

Original Research Article

Otologic conditions seen in HIV positive adult patients in university of Port Harcourt teaching hospital

Ibekwe Matilda Uju*

Department of Ear nose and throat surgery, University of Port Harcourt teaching hospital, Port Harcourt, Rivers state, Nigeria

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*Correspondence:

Dr. Ibekwe Matilda Uju,

E-mail: ibekwe_uju@yahoo.com

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ABSTRACT

Background: ENT manifestations have been reported in about 41-80% HIV infected patients worldwide. Some patient's HIV status were first detected following an ENT condition. This study therefore is aimed at determining the pattern of the otologic conditions found among HIV positive adults in university of Port Harcourt teaching hospital

Methods: A hospital based descriptive study of adult patients that are HIV positive attending the infectious outpatient clinic of university of Port Harcourt teaching hospital was carried out within a period of 5 months; 1st July to 1st December 2020. Consecutive patients were recruited using a semi structured questionnaire and information sought included; patients demographics, presence or absence of ear complaints, duration of HIV infection and duration of antiretroviral treatment (ARVT). The patients all had complete ENT examination done. Informed consent was obtained from the patients. Ethical clearance obtained. Obtained data was analyzed using IBM SPSS version 25 software at a 95% confidence interval and a p value less than 0.05 was considered significant.

Results: The commonest complaint among these patients was catarrh seen in 35.1% followed by noise in the ears in 17.6% while aural fullness was seen in 13.4%. Cerumen auris (14.2%) was the commonly seen otologic condition followed by otitis externa (13.0%). The prevalence of otologic disorders among the HIV positive population studied was 61.1%.

Conclusions: Otologic conditions are common among HIV positive patients with cerumen auris and otitis externa being the commonly occurring disorder.

Keywords: Otologic conditions, Human immunodeficiency virus, CD4 count

INTRODUCTION

The infection by human immunodeficiency virus is a known major cause of morbidity and mortality worldwide.¹ It is estimated that about 33 million people are living with HIV/AIDS as at the end of 2009. The highest concentration of this is said to be residing in the developing countries in the sub-Saharan Africa.²

In HIV infection, the head and neck region are commonly involved either by the disease itself or by some of the opportunistic infections commonly seen in this condition. Therefore, symptoms of head and neck disorders can be

seen in up to 80% of these infections.³ It is known that otological and nasopharyngeal manifestations are commonly found with otologic being the third most common group of symptoms in these patients during the course of the infection.³ Some patients have been known to realize their status following an otorhinolaryngologic disorder.⁴ These manifestations can be seen both in acute as well as in advanced disease states. Chandrasekhar et al found 33% prevalence of otologic disorders in their study of HIV positive patients.⁵ Other researchers have also found otologic disorders to be common in HIV positive individuals.^{6,7} Some otologic conditions are commonly associated with the infection such as chronic suppurative

otitis media resulting in conductive hearing loss.⁵ it is known that there is association between HIV infection and otoneurologic signs and symptoms which may result in complaints such as earache, aural fullness, vertigo, tinnitus, otorrhea and ear blockage.⁵ it is believed that these ENT conditions found in patients are attributable to infections, neoplasms and primary neurological damages arising from the HIV infection.⁸ Owing to the impaired immunity in this condition, opportunistic infections are very common. One of such infections commonly seen in the ear is malignant otitis externa and chronic otitis media following infection by pneumocystis Jiroveci.⁹ However other otologic conditions such as otitis externa, otomycosis, acute otitis media, chronic otitis media, Herpes zoster oticus and serous otitis media can all be commonly seen in these patients.⁹ In the study by Prasad et al, 20% of the patients were found to have otologic manifestations and about 13% of these had chronic suppurative otitis media.³ Some other researchers found otitis externa and perforated tympanic membrane as the commonest otologic manifestations.¹⁰ while recurrent otitis media was noted by others, conditions such as facial nerve palsy, otosyphilis, Gradenigo syndrome and Kaposi sarcoma of the mastoid were seen and documented by Linstrom et al in their earlier study.^{5,11} Taipale et al found auditory disorders to be as high as 33% in these patients with sensorineural hearing loss being more severe in this group.¹² In these patient's trauma and skin irritation are common predisposing factors to some of these ear conditions.¹³

The use of HAART in management of HIV has increased life expectancy in these patients but it has also led to an increase in the incidence of some of these conditions. However, while some researchers have found the use of HAART to be associated with an increase in CD4 count and a reduction in incidence rate of ENT disorders, others have not found such association between HAART use and ENT manifestations.^{14,15} Present study therefore is to determine pattern of otologic disorders seen among HIV positive adults in UPTH so as to encourage a routine ENT evaluation as part of protocol of management.

METHODS

A hospital based descriptive study of adult patients that are HIV positive attending the infectious outpatient clinic of university of Port Harcourt teaching hospital was carried out within a period of 5 months; 1st July to 1st December 2020. Consecutive patients were recruited using a semi structured questionnaire and information sought included; patients demographics, presence or absence of ear complaints, duration of HIV infection and duration of antiretroviral treatment (ARVT). The patients all had complete ENT examination done. Patients who had ear conditions prior to diagnosis of human immunodeficiency virus infection were excluded from the study as well as those that failed to give their consent. Informed consent was obtained from patients and

clearance for the study sought and obtained from the hospital ethical committee.

