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Alcohol effect on HIV-positive individuals: treatment and quality of life

Efeito do álcool em pessoas com HIV: tratamento e qualidade de vida

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Keywords

HIV; Alcoholism/therapy; Alcoholism/ complications; Quality of life; Antiretroviral therapy, highly active

Descritores

HIV; Alcoolismo/terapia; Alcoolismo/ complicações; Qualidade de vida; Terapia antirretroviral de alta atividade

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Abstract

Objective: To evaluate the influence of alcohol on adherence to antiretroviral therapy, and quality of life, of HIV-infected individuals.

Methods: A cross-sectional study investigated 114 people with HIV using the Alcohol Use Disorder Identification Test (AUDIT), a Questionnaire to Assess the Compliance to Antiretroviral Treatment (CEAT-VIH), and the World Health Organization Quality of Life Instrument - HIV Bref (WHOQOL-HIV Bref).

Results: Adequate adherence to therapy (63.2%) and low alcohol consumption (89.4%) were observed. There was a significant association between the harmful use of alcohol and the past history of use of this substance ($p=0.03$). The Physical ($p=0.01$) and Social Relations ($p=0.01$) domains of quality of life were affected by at-risk alcohol consumption.

Conclusion: Low alcohol use did not have negative repercussions on adherence to antiretroviral therapy; however, the harmful use of alcohol altered domains of quality of life.

Resumo

Objetivo: Avaliar a influência do álcool na adesão à terapia antirretroviral e qualidade de vida de pessoas com HIV.

Métodos: Estudo transversal investigou 114 pessoas com HIV utilizando o Teste de Identificação de Problemas Relacionados ao Uso do Álcool (AUDIT), Questionário Para Avaliação da Adesão ao Tratamento Antirretroviral (CEAT-VIH) e Instrumento *World Health Organization Quality of Life Instrument - HIV Bref* (WHOQOL-HIV Bref).

Resultados: Observou-se adesão adequada à terapia (63,2%) e consumo de baixo risco de álcool (89,4%). Houve associação significativa entre o uso nocivo do álcool e o histórico prévio de uso dessa substância ($p=0,03$). Os domínios Físico ($p=0,01$) e de Relações Sociais ($p=0,01$) da qualidade de vida foram afetados pelo consumo de risco do álcool.

Conclusão: O baixo uso do álcool não trouxe repercussões negativas sobre a adesão à terapia antirretroviral, porém, o uso nocivo do álcool alterou domínios da qualidade de vida.

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Conflicts of interest: there are no conflicts of interest to declare.

Introduction

Advances in the health area, and the implementation of preventive measures and control of HIV infection have reduced the detection of new cases of AIDS; in contrast, people living with HIV/AIDS (PLWHA) have increased their use of substances that lead to dependence⁽¹⁾ and this influences this population's social, economic, and psychological life.⁽²⁾

The use of alcohol by PLWHA is related to a worse prognosis, with increased morbidity and mortality,⁽³⁾ high-risk sexual behaviors, accelerated disease progression, low adherence to antiretroviral therapy (ART), CD4+ T lymphocyte decline, and increased viral load, as well as the spread of HIV infection, because alcoholics are more likely to have unprotected sex, favoring virus transmission.^(3,4)

Many PLWHA use alcohol because it acts on their mental state, providing relief of stress from the stigma and prejudice.⁽⁵⁾ It is also noted that abusive use of this substance, and of other drugs, negatively influences Quality of Life (QoL).⁽⁶⁾ QoL can be described as a subjective expression, covering several areas, including social, environmental, and spiritual relations, varying from individual to individual, and this depends on health status, because it is a result of the interaction of different areas of human life.^(4,7)

Therefore, considering the increase in alcohol consumption among PLWHA,⁽³⁻⁵⁾ and consequently its possible repercussions on ART adherence and quality of life, this study was designed to evaluate the effect of alcohol on adherence to antiretroviral therapy and quality of life of HIV-infected individuals.

Methods

This is a cross-sectional study with a quantitative approach developed at an infectious clinic of a university health service in the city of Fortaleza, state of Ceará, Brazil, developed from

May to November 2015 with people living with HIV.

