS AND THIRD DRUG. RESULTS FROM THE CHILEAN AIDS COHORT (CHIAC)



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### Background:

Rates of first HAART virological suppression are increasing to near 80%. DHHS guidelines outline risk factors for failure in developed countries. First regimen failure remains an important problem, especially in RLC where viral load (VL) and resistance testing are often unavailable. Aims of this study are to determine the rate and risk factors for first failure in a RLC, as compared to those reported in developed countries.

### Methods:

5,102/ 7,007 patients on treatment nationwide initiated first HAART during prospective follow up by the ChiAC. Failure defined as at least 2 consecutive VL > 80 copies/ml with no further undetectability on same HAART. Age, CD4, clinical diagnosis and VL at baseline, gender and third drug analyzed for association to failure through unadjusted univariate analysis, and multivariate analysis; determining OR and CI95 for each variable. Sensitivity analysis performed using different failure cut points (>80; >400; >1,000 copies/ml).

### Results:

3,439/ 5,102 patients on first HAART had  $\geq 2$  VL on treatment, being included in the study (21,396 VL tests); 2,820 (80.0%) achieved viral suppression, 619 (20.0%) met failure criteria, 26.2% of them with low level VL (< 1,000 copies/ml). Significant risk factors for failure in multivariate analysis: female (OR 1.35 CI 1.03-1.75), age (OR 0.97 CI 0.96-0.98 p/year old), VL (OR 1.01 CI 1.00-1.01 p/100,000 copies/ml), third drug different from Efavirenz (OR 3.87 for 3 NRTI, 2.98 for PI, 1.85 for nevirapine); B and C CDC stage significant only for secondary failure (OR 1.72 and 1.67). Except for gender, all factors were consistent for different cut points. Baseline CD4 not associated to failure.

### Risk factors for failure

	Univariate Analysis (Failure >80 copies/ml)			Multivariate Analysis (Failure >80 copies/ml)			Multivariate Analysis (Failure >400 copies/ml)			Multivariate Analysis (Failure >1,000 copies/ml)		
	OR	ICI	ICS	OR	ICI	ICS	OR	ICI	ICS	OR	ICI	ICS
Age (p/ year old)	0,97	0,96	0,98	0,97	0,96	0,98	0,97	0,96	0,98	0,97	0,96	0,98
Sex (reference: Male)	1,39	1,10	1,76	1,35	1,03	1,75	1,24	0,94	1,65	1,27	0,94	1,70
Baseline CD4 (100)	1,00	0,91	1,10	1,04	0,93	1,16	0,98	0,87	1,11	0,93	0,82	1,06
Baseline VL (100,000)	1,01	1,00	1,01	1,01	1,00	1,01	1,00	1,00	1,01	1,00	1,00	1,01
CDC A	1,00	-	-	1,00	-	-	1,00	-	-	1,00	-	-
CDC B	1,23	0,98	1,54	1,31	1,02	1,68	1,27	0,98	1,66	1,27	0,96	1,68
CDC C	1,06	0,86	1,31	1,20	0,93	1,55	1,08	0,82	1,42	1,08	0,81	1,44
Drug EFV	1,00	-	-	1,00	-	-	1,00	-	-	1,00	-	-
Drug 3N	3,74	2,61	5,36	3,87	2,61	5,73	3,46	2,28	5,24	2,54	1,62	3,99
Drug IP	3,22	2,50	4,15	2,98	2,25	3,96	3,35	2,49	4,50	2,86	2,10	3,91
Drug NVP	1,65	1,33	2,05	1,85	1,46	2,36	1,93	1,49	2,49	1,75	1,33	2,29

