Prevalence and Risk Factors of Sleep Disturbances in a Large HIV-infected Adult Population

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BACKGROUND

- Estimation of prevalence of sleep disorders during the last 8 days among the French adult population is 47 % (Beck F. et al, BEH 2012)
- Sleep disturbances are known to be more frequent in chronic diseases
- Before the HAART area the seriousness of the disease and the frequent infections related to immunodepression could explain the high prevalence in the HIV+ population.
- There is a lack of large studies on prevalence and risk factors of sleep disturbance, particularly in the context of current improved immuno-clinical status and use of the newest powerful and well tolerated antiretrovirals (ARV).

INCLUSION / NON-INCLUSION

Inclusion criteria
- HIV-1 infected adults
- Followed in 6 French centers of the region « Pays de Loire », France (CHU Nantes, CHU Angers, CHD La Roche sur Yon, CH Le Mans, CH Saint Nazaire, CH Laval)
- Oral informed consent
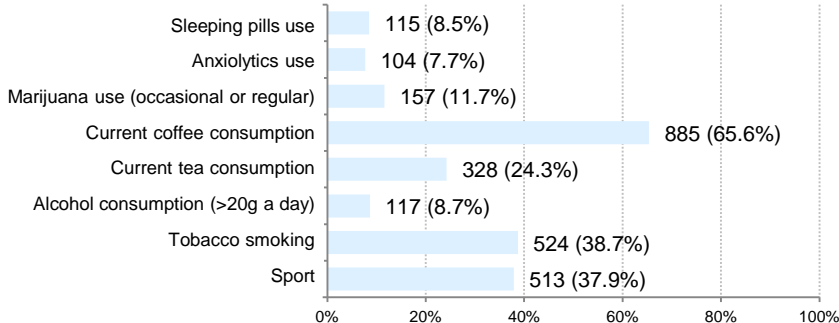
Non-inclusion criteria
- Patient not willing or refusing to complete the self-administered questionnaire
- Patient <18 year-old

OBJECTIVES

- To evaluate the prevalence of sleep disturbances in adult HIV-infected patients.
- To determine factors associated with sleep disturbances related or not to HIV infection or ARV treatments.

METHODS

Cross-sectional and multicentric study performed from November 2012 to May 2013 in 6 centers of the region « Pays de Loire », France.
-Medical questionnaire completed by clinicians
-Self-administered questionnaire fullfilled by patients (3 parts) :
  - **Sleep attitudes** : Pittsburgh Sleep Quality Index (PSQI) is a standardized measure of sleep quality during the last 4 weeks. Sleep disturbances are defined as PSQI global score $\geq$ 5.
  - **Depression** : Beck Depression Inventory (BDI-II) questionnaire measuring the severity of depression. Moderate to severe depressive symptoms are defined as BDI-II global score $\geq$19.
  - **Quality of life** : WHO QOL HIV BREF questionnaire. A score is calculated for all 6 domains : physical, psychological, level of independence, social relations, environment and spirituality/religion domains. For each domain, higher is the score better is the quality of life.
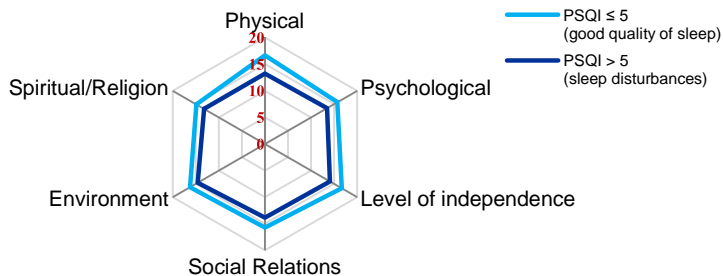
RESULTS

- **Characteristics of the 1354 enrolled patients (44.8% of patients followed in « Pays de Loire »).**

Socio-demographic characteristics	N=1354
Age (years), *median(IQR)*	47 (40-54)
Male	73.5%
BMI, *median(IQR)*	23.5 (21-26.2)
Country of birth	
France / Africa / Other	82.9%/14.7%/2.4%
Living with a partner	52%
Active employment	56.7%
HIV transmission risk category	
Homosexual / Heterosexual / Others	48.4%/ 38.0%/ 13.5%
Education	
Primary or no diploma	9.7%
School-leaving diploma/NVQ	41.8%
Baccalaureat	16.8%
High school	31.7%

HIV characteristics	
Time since HIV diagnosis (years), *median(IQR)*	12.4 (6.2-19.8)
Nadir CD4 (cells/mm^3), *median(IQR)*	207 (95-309)
CD4 count (cells/mm^3), *median(IQR)*	604 (434-784)
CDC stage C	20.6%
HCV and/or HBV co-infection	13.4%
Dyslipidemia	20.0%
High BP	15.1%
Lipodystrophy	11.8%
Diabetes	3.0%
Current ARV therapy	94.2%
Duration of ARV therapy (years), *median(IQR)*	9.5 (4.2-15.8)
HIV RNA < 50 copies/mL	86.7%

Life habits (*during last month*)

Sleeping pills use	115 (8.5%)
Anxiolytics use	104 (7.7%)
Marijuana use (occasional or regular)	157 (11.7%)
Current coffee consumption	885 (65.6%)
Current tea consumption	328 (24.3%)
Alcohol consumption (>20g a day)	117 (8.7%)
Tobacco smoking	524 (38.7%)
Sport	513 (37.9%)

Sleep disturbances (PSQI score > 5)	47%
Male	43.9%
Female	56.4%

* p<0.05

Sleeping duration. *median(IQR)*	7 hours (6-8)

Moderate to serious depressive symptoms (BDI-II score ≥19)	19.7%

- **Scores of the 6 domains of quality of life (WHO QOL HIV BREF) according to sleep quality (PSQI).**

Physical, Psychological, Level of independence, Social Relations, Environment, Spiritual/Religion

PSQI ≤ 5 (good quality of sleep)
PSQI > 5 (sleep disturbances)

- **Associated factors with sleep disturbances in multivariate analysis**

Parameter	OR	CI 95%	P
Male	0.69	[0.50;0.95]	0.024
Living single vs. living with a partner	1.54	[1.18;2.01]	0.002
Active employment	0.72	[0.55;0.95]	0.020
Years since HIV diagnosis (≥10 vs. <10)	1.50	[1.15;1.97]	0.003
Tobacco-smoking	1.34	[1.03;1.76]	0.032
Antiretrovirals contained in the regimen			
- nevirapine	0.70	[0.52;0.95]	0.023
- efavirenz	0.46	[0.30;0.68]	0.0002
BDI-II (Beck Depression Inventory) score ≥19	4.63	[3.16;6.78]	<0.0001

(Nadir CD4, age, BMI, education, HIV transmission, CDC stage C, coinfection, other comorbidities, RAL, DRV, 3TC, TDF, FTC, ABC, ATV, other ARVs and center were not associated factors in the univariate analysis)

CONCLUSION

- In this large adults HIV-infected population with 1354 enrolled patients, prevalence of sleep disturbances is high and roughly similar to the French population (Beck F. et al., BEH Nov. 2012).
- Associated factors are mostly related to social and psychological status (female, living single, jobless, tobacco-smoking and depression) rather than HIV infection (years since HIV diagnosis ≥ 10 years).
- Depression is frequent (19.7%), probably underdiagnosed. A better evaluation, management and treatment of the depressive symptoms could improve sleep quality.

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