In order to meet the objectives of the study, a sample was dimensioned, a 95% confidence interval adopted, with a presumed prevalence of 0.50, for the population of 160. The tolerable error was (0.05), with a sample of 114 patients being calculated.

Inclusion criteria were individuals with HIV, of both genders, aged 18 years or older, and on ART for at least six months. Exclusion criteria involved: mental illness; pregnancy; imprisonment in penitentiaries; and shelter residents.

Data were collected in a private environment, through an interview, with an average duration of 60 minutes, using the Sociodemographic and Clinical Form, Alcohol Use Disorder Identification Test (AUDIT), *Cuestionario para La Evaluación de La Adhesión al Tratamiento Antiretroviral* (CEAT-VIH), and the World Health Organization Quality of Life Instrument-HIV Bref.

The Sociodemographic and Clinical Form includes the following variables: gender; age; color; schooling; marital status; sexual orientation; relationship with partner religion; occupational situation; monthly family income; ART; CD4+ T lymphocyte count; viral load; and history of use of alcohol and other illicit drugs.

The Alcohol Use Disorder Identification Test (AUDIT) was developed by the World Health Organization and validated in Brazil.⁽⁸⁾ It identifies at-risk drinkers and investigates the pattern of alcohol consumption in the last 12 months, through 10 items, which cover three theoretical domains: alcohol consumption; dependence on alcohol consumption; adverse consequences of alcohol consumption. There is a possibility of an answer for each question, so that the scores range from zero (0) to 40 points.⁽⁹⁾ The score ≥ 8 was used as the cutoff point to define the risky or harmful use of alcohol, that is, low risk (< 8), and at-risk use (≥ 8).⁽³⁾

The questionnaire for evaluating adherence to antiretroviral treatment (CEAT-VIH), validated in Brazil,⁽¹⁰⁾ has 20 items, among which

17 have Likert-type responses, scored from one to five, and three items present dichotomous responses (yes/no), with a minimum value of 17 and a maximum of 89. Adherence degrees were classified into two groups: adequate adherence, with a gross score of ≥ 75 , and inadequate adherence, with a score ≤ 74 .

The Quality of Life Instrument-the World Health Organization Quality of Life Instrument-HIV Bref (WHOQOL-HIV Bref), validated in Brazil, has 31 questions and is divided into six areas: (I) Physical; (II) Psychological; (III) Level of independence; (IV) Social relations; (V) Environment; and (VI) Spirituality/religion/beliefs, in addition to the general aspect of QoL, and general perception of health.^(11,12) Scores between 4 and 9.9 represent lower perception of Quality of Life; from 10 to 14.9, intermediate perception; and from 15 to 20, higher perception.^(13,14)

Descriptive statistics (simple frequency, central tendency measures) and dispersion measures (standard deviation, minimum, and maximum) were used for analysis of the sociodemographic and clinical characteristics and description of AUDIT, QoL, and CEAT-VIH scores. All correlations performed used Spearman's correlation coefficient. The scales were evaluated for the inter-item correlation (Cronbach's alpha) whose variation is 0 to 1; the closer to 1, the greater the internal consistency.

An analysis of the association between the AUDIT scale and sociodemographic and clinical variables was performed through Fisher's method, and odds ratio with the Odds Ratio method. Mann-Whitney test was used to compare two AUDIT and WHOQOL-HIV *Bref* averages. Spearman's correlation was used to correlate the AUDIT classification with adherence according to CEAT-VIH. In all cases, the level of significance was set at 0.05 (5%).

The study was approved by the Research Ethics Committee of the University Hospital of the Federal University of Ceará under protocol no. 1.003.964.

Results

Of the 114 HIV-infected people, there was a higher frequency of males (54.4%), aged between 30 and 50 years (81.5%), heterosexuals (74.5%), with up to 12 years of schooling (86, 8%), brown-colored (53.5%), Catholic (62.2%), living with a partner (45.6%), employed (52.6%), with a family income between one and two minimum wages per month (43.8%), with the minimum wage in force at the time of the study of R\$788.00. Regarding clinical data, the highest proportion had a CD4+ T lymphocyte count above 300 cells/mm³ (79.0%), and a viral load lower than 50 copies/ml (81.5%).

