High anticholinergic burden and sleep quality in people with HIV

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Poster 617

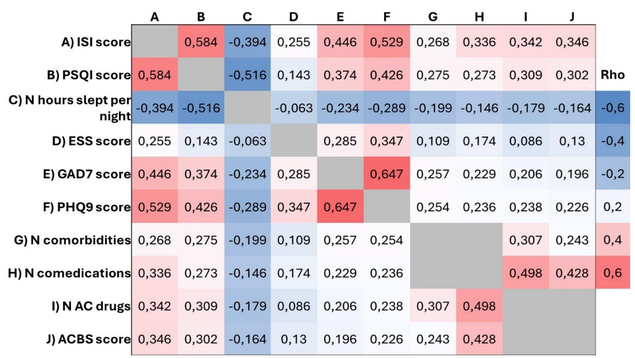
BACKGROUND

Anticholinergic burden (ACB) and related effects affect the quality of life of people with HIV (PWH) through a broad range of mechanisms: e.g., increased risk of falls, pleomorphic symptoms, and cognitive decline. To date, no study has investigated whether ACB influences also the quality of sleep (SQ) in PWH.

METHODS

Cross-sectional single-centre assessment of the relationship between different patient reported outcomes (PROs) such as SQ (Pittsburgh Sleep Quality Index, PSQI; Insomnia Severity Index, ISI; Epworth Sleepiness scale, ESS) and AC burden (ACB scale, ACBS) in people with HIV. Data on comorbidities, comedications, and mood disorders (were also analysed. Generalized linear models investigated the associations after adjusting for relevant factors (e.g., psychiatric diagnoses, treatments, comorbidities).

FIGURE 1. Significant correlations between Sleep, Mood, Comorbidities and ACB



Pearson's correlations between adjusted log10-transformed variables; for all the correlations shown p<0.001, but for N hours slept per night x ESS score (p=0.030) and ESS score x N AC drugs (p=0.003). Legend: ISI, Insomnia Severity Index; PSQI, Pittsburgh Sleep Quality Index; N, number; ESS, Epworth Sleepiness Scale; GAD7, General Anxiety Disorder-7 scale; PHQ9, Patient Health Questionnaire 9; AC, Anticholinergic; ACBS, Anticholinergic Burden Scale.

Sleep disorders deserved to be better investigated by using important tools, such as patient's reported outcomes, in people with HIV who have a high anticholinergic burden. Deprescribing or alternative drug selection can potentially help in reducing sleep issues, ultimately improving people quality of life.

RESULTS

Among 1200 participants (age 52±12, 74.7% male, 95.5% undetectable viremia, CD4+ T cells 642/µL [483-823]), 11.9%, 50.9% and 5.8% had ISI, PSQI, and ESS scores suggesting clinically relevant insomnia, poor SQ, and significant daily sleepiness. Features of the study population are reported in table 1 (overall and by AC drug uses). Two hundred two (16.8%) participants were on at least one AC drug: 11.0% ACBS=1 and 5.8% ACBS≥2. Increasing ACBS was associated with worsening in all the sleep metrics: the correlations are shown in Figure 1. Polypharmacy (20.4%), multimorbidity (63.7%), depressive mood (13.2%) and anxiety symptoms (20.4%) were also prevalent and associated with both sleep metrics and ACB (Figure 1).

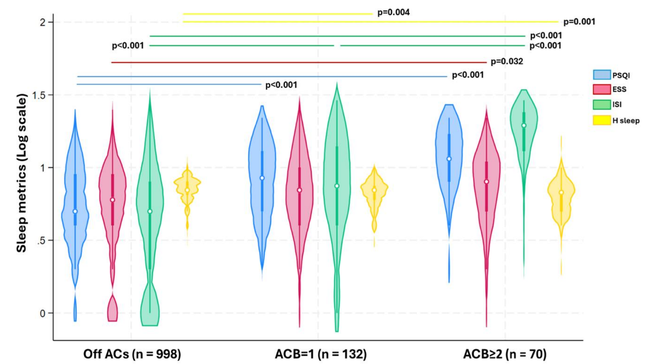
Figure 2 shows comparison of sleep metrics by ABS score. In models adjusted by these and other confounding variables (e.g., age, sex, HIV acquisition route, GAD7, PHQ9, use of benzodiazepines, antidepressants), higher ACBS was independently associated with worse scores at both ISI (aβ 0.35 [0.17-0.54], p<0.001) and PSQI (aβ 0.28 [0.16-0.41], p<0.001).

