Advances in Psychology and Neuroscience
2017; 2(2-1): 27-30
http://www.sciencepublishinggroup.com/j/apn
doi: 10.11648/j.apn.s.2017020201.15

Cognitive Impairment/Dementia in HIV Patients in a Faith Based Clinic

Piwuna C. G.[1, *], Piwuna T. O.[2], Obindo J. T.[1], Tungchama F. P.[1], Bankat M. A.[1]

[1]Department of Psychiatry, University of Jos, Jos, Nigeria

[2]Department of Hematology, University of Jos, Jos, Nigeria

Email address:

chris_piwuna@yahoo.com (Piwuna C. G.), tadexp@gmail.com (Piwuna T. O.), obindot@yahoo.com (Obindo J. T.), tungchy12-tungchy12@yahoo.co.uk (Tungchama F. P.), otonnabankat@gmail.com (Bankat M. A.)

[*]Corresponding author

To cite this article:

Piwuna C. G., Piwuna T. O., Obindo J. T., Tungchama F. P., Bankat M. A. Cognitive Impairment/Dementia in Hiv Patients in a Faith Based Clinic. *Advances in Psychology and Neuroscience.* Special Issue: Substance Abuse: Perspectives, Trends, Issues and the Way Forward. Vol. 2, No. 2-1, 2017, pp. 27-30. doi: 10.11648/j.apn.s.2017020201.15

Received: September 28, 2016; **Accepted**: September 30, 2016; **Published**: February 14, 2017

Abstract: Human Immuno-deficiency (HIV) Virus is usually among other disorders associated with cognitive impairment and dementia adding to the burden of the disease in affected individuals and the quality of care. A cross-sectional descriptive study was carried out in a non-governmental organization caring for patients with the disease in Jos, North Central Nigeria. A total of 220 patients attending the Faith Alive Clinic in Jos were randomly selected and studied using instruments such as the Mini-Mental State Examination (MMSE) Modified – HIV Associated Dementia Scale (M-HDS) and the Center for Epidemiologic Study Depression Scale – Revised (CES-D). Most of the patients were female (60.9%), male 31.9% with 48.6% married. Analysis of the different subscales of M-HAD the MMSE reveals significant impairment Psychomotor, memory and recall and the construction functions of the subjects $P \leq 0.000$. The prevalence of cognitive impairment/dementia in the study population was 70.9% on M-HDS and 35% on MMSE. The implication of these findings is that clinicians should have reasonable index of suspicion when managing patients that are HIV Sero-positive to be able to identify patients with cognitive problems.

Keywords: Human Immuno-Deficiency Virus, Cognitive Impairment, Dementia Scale, Jos, Mini-Mental State Examination, Depression Scale

1. Introduction

Though over 80% of adults infected with the Human Immunodeficiency Virus (HIV) live in sub-Saharan Africa, away from the Western industrialized countries (1). Studies on the prevalence and neuro-cognitive complications of the disease are few in Africa, even though studies on non-HIV dementia abound. HIV Associated Dementia and cognitive impairments, therefore, seeks for attention because of its open and hidden social burden and the attendant poor prognosis. For example, HIV-discordant couples have their condition complicated by stigma and discrimination. This perpetuates the culture of silence around HIV/AIDS, hampering prevention, counseling and treatment efforts (2). Away from the social challenges, there are medical symptoms that aid in the staging of the disease and appearance of Central Nervous System features.

In Uganda, one of the first African countries devastated by the disease, prevalence of HIV-Associated Dementia (HAD) was found to be 31% (3). The World Health Organization (WHO) reported figures for HAD in Kenya, Tanzania and Zaire range from 3% to 6% (4). These earlier studies were largely based on clinical findings with inadequate neuropsychological instruments used. The WHO study in 1994 was the first apparently standardized study, but knowledge about HAD at the time was limited. Researchers in the West put the prevalence of HAD at 10% to 15% (5), while Forstein in 2003 (6), estimated it to be around 40%. In the Sub-Saharan African region, where diagnosis is most often delayed and risky behaviors remain uncontrolled, increased rate of HAD among older adults is expected to rise. Others suggest that the rate of HAD in Africa may be

higher and rank next to dementia from stroke (7).

Dementia in Human Immunodeficiency Virus disease is usually characterized by forgetfulness, psychomotor slowness, apathy, tremors, impaired repetitive movements and hypertonia among others. It is in response to these symptoms and lack of readily available normative data on cognitive impairments among African HIV patients that this study was conceived.

2. Methodology

2.1. Instruments

Cognitive impairment/Dementia was assessed in 220 consented patients attending for care at the Faith Alive Clinic in Jos, North Central Nigeria using a Cross-Sectional Descriptive study. Structured assessments using Modified – HIV Associated Dementia Scale (M-HDS), Mini- mental State Examination (MMSE), Stick Design and Word List Learning and a socio- demographic questionnaire were employed. The Center for Epidemiologic Study Depression Scale- Revised (CES-DR) was used to exclude patients with depression. The M-HDS taps memory, psychomotor speed and visuo-constructional abilities, the different sub-sets made a total of 12 points. The stick design has the design of a rake, a chevron, square and triangle with a stem. Scoring is used on general configuration, orientation of the whole figure and orientation of the match heads within the figure. The word list memory items have ten (10) words, repeated three (3) times to the patient and patient asked to recall from memory after distraction for about five (5) minutes.