Regarding alcohol use, 44.8% reported a history of consumption, and 19.3% of illicit drugs. Regarding the classification of alcohol use, 102 (89.4%) PLWHA were low risk users (mean \pm standard deviation: 1.6 \pm 2.0, median: 1, minimum: 0, maximum: 7). However, 12 (10.5%) patients showed at-risk use of alcohol (mean \pm standard deviation: 12.5 \pm 5.7, median: 10.5, minimum: 8, maximum: 27). The inter-item correlation (Cronbach's alpha) of the AUDIT questionnaire showed 0.844, demonstrating a high consistency index. Information on alcohol use and its relation to the socio-demographic characteristics of the population is described in table 1.

Regarding adherence to ART, 42 subjects (36.8%) presented inadequate adherence. Regarding the correlation between the classification of alcohol use and adherence, 66 (64.7%) people with low-risk alcohol use showed adequate adherence (mean \pm standard deviation: 1.8 \pm 2.0), while 36 (35.3%) showed inadequate adherence (mean \pm standard deviation: 1.2 \pm 2.0). Of the 12 (10.5%) individuals who presented at-risk alcohol consumption, 6 (50%) showed adequate adherence (mean \pm standard deviation: 14.0 \pm 7.4), and 6 (50%) inadequate adherence (mean \pm standard deviation: 11.0 \pm 3.5). There was no statistically significant correlation between the AUDIT classification and adherence according to CEAT-VIH (Spearman's correlation: 0.095; P=0.32).

The domains of WHOQOL-HIV Bref are showed in table 2. The association between the domains of this instrument and AUDIT is shown in table 3.

Table 1. Association between the scores of the Alcohol Use Disorder Identification Test (AUDIT) and the sociodemographic and clinical characteristics of 114 HIV-infected individuals

Sociodemographic and clinical variables	AUDIT Classification		p-value*	Odds Ratio (CI 95%)†
	Low risk n(%)	Use of Risk n(%)		
Gender				
Male	54(52.9)	8(66.7)	0.37	1.7(0.5-6.2)
Female	48(47.1)	4(33.3)		
Age (years)				
≤50	90(88.2)	12(100)	0.40	3.4(0.1-62.0)
>50	12(11.8)	0(0.0)		
Sexual orientation				
Heterosexual	74(72.5)	11(91.7)	0.18	4.1(0.5-33.7)
Homo/bisexual	28(27.5)	1(8.3)		
Number of years of study				
≤8	26(25.5)	5(41.7)	0.24	2.0(0.6-7.1)
>8	76(74.5)	7(58.3)		
Skin color				
Brown	56(54.9)	7(68.6)	0.82	1.5(0.3-3.8)
Non-brown	46(45.1)	5(31.4)		
Family income (minimum salaries)‡				
≤2	62(60.8)	7(58.3)	0.21	0.46(1.3-1.5)
>2	40(39.2)	5(41.7)		
Religion				
Yes	95(93.1)	11(91.7)	0.85	0.81(0.09-7.2)
No	7(6.9)	1(8.3)		
Functional situation				
With income	70(68.6)	11(91.7)	0.12	5.0(0.62-40.6)
With no income	32(31.4)	1(8.3)		
Past history of alcohol use				
Yes	42(41.2)	9(75.0)	0.03	4.2(1.1-16.7)
No	60(58.8)	3(25.0)		
Illicit drugs use history				
Yes	17(16.7)	5(41.7)	0.04	3.5(1.0-12.6)
No	85(83.3)	7(58.3)		
Viral load (copies/ml)				
<10.000	99(97.1)	12(100)	0.93	0.8(0.04-18.0)
≥10.000	3(2.9)	0(0.0)		
CD4+ T cells (cells/mm ³)				
≤200	10(9.8)	3(25.0)	0.13	3.0(0.7-13.2)
>200	92(90.2)	9(75.0)		
Antiretroviral therapy time (months)				
<12	12(11.8)	1(8.3)	0.72	0.6(0.08-5.76)
≥12	90(88.2)	11(91.7)		

*Fisher's Test; †CI 95%-Confidence Interval of 95%; ‡At the time of the study, the minimum salary in force was R\$ 788.00, equivalent to US\$251.77