TABLE 1. Features of the study population

	Overall, n=1200	Off ACs, n=998	On ACs, n=202	p
Age, years, mean (SD)	52 (±12)	51 (±12)	60 (±11)	<0.001
Male sex, n (%)	883 (73.5)	740 (74.1)	143 (70.8)	0.309
Education, years, mean (SD)	12 (±3)	12 (±3)	13 (±2)	0.412
Race, n (%)				0.035
White	1026 (85.3)	854 (85.6)	172 (85.1)	
Black African	121 (10.1)	106 (10.6)	15 (7.4)	
Others	53 (4.4)	38 (3.8)	15 (7.4)	
Years living with HIV, median (IQR)	15 (8-24)	14 (7-23)	19 (9-28)	<0.001
ART regimen, n (%)				0.028
2 NRTIs + INSTI	323 (26.9)	265 (26.6)	58 (28.7)	
2 NRTIs + NNRTI	331 (27.5)	288 (28.9)	43 (21.3)	
2 NRTIs + PI	103 (8.6)	91 (9.1)	12 (5.9)	
>3 ARVs	11 (0.9)	7 (0.7)	4 (2.0)	
Oral dual regimen (DTG+3TC or DTG+RPV)	409 (34.1)	336 (33.7)	83 (41.1)	
Injectable dual regimen (CAB+RPV)	23 (1.9)	21 (2.1)	2 (1.0)	
ARV potentially affecting sleep, n (%)				0.273
Efavirenz	1 (0.08)	1 (1.0)	0	0.999
Dolutegravir	427 (35.6)	347 (34.8)	81 (40.1)	0.149
Bictegravir	200 (16.7)	172 (17.2)	28 (13.9)	0.240
Cabotegravir	23 (1.9)	21 (2.1)	2 (1.0)	0.292
CD4+ T cell count, cells/µL, median (IQR)	642 (483-823)	646 (489-828)	610 (450-799)	0.228
CD4+ T cell nadir, cells/µL, median (IQR)	300 (165-450)	300 (163-451)	310 (180-430)	0.927
AIDS history, n (%)	235 (19.6)	201 (20.2)	34 (16.8)	0.277
Plasma HIV RNA ≥50 copies/mL, n	54 (4.5)	43 (4.3)	11 (5.4)	0.477
Plasma HIV RNA*, copies/mL	137 (85-490)	122 (76-425)	191 (118-519)	0.732
HIV acquisition route, n				<0.001
MSM	629 (52.3)	540 (54.1)	89 (44.1)	
Heterosexual	422 (35.1)	367 (36.8)	55 (27.2)	
IV drug use	130 (10.8)	76 (7.6)	54 (26.7)	
Other	19 (1.8)	16 (1.6)	3 (1.5)	
Active smoker, n (%)	463 (38.5)	362 (36.3)	101 (50.0)	0.001
N comedication/person, median (IQR)	2 (1-4)	2 (1-3)	5 (3-8)	<0.001
Polypharmacy, yes, n (%)	233 (19.4)	123 (12.3)	110 (54.4)	<0.001
N comorbidities/person, median (IQR)	3 (2-5)	2 (1-4)	4 (3-7)	<0.001

Legend: ACs, anticholinergic drugs; SD, standard deviation; IQR, interquartile range; ART, antiretroviral therapy; NRTIs, nucleos(t)ide reverse transcriptase inhibitors; INSTI, integrase strand transfer inhibitor; n, number; NNRTI, non nucleos(t)ide reverse transcriptase inhibitor; PI, protease inhibitors; ARVs, antiretrovirals; MSM, males who have sex with other males; IV, intravenous; BMI, body mass index; COPD, chronic obstructive pulmonary disease; GAD7, General Anxiety Disorder-7 scale; PHQ9, Patient Health Questionnaire 9; BDZ, benzodiazepine, DTG, dolutegravir; 3TC, lamivudine; RPV, rilpivirine; CAB,cabotegravir..

FIGURE 2. Comparison of Sleep metrics by ABS score



The violin plots show the median (white dot), interquartile range (thick bar), and min-max values (thin line) of the scores at PSQI, ESS, ISI and hours slept per night among participants grouped by ACB. Only significant p values (<0.05, Kruskal-Wallis test) after Bonferroni-correction are shown. Legend: ACs, anticholinergic drugs; ACB, anticholinergic burden scale score; PSQI, Pittsburgh Sleep Quality Index; ESS, Epworth Sleepiness Scale; ISI, Insomnia Severity Index; H sleep, number of hours slept per night.

CONCLUSIONS

In conclusion, this study highlights the significant association of ABC and poor sleep quality and insomnia in people with HIV. The findings call for PRO implementation in clinical practice and careful consideration of AC medications, emphasizing the need for comprehensive assessments that account for polypharmacy, multimorbidity, and mental health. Addressing these factors could improve sleep quality and potentially the overall quality of life of people with HIV, which is a key goal set by the UNAIDS.

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