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RESEARCH ARTICLE

CLINICAL CORRELATES OF PSYCHIATRIC MORBIDITY AND RISK FACTORS FOR HIV PATIENTS IN NIGERIA'S NIGER DELTA REGION

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ABSTRACT

BACKGROUND: HIV/AIDS is a chronic multi-systemic disorder with associated psychiatric co-morbidity of significant health importance. There is paucity of information on psychiatric morbidity among HIV patients in the undeveloped world.
AIM: The study sought to investigate the occurrence of psychiatric disorders and its associated clinical factors in people living with HIV/AIDS.
METHODS: Using a systematic sampling method, 353 subjects were recruited into two groups; HIV positive subjects from the RVD clinic and HIV negative subjects from the GOPD clinic. They were assessed using a self-designed questionnaire to elicit socio-demographic and clinical variables. The subjects were screened for psychological distress with a 12 item General Health Questionnaire and diagnoses made using Present State Examination (PSE) manual (version 10). Data was analysed using the statistical package for social sciences (SPSS, version 15).
RESULTS: Of the 353 subjects, 241 completed the study (68% participation); 89 were HIV positive and 152 were HIV negative. There was significant difference between the mean duration of treatment for HIV positive respondents when their duration of illness was considered. Logistic regression analysis showed that the significant risk factors for psychiatric co-morbidity in these patients include presence of social support, female gender and persistent fever.
CONCLUSION: An interplay of genetic, physical and psychological factors in the development of psychiatric morbidity in HIV positive patients has been highlighted. Further studies will elucidate the exact contribution of each of these to the onset of psychopathology in these patients

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INTRODUCTION

HIV/AIDS is a chronic multi-systemic disorder with associated psychiatric co-morbidity of significant public health importance. HIV I and HIV 2 are lenti-viruses of the retro-viridae family and they are the only lenti-viruses known to infect humans. The retroviruses have the unique quality of being able to transcribe genetic information in the form of RNA into DNA when incorporated into the host cell by the reverse transcriptase enzyme, and preferentiality attack T4 lymphocytes and neurological cells of the central nervous system (Kumar, 2006; Power *et al*, 2004). HIV 1 and 2 have been identified as the causative agents of the Acquired Immune Deficiency Syndrome (AIDS) which is a lethal neuro-medical disorder (Saddock, 2000). Although the central feature of HIV infection involves gradual collapse of the body's ability to mount an appropriate cell-mediated immune response with attendant medical complications, neuropsychiatric phenomena can also be prominent. However, most of the studies investigating the prevalence of psychiatric morbidity in this group of patients are from the developed world. The paucity of information on psychiatric morbidity among HIV patients in the underdeveloped world which includes Nigeria and especially in the Niger Delta region fuelled interest in this study. Therefore, this study sought to investigate the occurrence of psychiatric disorders and its associated clinical factors in people living with HIV/AIDS in a tertiary hospital setting within the Niger Delta region of Nigeria.

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Literature review

The risk of mental disorders in HIV positive persons has been reported to be significantly higher than that described for the general population (Wells, 1998; Kessler, 1994). Lyketsos *et al* (1996) reported a high prevalence of psychological distress among HIV infected persons attending a HIV primary care

clinic in the United States. People living with HIV and AIDS are at an increased risk of comorbid psychiatric disorders, and about half of them are known to exhibit neuropsychiatric abnormalities (Saddock, 2003). Elkin, (2009) deduced that these complications may result from multiple stressors that can affect the mental health of people living with HIV and AIDS. Such stressors often make mental adjustment difficult. Similarly in Europe, epidemiological studies have demonstrated that HIV infection is associated with higher rates of several psychological and psychiatric disorders when compared to the general population (Stanley *et al*, 2007). The National HIV sero-prevalence sentinel survey reported an overall prevalence rate of 4.6% with over 3 million people living with HIV infection in Nigeria in 2008 (Federal Ministry of Health, 2004). However, it noted a state to state variation ranging from as high as 10.6% to as low as 1% in affected states. Globally, Nigeria remains the third country with the highest concentration of HIV infected people and recent figures suggest a rising trend in the prevalence. With a steady increase in the magnitude of HIV/AIDS in Nigeria, an increase in neuropsychiatric complications may therefore be imminent. Consequently, the need for more attention from healthcare providers and policy makers to the psychological aspects of HIV/AIDS in this psychologically vulnerable population has been emphasized (Yakasai, 2004). In Nigeria, a few studies have shown that psychiatric disorders are commonly associated with HIV infection (Adewuya *et al*, 2007; Audu *et al*, 2007). Psychiatric morbidity has also been associated with HIV-associated risk behavior such as unprotected multiple sexual activities, intravenous drug use, poor adherence to anti-retroviral medications, poor quality of life and a high risk of treatment failure (Saddock *et al*, 2003; Hyman, 2006; Abasiubong *et al*, 2010).

