

# Integrated care on leaving hospital against medical advice (LHAMA) among patients with substance use disorders and HIV infection

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## Introduction

Leaving hospital against medical advice (LHAMA), before the treatment is completed and the medical staff recommends discharge accounts for the 12% of total hospital discharges.<sup>1</sup> Patients leaving prematurely hospital have poorer follow-up, are more stigmatized and require longer lengths of stay and more admissions with increased severity, increasing the costs.<sup>2</sup> Patients with substance use disorders (SUD) present a higher risk of LHAMA, increasing the stigma and poorer outcomes associated with this population.<sup>3</sup>

## Aims

To evaluate the incidence of leaving hospital against medical advice (LHAMA) in patients with SUD and HIV infection, admitted to a patient-centered hospital where they receive integrated attention including health care, SUD treatment and social support.

## Material and methods

Observational study at an urban tertiary acute care university teaching hospital. Integrated care included a specialist in addiction medicine and a social worker incorporated into the medical staff. LHAMA was defined as participants leaving the hospital without the physician's permission and did not return within six hours. HIV-infected people with substance use disorders older than 18 years who were admitted in the hospital between 1st January 2010 to December 31st, 2016 were included in the study. Readmissions secondary to the initial pathology that initially generated LHAMA were excluded. Antiretroviral therapy status was assessed and patients were classified as naïve (patients who never has initiated cART), current (patients who reported cART in HIV medical center) and abandonment (patients who had discontinued cART).

## Results

Two-hundred and ninety-nine HIV-infected patients with SUD were hospitalized and 79 (26.4%) patients were readmitted, generating a total of 517 admissions from 2010 to 2016. Median age was 44 years, 69.8% were males, and 74.3% were Spanish. Opioid (Heroin) use disorder was diagnosed in 68.7% participants, 80.1% had used intravenous route, and 88.8% were on opioid use disorder treatment. RNA VIH suppression was observed in 40.1% and median CD4 cell count was 202 cels/mm<sup>3</sup>.

Over the study period 45 LHAMA were registered, yielding and incidence of 8.7%. Main characteristics of LHAMA patients compared to non-LHAMA are represented in [Table 1](#).

On multiple logistic regression analysis, admission for malignancies (OR: 4.2; p=0.02), retention in SUD treatment (OR: 0.3; p=0.01), intravenous substance use (OR: 3.1; p=0.05) were independent factors associated with LHAMA ([Table 2](#)).

**Table 1. Social and clinical characteristics of HIV-infected people with substance use disorder admitted to hospital between 2010 to 2016.**

Variable	Total	No LHAMA	LHAMA	p
<b>Social</b>				
Age <sup>1</sup>	44 (37-49)	43 (38-49)	37 (29-45)	<0.01
Gender				
Male	361 (69.8%)	331 (70.1%)	30 (66.7%)	0.62
Origin				
Spain	384 (74.3%)	363 (76.9%)	21 (46.7%)	<0.01
Housing status				
Unstable	195 (37.8%)	170 (36.1%)	25 (55.6%)	0.01
Marital status				
Single	121 (23.4%)	107 (22.7%)	14 (31.1%)	0.16
Couple	352 (68.1%)	322 (68.2%)	30 (66.7%)	
Widower/widow	44 (8.5%)	43 (9.1%)	1 (2.2%)	
Previous incarceration	353 (68.3%)	317 (67.6%)	34 (75.6%)	0.27
Unemployed	500 (96.7%)	456 (96.6%)	44 (97.8%)	0.67
Readmission	218 (42.2%)	199 (42.1%)	19 (42.2%)	0.99
<b>Substance/other mental disorder</b>				
Main substance use				
Heroin	355 (68.7%)	321 (68.0%)	34 (75.6%)	0.55
Alcohol	92 (17.8%)	87 (18.4%)	5 (11.1%)	
Cocaine	65 (12.6%)	59 (12.5%)	6 (13.3%)	
Amphetamines	5 (0.9%)	5 (1.1%)	0 (0.0%)	
Substance administration route	414 (80.1%)	373 (79.0%)	41 (91.1%)	0.05
Retention on SUD treatment	459 (88.8%)	426 (90.3%)	73 (33.3%)	<0.01
Comorbid mental disorder (non-SUD)	99 (19.2%)	91 (19.3%)	8 (17.8%)	0.80
<b>HIV infection</b>				
cART use				
Current	207 (40.1%)	198 (41.9%)	9 (20.0%)	<0.01
Abandonment	195 (37.7%)	177 (37.5%)	18 (40.0%)	
Naïve	115 (22.2%)	97 (20.6%)	18 (40.0%)	
HIV RNA suppression	207 (40.1%)	198 (41.9%)	9 (4.4%)	<0.01
CD4 cell count <sup>1</sup>	202 (66-392)	208 (71-399)	82 (12-328)	0.02

Data presented as No. (%) unless otherwise indicated. 1: Data presented as median and interquartile range. LHAMA: leaving hospital against medical advice; HIV: human immunodeficiency virus; cART: combined antiretroviral therapy; RNA: ribonucleic acid.

## Conclusions

A patient-centered hospital care including integrated care is useful to promote high quality care for HIV-SUD. Given the serious problems that LHAMA presents, physicians should make every attempt to prevent particularly among intravenous substance users, younger, foreigners and who are not on substance use disorder treatment before admission.

## References

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**Table 2. Univariate and multivariate logistic regression analyses of factors associated with LHAMA among the 517 hospital admissions in HIV-infected with substance use disorder from 2010 and 2106.**

Variables	Unadjusted analysis		Adjusted analysis	
	O.R. (I.C.: 95%)	p-value	O.R. (I.C.: 95%)	p-value
<b>Age (Age+1 vs. age)</b>	0.92 (0.89-0.96)	<0.01	0.97 (0.93-1.01)	0.15
<b>Groups of causes of hospitalization</b>				
Infections	1		1	
Infections-related to intravenous substance use	2.42 (1.15-5.09)	0.02	1.79 (0.8-3.98)	0.15
Malignancies	2.65 (0.8- 8.71)	0.10	4.22 (1.17-15.23)	<b>0.02</b>
Traumatic injuries	1.27 (0.27-5.92)	0.76	1.53 (0.3-7.85)	0.61
Chronic end-organ damage	0.96 (0.36-2.58)	0.93	1.72 (0.59-5.02)	0.31
Alcoholic pancreatitis	3.04 (0.61-15.25)	0.17	2.19 (0.32-14.83)	0.42
<b>Retention on SUD treatment</b>				
No	1		1	
Yes	0.3 (0.14-0.61)	<0.01	0.33 (0.13-0.8)	<b>0.01</b>
<b>Route of substance administration</b>				
No intravenous	1		1	
Intravenous	2.72 (0.95-7.78)	0.04	3.12 (0.97-10.02)	0.05
<b>HIV RNA suppression</b>	0.35 (0.16-0.73)	<0.01	0.6 (0.24-1.48)	0.26
<b>Housing status</b>				
Stable	1		1	
Unstable	2.21 (1.19- 4.1)	0.01	1.28 (0.61-2.7)	0.50
<b>Country of origin</b>				
Spain	1		1	
Others	3.81 (2.04 -7.1)	<0.01	2.13 (0.96-4.73)	0.06

OR: odds ratio; SUD: substance use disorder; RNA: ribonucleic acid.