

Smoking Among Hiv-Infected And Hiv-Uninfected Patients Undergoing Evaluation For Tb In Kampala, Uganda

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RATIONALE: Tuberculosis and tobacco are responsible for nearly 1.4 and 8 million deaths globally per year respectively. By 2030, the WHO projects that 80% of the global deaths from tobacco will occur in low- and middle-income countries. Smoking-related diseases are predicted to rise in these countries before HIV and communicable diseases have been controlled, further widening the health gap between rich and poor countries. Thus, we determined the characteristics associated with smoking in a low-income country with a high burden of HIV and TB as an important step toward an improved understanding of the twin impacts of TB and tobacco.

OBJECTIVES: 1) Determine smoking rates among hospitalized HIV-infected and HIV-uninfected patients with suspected TB. 2) Compare patient characteristics, symptoms, TB diagnosis, and outcomes according to smoking status.

METHODS: Prospective study of patients admitted to Mulago Hospital, Kampala, with cough and suspected TB. Consecutively enrolled patients provided smoking history and demographic/clinical data using standardized questionnaires. HIV status was confirmed and CD4 counts measured in HIV-infected patients. Sputum (x2) was collected and bronchoscopy performed (if HIV-infected and sputum AFB smear-negative) to diagnose TB. Vital status at 2-months was determined. Smoking rates were stratified by HIV status and TB status. Logistic regression identified factors independently associated with smoking.

RESULTS: 2734 TB suspects were enrolled September 2008-July 2013 (**Table 1**). 654 (24%) had a history of smoking ≥ 100 cigarettes in their lifetime and 1924 (70%) were HIV-infected (22% were on ART). Compared to non-smokers, smokers were younger ($p < 0.0001$), more likely to use alcohol ($p < 0.001$), and less likely to be HIV-infected ($p < 0.001$). HIV-infected smokers were less likely to be on ART (14% vs. 24% of HIV-infected non-smokers, $p < 0.001$). **Symptoms:** Smokers were more likely to report hemoptysis and longer duration of symptoms (fever, cough). **TB diagnosis:** 1238/2734 (45%) of patients had ≥ 1 positive culture for TB. Smoking was not associated with culture-positive TB in this cohort; 44% smokers were diagnosed with TB vs. 46% of non-smokers ($p = 0.52$). **Survival:** There was no significant difference in terms of in-hospital mortality in smokers vs. non-smokers (6.4% vs. 5.7%, $p = 0.51$) and no difference in 2-month mortality (OR=1.2, 95% CI=0.95-1.56, $p = 0.11$).

CONCLUSIONS: 1) 24% smoking prevalence in patients admitted with suspected TB. 2) Smokers presented with longer symptom duration and were less likely to be on ART at presentation. 3) Smoking status was not associated with TB diagnosis. 4) No difference in 2-month mortality between smokers and non-smokers.

Table 1: Patient Characteristics

Variable, N (%) unless noted	All patients N=2734	Smokers N=654 (24)	Non-smokers N=2080 (76)	p-value
Patient characteristics				
Age (years), median (IQR)	33 (27-41)	32 (26-40)	36.6 (30-44)	<0.0001
Male	1392 (51)	587 (90)	805 (39)	<0.001
Alcohol	1745 (64)	585 (90)	1160 (55)	<0.001
HIV characteristics (n=1924)				
HIV-positive	1924 (70)	412 (63)	151 (73)	<0.001
CD4 count (cells/ μ L), median (IQR)	67 (18-198)	91 (29-229)	60 (16-188)	=0.0002
CD4 count (cells/ μ L) (N=1903)				=0.002
< 50	843 (44)	15 (37)	692 (46)	
50-200	592 (31)	141 (34)	451 (30)	