

DEPRESSION AND HIV DISEASE PROGRESSION

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Abstract: Depression is a common mental illness, with constant sadness and loss of interest in things that people normally enjoy, and with an incapacity to perform day-to-day work. Many psychological problems can occur as a direct consequence of HIV infection and treatment disruption since both conditions are typically comorbid. Individuals with chronic illnesses are at higher risk of suffering from depression. People living with HIV are more frequently implicated in depression than the rest of the population worldwide. Several studies around the world have found that depression occurs approximately twice as common in women than in men. However, in HIV cases, depression remains unnoticed and it is a risky condition that may have a negative consequence not only on treatment adherence, social engagements and quality of life, but also on progression of disease and life expectancy of the HIV patients. Depressive symptoms of people living with HIV are associated with biological, clinical and psychosocial characteristics that affect HIV disease progression.

Keywords: Human Immuno-deficiency Virus (HIV), International HIV Dementia Scale (IHDS), HIV associated neurocognitive disorders (HAND).

Introduction

HIV remains the most feared infection of the twenty-first century due to the difficulty of finding an effective cure for the disease [1]. The initiation of ART to people with HIV has led to the prevention of a possible “medical apocalypse.” Strict adherence to ART helps to reduce the viral load and hence delays the onset of AIDS, ensuring a prolongation life expectancy that is close to average. Despite the introduction of ART, many patients fail to comply due to possible adverse side effects of medications or due to drug abuse, psychiatric disorders, socioeconomic conditions, educational status, and social stigma. To overcome the obstacles, close supervision, significant social changes, and effective counseling must be enforced [2]. Human Immunodeficiency Virus (HIV) is considered a neurotrophic virus invading the brain directly and producing varied neuropsychiatric manifestations. The commonest manifestation described is AIDS dementia complex, otherwise labeled as HIV Associated Dementia (HAD) [3]. According to the Frascati criteria, HAD is described as impairment in at least two cognitive domains, scoring at least two standard deviations (SD) below demographically appropriate means, with marked impairment of activities of daily living (ADL) caused by the cognitive deficits [4]. Previous reports revealed that the routine

asymptomatic screening of HAD remains challenging due to the complexity of diagnosis. Currently, certain screening scales [5] and computerized batteries of tests [6] are in practice for the diagnosis; however, there are not enough literature reports available for their accuracy. The HIV Dementia Scale (HDS) and the International HIV Dementia Scale (IHDS) are two rapid tests for HAD, and further evaluation is required for those who are found to have neurological manifestations by either the HDS or the IHDS scales [7]. The HDS published in 1994, has been the first screening method for HIV-associated dementia. Several other screening methods have been suggested since then. Due to various differences in population groups, geographical variations, and socioeconomic factors, there is no uniformly applicable screening tool that can provide the highest level of reliability. The IHDS was designed as a short, cross-cultural screening method for identifying people at risk of HIV dementia worldwide. IHDS takes less than five minutes to prescribe and can be done by doctors who lack training in identifying advanced neurological conditions. Hence, the IHDS can be applied to patients attending any primary care facility. Major cognitive deficits have been identified in India in individuals with advanced HIV disease and not initiated on Highly Active Antiretroviral Therapy (HAART) [8]. Cognitive disability has been found in at least two domains in people living with HIV/AIDS (PLWHA) [9]. Asymptomatic HIV infections leading to neurocognitive impairments have been a focus of research due to their potential impact on work-related performance. Cognitive impairment has been identified to be around 60% to 90% among asymptomatic HIV patients [10]. Recent studies indicate that neurocognitive dysfunction worsens with deteriorating health status [11]. With this context, the current research used the IHDS to assess the prevalence of HAD among people with HIV-AIDS in Albania.

Material and Methods

The IHDS consists of three items: (1) memory recall of four items in two minutes, (2) testing for motor speed, and (3) testing for psychomotor speed. Each item contributes 4 points to the total score of 12. Administration requires approximately 10 minutes. The IHDS showed a sensitivity of 80% and specificity of 57% at the cut-off score of less than or equal to 10. Individuals scoring less than ten were considered to be having dementia and were referred to ICTC Medical Officer for further confirmation of diagnosis and management.