2.2. Study Design

The clinic runs an appointment system of consultation and the patients were chosen using a simple random sampling technique which was applied three (3) times a week until the desired sample size was achieved. Before the commencement of the study, ethical clearance was sought and obtained by the researchers. Information on the socio-demographic were assessed from their file, thereby reducing the time needed to assess each volunteer. Those with severe cognitive impairment were excluded because they were unable to go through the battery of neuropsychological test employed for the study.

2.3. Data Analysis

The analysis was carried out using the statistical package for social sciences (SPSS) version 14. Students'-test and chi-square were employed as test for statistical significance and the significance level was set at $P \leq 0.05$.

3. Results

Table 1 below shows the Socio- Demographic Profiles The peak age of HIV infection was between 20-40 years. Most of the patients were female 60.9%. Most of them had tertiary education (40.4%) and married (48.6%).

Table 1. *Socio demographic Profiles.*

Variable	Frequency Percentage (%)		
Gender	Male	86.0	39.1
	Female	134	60.9
Age	<20	3	1.4
	21 – 30	60	27.2
	31 – 40	89	40.5
	41 – 50	42	19.1
	51 – 60	24	10.9
	> 60	2	0.9
Education			
	Tertiary	89	40.4
	Completed Secondary Sch.	41	18.6
	Partly Compl. Second. Sch.	34	15.5
	Primary School	35	16.0
	No School	21	9.5
Marital Status			
	Single	60	27.3
	Married	107	48.6
	Widowed	37	16.8
	Separated	7	3.2
	Divorced	9	4.1

Table 2. *Distribution of Patients by M-HDS, MMSE Word List Memory and Stick Design.*

Variable	Frequency	Percentage
HDS Level		
Impaired	156	70.9
Normal	64	29.1
Total	220	100.0
MMSE Level		
Impaired	77	35.0
Normal	143	65.0
Total	220	100.0
Word-List Learning		
Impaired	17	7.7
Normal	203	92.3
Total	220	100
Stick Design		
≤ 3	30	13.6
> 3	190	86.4
Total	220	100.0

Most patients scored below the cut-off of 8 using M-HDS 70.9%, MMSE showed 35% scored below the cut-off point of 18. The Word List Learning revealed only 7.7% scored below the cut-off point of 12 from a total score of 30 points. The Stick Design showed a large proportion of the patients scored above the cut-off point of 3 points.

Table 3. *Analysis of the sub-scale of M-HDS on Psychomotor performance/Memory and Recall in the study population.*

	Scores	Frequency	Percentage
M-HDS on Psychomotor performance	0	114	51.8
	1	26	11.8
	2	13	5.90
	3	23	10.4
	4	9	4.10
	5	6	2.70
	6	29	13.3
	Total	220	100.0%
Memory/Recall	0	1	0.45
	1	12	5.45
	2	35	15.9

	Scores	Frequency	Percentage
	3	121	55.0
	4	51	23.2
	Total	220	100.0%

Table 4. *M-HDS levels Vs Duration of HIV Status.*

Duration of status	< 1 year	> 1 year	Total	Test of
M-HDS	**statistics**			
Impaired	55 (70.5%)	101 (71.1%)	156	$x^2 = 0.20$
Normal	23 (29.5%)	41 (28.9%)	64	df = 3
Total	78	142	220	p = 0.977

4. Discussion

The study provides data on the socio demographic profiles and how they relate to Cognitive impairments/Dementia in HIV positive patients, it also reveals the probable prevalence of Dementia/Cognitive impairments. It is a probable estimate because it was largely an instrumental research finding. Under normal circumstances, the diagnosis of HIV-Dementia is made by excluding intracranial processes and a clinical examination and the neuropsychological testing such as the M-HDS are key and help in identifying Dementia in sero-positive patients (8). Fewer studies reported prevalence close to the one found in this study and they include that in 2005 with a prevalence of 56% and 66% (9). Some of these studies reviewed autopsied patients and identified methods of referral and duration of illness at the time of the assessment as responsible for the high prevalence. More recently using newer tools for assessment lower estimates of (14%) was found in Blantyre Malawi (10). The high estimates found in studies such as this, should also be seen as a wakeup call for health planners to factor cognitive problems into the overall management of HIV/AIDS.

