Poster No. 625

ASSOCIATION OF HIV CONTROL AND IMMUNOSUPPRESSION WITH NADC RISK AMONG PATIENTS ON ART

Brittney L. Dickey[1], Elizabeth L. Yanik[2], Zachary Thompson[1], Greer Burkholder3, Mari M. Kitahata[4], Richard D. Moore[5], Jeff Jacobson[6], W. Christopher Matthews[7], Katerina A. Christopoulos[8], Julia Fleming[9], Satish Gopal[10], Chad Achenbach[11], Anna E. Coghill[1]

[1]Moffitt Cancer Center, [2]Washington University, [3]University of Alabama, [4]University of Washington, [5]Johns Hopkins University, [6]Case Western Reserve University, [7]University of California San Diego, [8]University of California San Francisco, [9]Fenway Health, [10]University of North Carolina, [11]Northwestern University

Introduction & Objectives

Since inception of highly active antiretroviral therapy in 1996, AIDS-related mortality has decreased, and life expectancy among people with HIV (PHIV) has increased. This has translated into an increased prevalence of age-related conditions including non-AIDS defining cancers (NADCs).

Objective

- Investigate the association of measures of HIV control and immunosuppression with NADCs with viral or non-viral etiology among PHIV on antiretroviral therapy (ART) in the US.

Methods

Patients within care at clinics in the CFAR Network of Integrated Clinical Systems (CNICS) between 1996-2016 were assessed for development of a primary NADC. Follow-up started at CNICS enrollment and ended at first NADC diagnosis, death, last CNICS visit, or last date of cancer verification (12/31/2016).

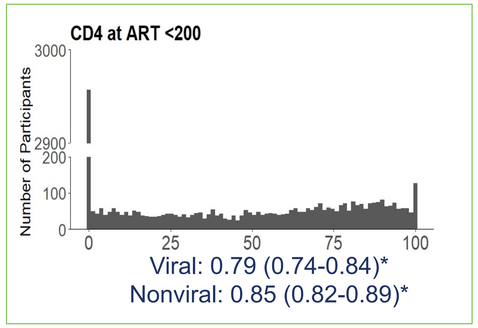
Three parameterizations of CD4 count were used:

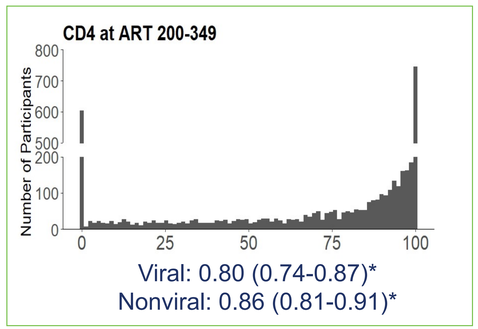
- *CD4 at ART initiation*
- *Change in CD4 following ART initiation*
- *Proportion of follow-up time at CD4>350 cells/ul*

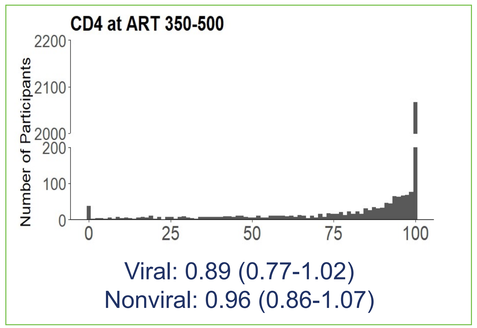
Association of these measures with risk of a viral NADC (anal, Hodgkin lymphoma, liver, oropharyngeal, penile, vulva, vaginal) or non-viral NADC (all other sites) was investigated with Cox models.

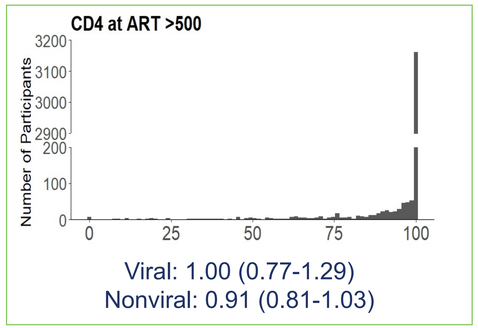
Conclusions

This study demonstrates that even for PHIV on ART therapy, maintaining CD4 control is associated with lower risk of both viral and non-viral NADCs. Investigation of the same parameterizations of HIV-RNA is needed and underway.









Cumulative proportion of time with a CD4 count above 350 cells/ul, stratified by the CD4 count at ART initiation and risk of NADC.

Individuals diagnosed with a viral and non-viral NADC spent a median time of 35% and 58% of their follow-up time in CNICS with a CD4 count >350 cells/ul, respectively. More time with a CD4 count >350 cells/ul was significantly associated with a lower risk of both viral and non-viral NADCs among participants with a CD4 counts <350 cells/ul at ART initiation.

Table 1. The association of immunosuppression (CD4 count) with the risk of a viral or non-viral non-AIDS-defining cancer (NADC) diagnosis in CNICS (1996-2016)

	Viral NADC	Non-viral NADC
	aHR + 95% CI[a]	aHR + 95% CI[b]
CD4 count at ART initiation (cells/ul)	**(n=18,581)**	**(n=18,778)**
<200	**1.80 (1.12 – 2.87)***	1.15 (0.86 – 1.55)
200-349	1.26 (0.75 – 2.10)	0.91 (0.66 – 1.27)
350-500	0.97 (0.53 – 1.74)	0.87 (0.61 – 1.26)
>500	REF	REF
CD4 response to ART initiation[c]	**(n=15,495)**	**(n=15,634)**
Change in CD4 of 100 cells/ul	**0.86 (0.77 – 0.95)***	0.92 (0.86 – 1.00)

[a]Cox regression for an incident viral NADC diagnosis was adjusted for age, sex, race/ethnicity, prior HBV diagnosis, prior HCV diagnosis, and year of ART initiation
[b]Cox regression for an incident non-viral NADC diagnosis was adjusted for age, sex, race/ethnicity, tobacco use, and year of ART initiation
[c]Also adjusted for CD4 count at ART initiation

Table 1. Lower CD4 counts at ART start were statistically significantly associated with higher viral NADC risk. The CD4 response to ART initiation was independently associated with viral NADC risk. Neither measure was associated with risk of non-viral NADC.

Acknowledgement: CNICS is an NIH funded program (R24 AI067039) made possible by the National Institute of Allergy and Infectious Diseases (NIAID). The CFAR sites involved in CNICS include Univ of Alabama at Birmingham (P30 AI027767), Univ of Washington (P30 AI027757), Univ of California San Diego (P30 AI036214), Univ of California San Francisco (P30 AI027763), Case Western Reserve Univ (P30 AI036219), Johns Hopkins Univ (P30 AI094189, U01 DA036935), Fenway Health/Harvard (P30 AI060354), Univ of North Carolina Chapel Hill (P30 AI50410), Vanderbilt Univ (P30 AI110527)*, and Univ of Miami (P30 AI073961)*.