MATERIALS AND METHODS

This was a two-stage cross-sectional comparative study that was conducted at the retro-viral disease clinic and the general outpatient department of the University Port Harcourt Teaching Hospital.

Materials

Subjects who consented to participate in the study were assessed using a pretested specially designed questionnaire to elicit socio-demographic and clinical variables including age, gender, sexual orientation, type of HIV infection, CD4 count and stage of HIV disease. The subjects were also screened for psychological distress with the 12 -item general health questionnaire (GHQ – 12). A cut off point of 3 was adopted, and scores of 3 and above was indicative of psychological distress. Such subjects, who were regarded as cases, were thereafter assessed for psychopathology by using the 10^{th} version of the present state examinations (PSE – 10). Symptoms from this instrument were then used to generate a diagnosis according to the definitions and criteria of ICD – 10.

Procedure

At the initial stage, a list of all the patients, attending both clinics was obtained from the medical records and this constituted the sampling frame.The sampling method adopted was systematic sampling technique (nth sample). The first patient to be interviewed was selected by balloting, and subsequent ones systematically of 1 in 5 until the quota was satisfied. Three hundred and fifty three subjects were recruited into two groups over a four month period. The first group (group A) was recruited from the retroviral disease (RVD) clinic of the University of Port – Harcourt Teaching Hospital and included all confirmed HIV seropositive patients who had no past histories of neurological or psychiatric disorders and who were not chronically ill. The second group (group B) ware recruited from the general outpatient department (GOPD) of the same hospital, and included all confirmed HIV seronegative patients without a history of a chronic medical or psychiatric disorder. Subjects in both groups were between the ages of 18-60 years and gave informed written consent to participate in the study.

Ethical Consideration

Permission for the study was obtained from the ethical committee of the University of Port-Harcourt Teaching Hospital to ascertain that the methodology of the study did not contravene laid down regulations for experiments involving human beings. Patients were duly informed, and the objectives of the study explained to them.

Statistical Analysis

Data was pre-coded to ensure accuracy and was analyzed using the 15^{th} version of the statistical package for social sciences (SPSS – 15). Tables were generated according to objectives and the t – test and analysis of variance (ANOVA) were used to analyze parametric variables, while the chi – square and fisher's exact test were used for non-parametric variables where applicable. For risk factors analysis, variables with significant association with psychiatric morbidity during bivariate analysis were entered into the regression equation. A reference category was also entered to facilitate interpretation of odds ratios. All analyses were set at 0.05 level of significance two-tailed test.

RESULTS

The study involved 353 subjects, however, only 241 subjects completed the study with 112 opting out at various stages of the study for reasons including ill – health, death and incomplete data in their questionnaires. These figures represent 68% participation in the study. Among the 241 subjects that completed the study, 89 were HIV positive and receiving care at the retroviral disease clinic, while 152 subjects were HIV negative and attending the general outpatient department for varied minor ailments. Findings from this study showed that there were significant differences between mean scores when the duration of treatment for all HIV positive respondents were compared to the duration of illness, Table 1. The Post hoc analysis (Tukey's LSD) showed that this difference which was due to the mean duration of treatment of the HIV positive subjects whose duration of illness was less than 12 months, was significantly lower than those whose duration of illness was between 13 and 36 months, those whose duration of illness was between 37 and 60 months and those whose duration of illness was more than 60 months. Also, the mean duration of treatment of HIV positive respondents whose duration of illness was between 13 and 37 months was significantly lower than those whose duration of illness was between 37 and 60 months and those whose duration of illness was greater than 60 months. It was observed that the prevalence of psychiatric morbidity tended to increase with an advance in stage of HIV disease (Table 2).