The difference found in this study between M-HDS and MMSE may be due to the fact that MMSE was designed to screen for cortical dementias such as Alzheimer and is insensitive in detecting sub-cortical dementias a class where HIV Dementia belong. Studies that indicate very low prevalence 5.9% and 6% in some African countries were done years before the introduction of HIV Dementia Scale (H.D.S). Most of the patients in our study are educated and 9 in every 10 had primary education and above. This could mean the educated showed up at specialized clinics such as the site of this study and also bearing in mind the fact that low educational attainment as is the case in some (9.5%) of the participants in this study, could be incorrectly classified as neuro-cognitively impaired (11) . In either case, the prevalence rises.

The Word List Learning employed to assess verbal memory and the Stick Design which is a measure of visuo-constructional ability and viewed as less threatening especially to the poorly educated (12) were both found to be statistically insignificant in terms of the instruments ability in identifying cognitively impaired patients and their level of functioning among the study population. This is a sharp contrast to the motor function skill testing on the timed-task such as it is found in the M-HDS, which showed significant impairment. This is a demonstration of the adaptability of the Stick Design in our environment while testing similar motor function. The beauty of the stick design is that it is less threatening especially to those with low academic achievements as evident by the scores of patients on the instrument in this study.

Many patients had known their status for over a year at the time of the study, though the association did not yield any statistical significance vi-a-vis their score on the M-HDS. The duration of HIV sero-positivity was on the surface, not contributory to the development of cognitive deficits/dementia in the study sample. However, when specific domains of M-HDS and MMSE were examined, the Psycho-motor subscale and the Memory/Recall subscale of M-HDS and the Orientation subscale of MMSE were all found to be significantly influenced by the duration of the illness. This is consistent with the damage to the sub-cortical and fronto striatal systems in advanced disease (13) (4), which usually manifest with symptoms such as poor orientation and attention.

5. Conclusion

Cognitive decline and dementia in HIV sero positive patients carries a poorer prognosis, influences the person's ability to care for him or herself. With a prevalence of 70.9% on M-HDS and 35% on MMSE, more studies are needed to understand the mechanisms behind neurocognitive impairments but clinicians should bear in mind cognitive decline in patients that are sero-positive in order to improve treatment outcomes.

References

[1] WHO. Global Programme on AIDS current and future dimensions of the HIV/AIDS pandemic: A Capsule Summary, Geneva, Switzerland, 1992.

[2] Rispel, C. L, Allanise, C, Metalf, C. A Experiences of stigma and discrimination among HIV- discordant couples in South –Africa, Tanzania and Ukraine. *Journal of Social Aspects of HIV/AIDS*, vol.12 (1), pp.10-17, 2015.

[3] Wong, M. H, Robertson, K. Nakasujja, M. B. Frequency of and risk factors for HAD in an HIV clinic in Sub-Saharan Africa. *Neurology, vol.* 68 (5), pp.350-355, 2007.

[4] Major, M. Satz, P, Janssen, R, Zaudig, M, Starace, F. WHO Neuropsychiatric Aids Study – Cross sectional phase Neuropsychological and Neurological Findings. *Archives of General Psychiatry* Vol. 51 pp. 51-61, 1994.

[5] Sacktor, N The epidemiology of HIV associated Neurological disease in the era of HAART. *Journal of Neurology*, vol. 8 (12), pp. 115 –121, 2002.

[6] Forstein, M. Neuropsychiatric aspects of HIV infection. *HIV Medical Alert*, vol. 7 (1), pp.1–4, 2003.

[7] Cassels, C. Prevalence of HIV related dementia second only to Alzheimer's and stroke. *Neurology,* vol. 68, pp.380-385, 2007.

[8] Power, C, Selnes, O. A, Grim, J. A, JMcArthur, J. C. HIV dementia scale. A rapid screening test. *Journal of Acquired Immune Deficiency Syndrome*, vol.8, pp. 273–278, 1995.

[9] Howard, E, Grant, I, Ian, P. E, Stuart, A. L Susan. S. Prevalence of Cognitive dysfunction in HIV/AIDS. *Neurology of AIDS 2nd ed;* London. Oxford University Press, 2005, pp.326–337.

[10] Patel, V. N. Mungwira, R. G, Tarumbiswa, T. F, Heikinheimo, T, van Oosterhou, J. J. High Prevalence of suspected HIV-associated dementia in adult Malawian HIV patients. *International Journal for STD AIDS*, vol. 21 (5), pp. 356-8, 2010.

[11] Hinkin, C Comparing the accuracy of two methods in diagnosing HIV–Associated Cognitive Impairment. *Journal of Clinical Experiment and Neuropsychology*, vol.13 (3), pp. 462–470, 2007.

[12] Baiyewu, O, Unverzagt, F. W, Lane, K. A, Gureje, O. The stick design. *Journal of International Neuropsychology, vol.* 11, pp. 598–605, 2005.

[13] Heaton, R. K, Grant, I, Butters, N. The HNRC 500–Neuropsychology of HIV infection at different disease stages. HIV Neuro-behavioral Research Centre. *Journal of International Neuropsychology*, vol. 1 (3), pp. 231–251, 1995.