Table 2. Distribution of scores regarding the domains of the instrument for quality of life evaluation of HIV-infected individuals (WHOQOL-HIV Bref)

Domains of WHOQOL-HIV Bref*	Mean±Standard deviation	Median	Minimum Value	Maximum Value	Cronbach's alpha
Physical	16.00±3.57	17.00	5.00	20.00	0.702
Psychological	15.83±2.64	16.80	7.20	20.00	0.598
Level of Independence	15.00±2.55	15.00	7.00	20.00	0.500
Social Relations	16.00±3.13	16.00	6.00	20.00	0.718
Environment	15.00±2.68	15.00	7.00	20.00	0.770
Spirituality/Religion/Beliefs	16.00±3.92	16.50	5.00	20.00	0.669

*WHOQOL-HIV Bref-World Health Organization Quality of Life Instrument-HIV Bref

Table 3. Scores of the domains of the quality of life assessment tool HIV-infected individuals (WHOQOL-HIV Bref), according to the classification of risk of the Alcohol Use Disorder Identification Test (AUDIT) in HIV-infected individuals

Domains do WHOQOL-HIV Bref	AUDIT	n	Mean ± standard deviation	p-value*
I -Physical	Low risk	102	16.3±3.3	0.01
	At-risk use	12	13.1±4.3	
II -Psychological	Low risk	102	15.9±2.4	0.15
	At-risk use	12	14.4±3.8	
III -Level of independence	Low risk	102	15.1±2.5	0.14
	At-risk use	12	14.1±2.0	
IV -Social relations	Low risk	102	16.1±2.8	0.01
	At-risk use	12	13.0±3.9	
V -Environment	Low risk	102	15.0±2.6	0.71
	At-risk use	12	13.0±2.9	
VI -Spirituality/religion/beliefs	Low risk	102	15.9±3.7	0.11
	At-risk use	12	13.8±4.9	

*Mann-Whitney Test

Discussion

Due to the advent of ART and AIDS chronicity, PLWHA tend to be involved in risky behaviors, such as the use of substances that cause dependence and that may negatively influence their health status.⁽¹⁵⁾

Regarding past history of alcohol use, almost half of the participants reported previous contact with this substance. Alcohol has a negative influence on health status and adherence to treatment, and increases the risk of virus transmission and unprotected sex.⁽¹⁶⁾ In another study conducted with patients on ART, the frequency of alcohol consumption, and of at-risk drinkers, was 33.0%, therefore higher than the present sample.⁽¹⁵⁾ In another study, the percentage of patients consuming alcohol was 5.2%, a value closer to that of this sample.⁽¹⁶⁾

The history of alcohol use had a significant relation with its current harmful use, demonstrating the importance of investing in expanded alcohol prevention strategies involving the political and social spheres. These actions should include family, school, and health services participation, in order to avoid the early onset of alcohol use in childhood and adolescence, based on awareness of the negative impact of this substance on social, financial, and health aspects.⁽¹⁷⁾

Past history of illicit drug use was unrelated to the risky consumption of alcohol, diverging from another study.⁽¹⁸⁾ In Brazil, alcohol consumption is

legally accepted and culturally encouraged, while the consumption of other drugs is illegal.⁽¹⁷⁾ This may justify the lower proportion of interviewees who mentioned a previous history of drug use and, consequently, the absence of an association between prior drug use and harmful use of alcohol.

As for markers of disease progression, individuals using alcoholic beverages had a lower CD4+ T lymphocyte count and higher viral load.⁽¹⁸⁾ Patients with a CD4 + T lymphocyte count below 200 cells/mm³ had higher chances of being a lower alcohol user, while individuals with an undetectable viral load are more likely to use alcohol.⁽¹⁾

Regarding adherence to pharmacological treatment, it was observed that most patients had adequate adherence to ART, diverging from the previous research.⁽¹⁹⁻²¹⁾ This result may be related to the fact that only 12 individuals in this study were classified as in harmful use of alcohol, probably due to the small number of people.