Table 1. Duration of HIV Diagnosis and Mean Duration of Treatment in Months

Duration of Diagnosis (in months	Mean	SD
1 – 12	4.42	4.03
13 – 36	23.00	7.72
37 – 60	42.29	13.26
>61	42.00	42.42
P	<0.001	

Post hoc multiple comparisons (Tukey's Least Significant Difference)

Duration of illness (1)	Duration of Treatment (J)	Mean Difference (1-J)	Sig.
1-12	13-36	-18.483(*)	.000
	37-60	-37.777(*)	.000
	>60	-37.483(*)	.000
13-36	1-12	18.483(*)	.000
	37-60	-19.294(*)	.000
	>60	-19.000	.057
37-60	1-12	37.777(*)	.000
	13-36	19.294(*)	.000
	>60	.294	1.000
>60	1-12	37.483(*)	.000
	13-36	19.000	.057
	37-60	-294	1.000

Table 2. Comparison of Psychiatric Morbidity with Stage and Duration of HIV Disease

Stage of HIV Disease	Psychiatric Morbidity		$\times^2$	P value
	Yes	No		
	N (21) n (%)	N (68) n (%)		
1	5(14.3)	30(85.7)	3.22	0.36
2	6(26.1)	17(73.9)		
3	3(37.5)	5(62.5)		
4	7(30.5)	16(69.5)		
Duration of HIV (in months)				
1-23	9(24.4)	28(75.6)	0.02	0.9
>23	12(23.1)	40(76.9)		

Table 3. Clinical Correlates of Psychiatric Morbidity in HIV Patients

Variable	Psychiatric morbidity Present N=21 n(%)	Psychiatric morbidity Absent N=68 n(%)	$\times^2$	P value
HIV type				
1	3 (14.3)	18 (85.7)		
2		1 (100)	1.72	0.42
1 & 2	18 (26.9)	49 (73.7)		
HIV stage				
1 & 2	11 (18.9)	47 (81.1)		
3 & 4	10 (32.3)	21 (67.7)	1.98	0.16
Mean CD 4 count				
<364	15 (30.0)	35 (70.0)		
≥364	6 (15.4)	33 (84.6)	2.6	0.1
Sexually Transmitted Infections				
Yes	3 (12.0)	22 (88.0)		
No	18 (28.1)	46 (71.9)	2.59	0.16
Median Duration of Diagnosis (in Months)				
1-23 months	9 (24.3)	28 (75.7)		
>23 months	12 (23.1)	40 (76.9)	0.02	0.9
Use of HAART				
Yes	20 (23.3)	66 (76.7)		
No	1 (33.3)	2 (66.7)	0.16	0.6
Duration of HAART Use (in months)				
0-24	14 ((23.7)	45 (76.3)		
> 24	7 (23.3)	23 (76.7)	0.00	0.97
Family history of Psychiatry Disorder				
Yes	2 (33.3)	4 (66.7)		
No	19 (22.9)	64 (77.1)	0.34	0.62

Table 4. Variables in the Equation entered on step 1: sex, social support, gender, diarrhea, fever, weight loss, vomiting, pain, patches, cough, fits (prediction 76.4%)

		B	S.E.	Wald	Df	Sig.	Exp(B)	95.0% C.1. for EXP(B)	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Step 1(a)	Sex(1)	1.537	4.418	.121	1	.728	4.651	.001	118.390
	Social Support(1)[a]	1.911	.862	4.910	1	.027	6.758	1.247	36.627
	Gender(1)	-1.713	.834	4.222	1	.040	2.480	1.335	5.924
	Diarrhea(1)	-.356	1.923	.034	1	.853	.701	.016	30.385
	Fever(1)	1.986	.949	4.382	1	.036	7.286	1.935	46.787
	Weight Loss(1)	.733	.841	.760	1	.383	2.082	.400	10.825
	Vomiting(1)	1.147	.986	1.353	1	.245	3.150	.456	21.771
	Pain(1)	1.468	1.154	1.617	1	.204	4.340	.452	41.705
	Patches(1)	-.566	1.749	.105	1	.746	.568	.018	17.502
	Cough(1)	.142	1.223	.014	1	.907	1.153	.105	12.674
	Fits(1)	.625	1.185	.278	1	.598	1.867	.183	19.068
	Constant [b]	-3.546	4.437	.639	1	.424	.029		

a.Availability of emotional, educational, financial and other help from family or group that provides such for HIV positive persons.
b.Reference category.