Statistical Analysis

Version 15 of Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA) software was used to analyze the data. For each variable, descriptive statistics were computed. To

determine the relationship between cognitive impairment and the variables, the chi-square test, and Student's t-test were used. For categorical variables, the chi-square test was used to assess associations with cognitive impairment. A two-tailed p-value less than 0.05 was considered significant.

Results

The mean age of the study population was 39.14 ± 13.01 years; the total IHDS score was 9.96 ± 1.53 , and CD4 count was 427.91 ± 226.0 . The descriptive statistics of the study population are represented in table 1.

Table I. Descriptive Statistics of Study Population

Variables		Mean	S.D.	95% CI
Age (in years)		39.14	13.01	36.56-41.72
IHDS	Motor	3.25	0.77	3.10-3.40
	Psychomotor	2.95	0.93	2.76-3.14
	Memory	3.76	0.5	3.67-3.86
	Total	9.96	1.53	9.65-10.27
CD 4 count (per cu. mm)		427.91	226	383.07-472.75

A total of 57 study subjects scored less than 10, whereas 43 HIV patients scored ≥ 10 on the IHDS scale. There was a significant age-wise distribution of IHDS score was observed among the HIV-positive patients. In all the age groups, the majority of individuals had IHDS score less than 10 except between 11 to 20 years, where the majority scored ≥ 10 . It was observed from our study that the patients with CD4 count more than 350 (i.e., 63.60%) and had a better IHDS score as compared to those with a low CD4 count. The relationship of socio-demographic characteristics of the participants and the IHDS score was

The IHDS scoring pattern in the majority of the study participants had a good overall IHDS score. Forty-five individuals were able to perform 15 timed motor skills in 5 seconds; 33 individuals were able to perform four psychomotor sequences in 10 seconds, and 74 individuals were able to recollect all four words for memory recall.

Discussion

This systematic review and meta-analysis study reported a high prevalence of HIV associated neurocognitive disorders (more than half of the participants) [12]. Sociodemographic variables such as low level of education and older age, clinical and HIV related variables such as advanced stage of the illness and CD4 count of 500 cells/dl or less and psychological

variables such as comorbidity of depression increases the risk of HAND [13]. Therefore, to increase independent functioning and improve the quality of life of individuals living with HIV/AIDS, much attention has to be given to lessen these neurocognitive disorders and adjust the allied factors essentially through routine screening and timely intervention of HAND. Moreover, policies and procedures that integrate routine screening and timely intervention of HAND to the routine anti-retroviral therapy should be designed and implemented [14]. Further experimental and follow up studies with greater samples population in the area should be done. An early diagnosis and specific management of HAND are essential for the health status and the quality of life of PLWH. Currently, guidelines recommend using the Frascati criteria for good clinical practice, but extensive neuropsychological testing can be time-consuming, expensive, and requires trained personnel [15]. Therefore, in clinical practice, screening for HAND plays a key role in managing HIV patients. Although screening tests may present lower diagnostic accuracy, they are likely to be more reliable than the information provided by patients or self-reports [16]. PLWH with abnormal screening test results should be further assessed for the underlying causes of cognitive dysfunction such as mood disorders, cognition impairing effects of ART, thyroid disease, syphilis, and B12 deficiency. Before referring patients for a complete neuropsychological evaluation, these possible comorbidities should be identified [17]. Therefore, a step-wise protocol that includes cognitive screening would be easy to implement in daily clinical practice, guiding physicians on how to manage this complex problem [18]. Also, a possible solution for the low diagnostic accuracy of the current tests could consist of a short battery of two or three screening tests (ie, IHDS and MoCA) that requires 10 to 30 min to complete. This could improve both sensitivity and specificity, allowing the use in settings with low resources [19]. In order to develop a screening tool that can reliably detect the presence of HAND, future research could compare the use of multiple brief screening tests with an extensive neuropsychological assessment. In addition, further cross-sectional studies are needed to investigate the optimum cut-off score for HAND for brief screeners like, for example, MoCA [20]. Also, the psychometric properties of the screeners should be investigated in PLWH with different cultural and educational backgrounds and speaking different languages. Recent studies indicate that a mobile/tablet-based screening test presents significant advantages, being associated with high sensitivity and specificity. Therefore, further research should be done in this direction [21].

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