In addition, this evidence points to the need for the multidisciplinary team to perform an active search for individuals who do not attend routine visits, in order to identify and intervene in cases where absence from the service is related to the harmful use of alcohol. As has been warned, the reception of the health team should be free of prejudice or value judgment, with emphasis on actions that minimize or reduce the adverse consequences of alcohol use, not necessarily requiring abstinence.⁽²²⁾

Patients on ART, and those who consume alcohol, are significantly more likely to stop or forget to take a dose of antiretroviral therapy.^(19,20) In addition, some patients stop taking the medicines to drink alcoholic beverages on weekends;⁽²³⁾ consequently, they do not reach complete viral suppression and are more susceptible to viral resistance.⁽²⁴⁾ In general, alcohol use is a strong predictor of drug adherence failures, and worsens the clinical outcome of PLWHA.^(2,16,25)

The consumption of alcohol and other substances that cause dependence in PLWHA can trigger competition and interactions with antiretrovirals, and change their binding protein, because ethanol competes with the drugs in the isoenzyme

linkages of the metabolization process. Thus, these consumers may be at increased risk of toxicity and ineffective therapy due to inadequate concentrations of the drug in plasma.⁽²⁶⁾

The present study identified a statistical association between risky alcohol use and the Physical and Social Relations domains of the WHOQOL-HIV Bref instrument, similar to another study.⁽¹⁸⁾ The Physical domain evaluates the pain, discomfort, energy, fatigue, sleep, and rest of PLWHA, while the Social Relations domain evaluates the personal relationships, social support, sexual activity, and social inclusion of these individuals.⁽¹⁴⁾ This finding reaffirms the already known negative impacts of the harmful use of alcohol on the physical, social, and cognitive domains.⁽²⁷⁾

When social networks of support and family involvement are present, there is a reduction in the stigma and prejudice imposed by the disease, and the consequent improvement of PLWHA quality of life.⁽²⁸⁾ In addition, employment, the presence of a partner, better socioeconomic conditions, and the time of use of ART are related to the best scores in the different dimensions of the QoL assessment instrument.⁽²⁹⁾

Interference in the Physical and Social Relations domains can compromise the continuity of HIV treatment,^(15,23) because it alters individuals' ability to take care of themselves, and hinders the provision of social support by family, friends, and health professionals.⁽²⁸⁾ This results in difficulties in attending follow-up visits and routine exam performance, and in the taking of antiretrovirals. These risk situations may make PLWHA using alcohol harmfully more susceptible to opportunistic infections and death.^(2,16,25)

In general, alcohol use has been shown to be a strong predictor of drug adherence failures, and worsens the clinical outcome of PLWHA when compared to patients who do not consume alcoholic beverages.^(2,17,27) The higher the alcohol consumption, the higher the rate of nonadherence to ART.^(16,20)

Regarding the correlation of alcohol use, quality of life, and adherence to ART, a study showed that patients who were not alcohol users

and who are on ART were 1.69 times more likely to have a better quality of life when compared to those who used this substance. Thus, alcohol use had a significant negative association with overall quality of life.⁽⁷⁾

The use of alcohol negatively influences the markers of disease progression, causing a worsening of the clinical picture, leading to seroconversion to AIDS, and consequent increase in mortality.⁽¹⁸⁾ In addition, PLWHA using alcohol are more prone to the use of a higher number of medications, a factor that decreases quality of life.⁽¹³⁾

Although the instruments applied showed good internal consistency, a limitation of the study consisted of the inclusion of active individuals in health monitoring, and the reduced number of participants. For future studies, the active search for individuals with low adherence is recommended to identify those whose commitment to adherence is related to the harmful use of alcohol. It is also necessary to implement intervention studies and actions in the health services directed to the prevention of alcohol use and reduction of damage from this substance.

Conclusion

In this study, most PLWHA presented low-risk consumption of alcohol, adequate adherence to ART, and good quality of life. Low alcohol use did not have negative repercussions on adherence to antiretroviral therapy or quality of life. However, the harmful use of alcohol has altered the domains of quality of life that are essential for the continuity of treatment, indicating the importance of social support among PLWHA with a risk of consumption of this substance.

Collaborations

Santos VF, Galvão MTG, and Cunha GH contributed to the project design, research performance, scientific research writing, and approval of the final version to be published. Lima ICV and Gir E collaborated with the conduction of the research and article writing.

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