The prevalence of psychiatric morbidity was also commoner in HIV positive patients whose disease had been diagnosed for less than 23 months compared to those with a longer duration of disease. However, none of these observed differences were of statistical significance. Table 3 shows the clinical correlates of psychiatric morbidity. According to the table, there was a high prevalence of psychiatric morbidity among patients with co-infection with HIV types 1 and 2 in relation to patients with type 1 or type 2 infection only. Psychiatric morbidity was also more prevalent in patients with late stage disease compared to those in the early stages of the disease and among patients with low CD4 + counts relative to those with higher counts. However, none of these variables were of statistical significance. The table also shows that psychiatric morbidity was more prevalent in patients who were not receiving highly active anti retroviral therapy (HAART) compared to patients receiving such treatment, but this difference was not statistically significant. Psychiatric morbidity was also more prevalent in patients who admitted to a family history of psychiatric disorder than in patients who denied such a history. However, this finding did not attain statistical significance. In order to determine the risk factor for psychiatric co-morbidity among HIV positive patients, variables that were significantly associated with psychiatric morbidity during bivariate analysis $p<0.05$, were subjected to logistic regression analysis. These variables included the presence of social support, female gender, and physical symptoms such as diarrhea, fever, weight loss, vomiting, pain, patches, cough and fits. Table 4 shows the variables in the logistic regression equation. According to the table, the significant risk factors for psychiatric comorbidity were:

- Presence of social support OR = 6.8, 95% C1 (1.3 – 36.6), P<0.03
- Female Gender OR = 2.5, 95% C1 (1.3 – 5.9), P = 0.03
- Persistent Fever OR = 7.3, 95% C1 (1.9 – 46.8), P <0.04.

DISCUSSION

This study provides information about the clinical correlates and risk factors for psychiatric morbidity in HIV patients attending the retroviral disease clinic of the University of Port-Harcourt Teaching Hospital (UPTH), Port Harcourt, Nigeria. According to this study, a significant female preponderance among the HIV population with psychiatric morbidity was reported. This was confirmed by multi-variate analysis. This finding collaborates that of Gallego *et al* (2000). Generally, it has been found that females are more affected by emotional disorders such as anxiety and depressive disorders (Gelder *et al*, 1995). They are also more likely to have a higher prevalence of HIV infection[18] which could probably be as a result of a larger surface area of the female genital tract than that of the male. Also the female genital tract is highly vulnerable to cuts and excoriations hence increased risk of infection. This finding may also support the notion that females would be more willing to seek help earlier than males who were more likely to engage in maladaptive coping strategies such as increased use of psychoactive substances (Power, 2004). Majority of the patients in this study were in the early clinical stages of the disease. There was also a direct association between mean duration of treatment and mean duration of diagnosis suggesting that patients were presenting themselves for screening for HIV early and seeking help for physical symptoms. However, psychiatric morbidity was observed to be more prevalent in patients with late stage HIV disease, but this finding did not attain statistical significance. It was also observed that other illness factors such as the duration of HIV disease and the duration of treatment with highly active antiretroviral therapy (HAART) were not significantly related to the presence of psychiatric morbidity. These findings are in keeping with the reports of previous studies that noted that HIV status or stage of illness are not by themselves strong predictors of psychopathology in this population (Marwick, 2010; Purcell, 2010; Rabkin, 1996). Similarly, the association between CD4 count and psychiatric morbidity has been inconsistent.

The results from this study indicate that psychiatric morbidity was more prevalent in HIV patients with lower CD4 + counts. Even though this finding is similar to the observation of Cohen (Cohen *et al*, 2002) this study did not find a significant association between low CD4+ counts and the prevalence of psychiatric morbidity in the HIV positive patients. Indeed Monahan (Monahan *et al*, 2009) reported that there was no association between mood disorders and CD4+ counts further supporting the notion that HIV-related illness factors alone are not risk factors for psychiatric morbidity in this population. Also there was a higher prevalence of psychiatric morbidity reported in the patients who were not receiving antiretroviral drugs in this study. This finding is similar to the report from a previous study suggesting that the use of antiretroviral drugs may ameliorate or prevent psychiatric symptoms in HIV

positive patients (Cohen *et al*, 2002). Finally, less than a tenth of the HIV positive patients in this study reported a positive family history of psychiatric disorder, but there was no significant prevalence of psychiatric morbidity in the patients that admitted to such histories. This suggests that genetic factors may not have played an important role in the development of psychiatric morbidity in this population. The findings in this study suggest an interplay of genetic, physical and psychological factors in the development of psychiatric morbidity in HIV positive patients. However, further studies are required to determine the exact contribution of each of these factors to the onset of psychopathology in this population.

Limitations

This study was limited by a number of factors such as

- This was a hospital based study. A community based survey would have given a better representation of the general population.
- The cross-sectional nature of this study does not permit causal inferences. A longitudinal study may provide a better evaluation of psychiatric problems in this group of patients.

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