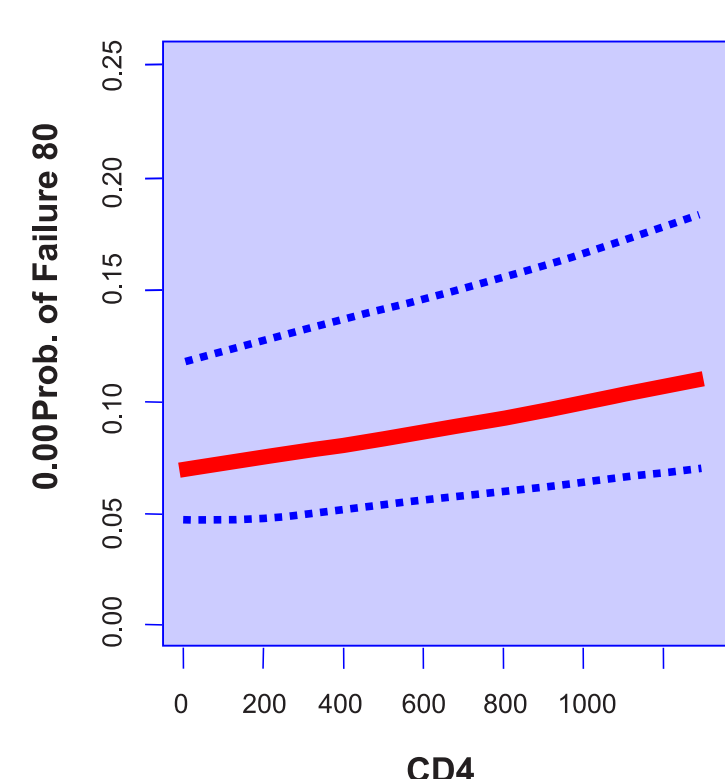
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### Risk factors for primary and secondary failure (>80 copies/ml)

	Primary Failure (>80 copies/ml)			Secondary Failure (>80 copies/ml)		
	OR	ICI	ICS	OR	ICI	ICS
Age (y)	0,97	0,96	0,99	0,97	0,96	0,99
Sex (reference: Male)	1,45	1,07	1,98	1,17	0,77	1,79
Baseline CD4 (100)	1,02	0,89	1,16	1,07	0,90	1,26
Baseline VL (100,000)	1,01	1,00	1,01	1,00	0,99	1,01
CDC A	1,00	-	-	1,00	-	-
CDC B	1,15	0,85	1,55	1,72	1,15	2,57
CDC C	1,01	0,74	1,37	1,67	1,11	2,51
Drug EFV	1,00	-	-	1,00	-	-
Drug 3N	4,03	2,56	6,33	3,75	2,06	6,86
Drug IP	2,88	2,05	4,04	3,17	2,08	4,84
Drug NVP	1,88	1,40	2,53	1,88	1,30	2,72

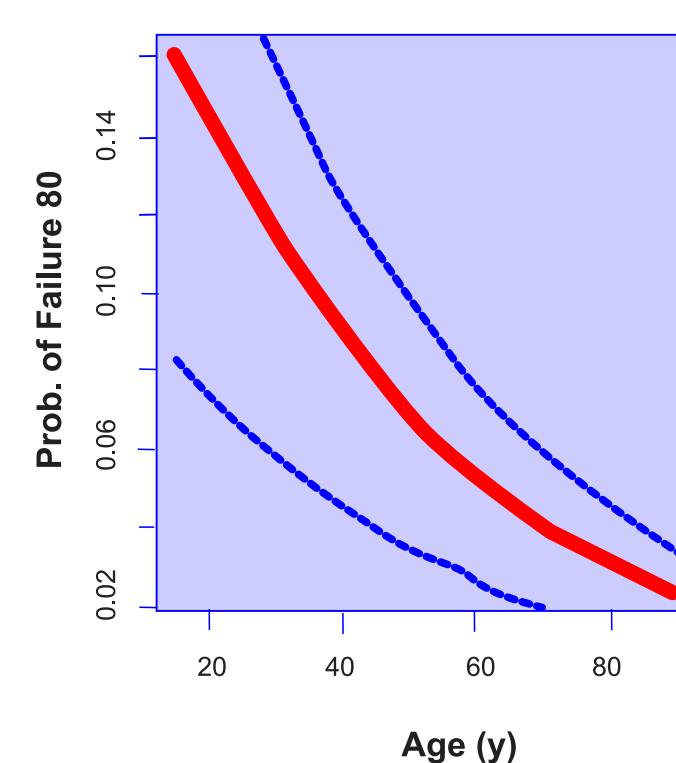
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### CD4 and Probability of Failure 80



