Depression Increases the Risk of Mortality in a Large Cohort of HIV-Infected Adults

Angela M. Bengtson[1], Brian W. Pence[1], Heidi M. Crane[2], Katerina Christopoulos[3], Amy D. Heine[4], W. Chris Mathews[5], Matthew Mimiaga[6], Richard Moore[7], Sonia Napravnik[4], Conall O'Cleirigh[8], Michael J. Mugavero[9]

[1]Department of Epidemiology, UNC, Chapel Hill; [2] Division of Allergy and Infectious Diseases, University of Washington; [3]School of Medicine, University of California San Francisco ; [4]Division of Infectious Diseases, UNC, Chapel Hill; [5]Department of Medicine, University of California San Diego; [6]Departments of Epidemiology and Behavioral & Social Sciences, Brown University School of Public Health; [7]School of Medicine, Johns Hopkins University; [8]Department of Psychiatry, Massachusetts General Hospital; [9]Division of Infectious Diseases, University of Alabama-Birmingham

Background

- Depression affects 20-30% of HIV-infected adults and contributes to suboptimal antiretroviral therapy (ART) adherence.
- Reduced ART adherence and viral suppression may lead to an increased risk of mortality.
- Depression may also independently predict an increased risk of mortality.
- **The relationship between depression and mortality is understudied in large cohorts of adults in HIV care.**

Methods

Data source: CFAR Network of Integrated Clinical System (CNICS) Cohort.

Measures: Depression was measured using the Patient Health Questionnaire-9 (PHQ-9) and defined as a PHQ-9 ≥ 10. Vital status was ascertained for all individuals in CNICS.

Study Population: Those who entered care between October 2004 and November 2014 and had a PHQ-9 measure within 1 year.

Follow-up: Participants were followed from their first PHQ-9 measurement until death or administrative censoring (May-November 2014, depending on site), whichever date came first.

Statistical Analysis: We used Cox proportional hazards models to estimate the association between depression within 1 year of entering care and time to all-cause mortality.

Results

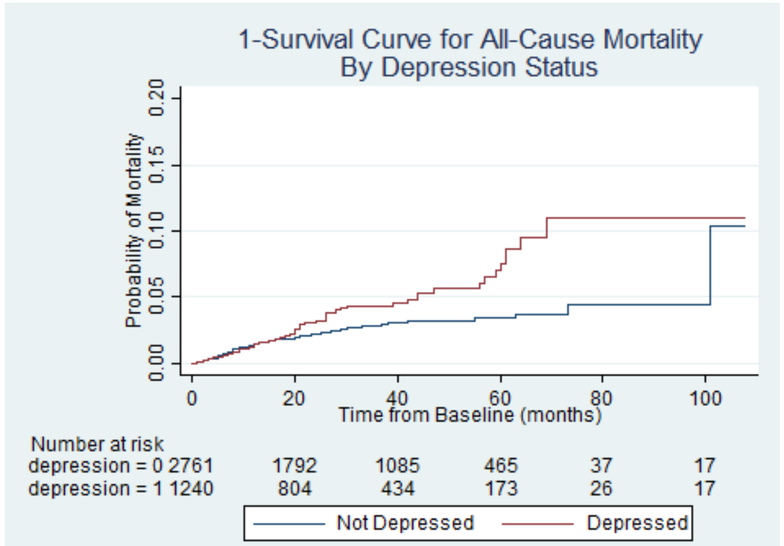
Key Findings

- 4,001 adults were included for a total follow-up of 11,199 person-years.
- 121 (3%) deaths occurred during the follow-up period.
- 31% of adults (n=1,246) were depressed during their first year after enrollment into CNICS.
- **Depression increased the hazard of mortality (HR 1.64; 95% CI 1.06, 2.53),** after adjustment for site, gender, race/ethnicity, HIV acquisition risk group and age, alcohol dependence, panic disorder, ART status and adherence, viral load, and CD4 count at enrollment.

Table 1. Demographic and Clinical Characteristics of 4,001 HIV-infected Adults in CNICS

	Not Depressed N=2,761 N(%) or Median(IQR)	Depressed N=1,240 N(%) or Median(IQR)
Age	40 (30, 48)	41 (31, 48)
Gender		
Male	2,405 (87.1)	1,037 (83.6)
Female	355 (12.9)	203 (16.4)
Race/ethnicity		
White, non-Hispanic	1,235 (45.2)	618 (50.4)
Black, non-Hispanic	913 (33.4)	337 (27.5)
Hispanic	447 (16.4)	208 (17.0)
Other	136 (5.0)	63 (5.1)
HIV Acquisition		
IDU	264 (9.9)	192 (16.2)
MSM (no IDU)	1,835 (68.8)	743 (62.5)
Heterosexual (no IDU or MSM)	570 (21.4)	254 (21.4)
Panic Disorder		
No	2,538 (93.4)	771 (64.0)
Yes	180 (6.6)	433 (36.0)
High-Risk Alcohol Use[1]		
No	1,858 (69.8)	785 (67.4)
Yes	805 (30.2)	379 (32.6)
ART Use and Adherence		
Adherent, on ART	1,644 (59.5)	613 (49.40
Not adherent, on ART	250 (9.1)	171 (13.8)
Off ART	867 (31.4)	456 (36.8)
CD4 Count	455 (274, 656)	444 (253, 659)
Viral Load (copies/mL)		
Unsuppressed	1,276 (46.9)	520 (42.7)
Suppressed	1,447 (53.1)	698 (57.3)
Site		
Fenway	179 (6.5)	64 (5.2)
UAB	1,011 (36.6)	355 (28.6)
UNC	59 (2.1)	24 (1.9)
UCSD	1,061 (38.4)	509 (41.1)
UCSF	170 (10.2)	115 (9.3)
UW	281 (10.2)	173 (14.0)

[1]Measured using the AUDIT: ≥ 4 for males, ≥ 3 for females. UAB: University of Alabama-Birmingham, UNC: University of North Carolina, Chapel Hill, UCSD: University of California, San Diego, UCSF: University of San Francisco, UW: University of Washington



Conclusions

- **Depression increased the hazard of mortality among HIV-infected adults in care,** even after adjustment for adherence, CD4 count, viral suppression at enrollment and a number of other clinical and demographic factors.
- Interventions to improve depression treatment and reduce depression are urgently needed to reduce the risk of mortality among HIV-infected persons.

920

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