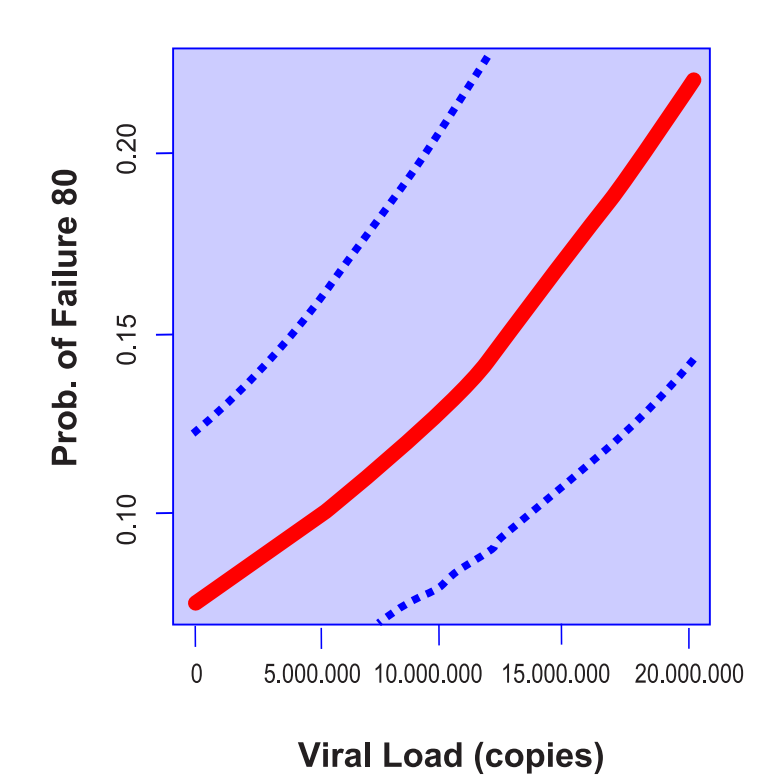
Reference: Male, 38 years old, VL 365,000, CDC stage A

### Age and Probability of Failure



Reference: Male, CD4 120, VL 365,000, CDC stage

### VL and Probability of Failure 80



Reference: Male, 38 years old, CD4 120, CDC stage A

### Conclusions:

IN THIS RLC POPULATION-BASED STUDY, WE FOUND A LOW RATE OF VIROLOGICAL FAILURE OF FIRST HAART. FEMALE GENDER (ONLY FOR LOW LEVEL VIREMIA FAILURE), YOUNGER AGE, B-C STAGE (ONLY FOR SECONDARY FAILURE) AND HIGH VL AT BASELINE, AND THIRD DRUG DIFFERENT FROM EFAVIRENZ WERE ALL SIGNIFICANTLY ASSOCIATED TO FAILURE.

### Comparison of risk factors of failure in developed and RLC

- Younger age: similar
- Higher baseline VL: similar
- Higher risk of failure among women:
  - Probably due to lower risk of failure among MHSM (not separated in our study)
  - Only associated to failure with LLV in our study
- Clinical B and C stage: only for secondary failure in our study
- Lower baseline CD4: not associated to failure in our study
- Significantly lower risk of failure for Efavirenz in our study:
  - As expected as compared to triple NRTI and Nevirapine
  - Not expected in comparison with PI (probably due to differences in selection of PI and adherence.



Cabrera C, Gálvez R, López O, Sarabia P, Vázquez J, Andraca M, Castillo J, Pavez P, Peña A, Aguayo A, Ayala M, Sepúlveda M, Montes L, Hermosilla E, Varas C, Varela G, Ramos N, Galeno A, Moraga E, Barthel E, Sánchez M, Mirambio V, Dóddo F, Lazo G, Zúñiga K, Jensen W, Ahumada R, Huilcaman M, Gómez S, Torre C, Valenzuela M, Figueroa L, Salvador D, Cachón M, Arredondo S, Greppi D, Alegria S, Moraga A, Urbe L, Caroca P, Olivares M, Alejandro A, Solís T, Ortiz I, Daule E, Mora R, Ajlwin M, Carroño J, Pérez S, Chain C, Molina G, Angulo N, Calvo M, Blackburn E, Diaz V, Marzón J, Villalobos S, López C, Sáez A, Toro C, Navarrete M, Galetovic B, Velásquez E, Robles V, Marinovich B, Silva M, Bugueño R, Padilla I, Alarcón Y, Wolff M, Northland R, Bustamante C, Quintanilla R, Abarca C, Muñoz R, Orellana L, Zúñiga J, Escalona C, Asenjo A, Becerra I, Usedo P, Oliva C, Beltrán C, Escobar C, Gamba M, Adarme, Palma S, Bahamondes L, Gebauer M, Muñoz V, Lazo M, Gaete P, Cerón I, Fernández M, Ramírez A, Vera A, Vázquez P, Bustos M, Chanqueo L, Gutiérrez L, Serri M, Roessler P, Villagrán A, Ballesteros J, Diomedea A, Blamey R, Sobrazo J, Pobrete A, Mainvilliers C, Gallardo A, Morales O, Jiménez E, Muñoz M.