The sample size was calculated using the Cochran formula and a prevalence of 82.8% from an earlier study in Ilorin by Alabi et al.¹⁶ $Pq/(e/1.96)$; where p is prevalence=82.8%. $q=100-82.8=17.2$, e is a constant 5.5 and 1.96 confidence interval.² $Na=n/1$ -non response. With a 10% attrition rate=200.96 which was approximated to 201. Therefore, a sample size of at least 201 was considered adequate for the study.

Obtained data was analyzed using IBM SPSS version 25 software at a 95% confidence interval and a p=less than 0.05 was considered significant. All variables were resented in means, frequencies and 5 as appropriate. The association of symptoms, demographic factors and diagnoses was assessed using chi-square analysis.

RESULTS

The total number of patients studied was 239. The age range was from 30 to 69 years with a mean age of 43.82 ± 6.94 years. The age group 40-49 years was the most seen comprising 45.2% while the least was age 60-69 years (0.4%). The male to female ratio was 1.2:1. In terms of duration of the disease, those that has been infected for 6-10 years comprised the highest 46% followed by those for 1-5 years 21.8%. The least was the >15 years 13.8%. About 50.2% of the study population has been on ARVT for 6-10 years while 9.2% has been on treatment for >15 years (Table 1).

Table 1: Demographic distribution of subjects.

Variables	Frequency (n=239)	Percentage (%)
Age group (year)		
30-39	75	31.4
40-49	108	45.2
50-59	55	23
60-69	1	0.4
Mean age (year)		43.82 ±6.94
Gender		
Male	131	54.8
Female	108	45.2
Duration of HIV (year)		
1-5	52	21.8
6-10	110	46
11-15	44	18.4
>15	33	13.8
Duration of ARVT (year)		
1-5	53	22.2
6-10	120	50.2
11-15	44	18.4
>15	22	9.2

The commonest complaint among these patients was catarrh seen in 35.1% followed by noise in ears in 17.6% while aural fullness was seen in 13.4% (Table 2).

Cerumen auris (14.2%) was commonly seen otologic condition followed by otitis externa (13.0%). However, 38% of study population had no ear abnormality detected. The prevalence of otologic disorders among HIV positive population studied was 61.1% (Table 3). When compared

with CD4 count, it was noted that patients with CD4 count less than 500 cells/mm² had more otologic conditions than those with equal to or more than 500 cells/mm². There was a statistically significant difference with p=0.023 (Table 4).

Table 2: Distribution of symptoms.

Variables	Frequency	Percentage (%)
Had ear problem		
Yes	23	9.6
No	216	90.4
Current ear problem		
Yes	12	5
No	227	95
Ear pains		
Yes	23	9.6
No	216	90.4
Noise in ears		
Yes	42	17.6
No	197	82.4
Water in ears		
Yes	32	13.4
No	207	86.6
Blockage of ear		
Yes	10	4.2
No	229	95.8
Recurrent ear problem		
Yes	1	0.4
No	238	99.6
Catarrh		
Yes	84	35.1
No	155	64.9

Table 3: Distribution of otologic conditions.

Variables	Frequency	Percent (%)
Cerumen auris	34	14.2
Csom	12	5
Ome	22	9.2
Otitis externa	31	13
Otitis media	22	9.2
Otomycosis	5	2.1
Sclerotic tm	1	0.4
Tinnitus	19	7.9
No abnormality	93	38.9
Total	239	100

Table 4: Distribution of diagnoses by CD4 category.

Variables	<500	≥500	Chi square (p)
Cerumen auris	24 (14.63)	10 (13.33)	17.73 (0.023) *
Csom	9 (5.49)	3 (4)	
Ome	12 (7.32)	10 (13.33)	
Otitis ext	15 (9.15)	16 (21.33)	
Otitis media	13 (7.93)	9 (12)	
Otomycosis	3 (1.83)	2 (2.67)	
Sclerotic tm	0 (0)	1 (1.33)	
Tinnitus	13 (7.93)	6 (8)	
No abnormality	75 (45.73)	18 (24)	
Total	164 (100)	75 (100)	

Table 5: Association of demographic data and diagnoses.

Variables	Cerumen auris (%)	CSOM (%)	OME (%)	Otitis ext (%)	Otitis media (%)	Otomyco-sis (%)	Sclerotic tm (%)	Tinnitus (%)	Normal (%)	Chi-square (p value)
Age group (year)										
30-39	11 (32.35)	3 (25)	11 (50)	7 (22.58)	7 (31.82)	4 (80)	0 (0)	4 (21.05)	28 (30.11)	45.31 (0.05) **
40-49	15 (44.12)	6 (50)	7 (31.82)	9 (29.03)	7 (31.82)	0 (0)	1 (100)	7 (36.84)	56 (60.22)	
50-59	8 (23.53)	3 (25)	4 (18.18)	14 (45.16)	8 (36.36)	1 (20)	0 (0)	8 (42.11)	9 (9.68)	
60-69	0 (0)	0 (0)	0 (0)	1 (3.23)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	
Gender										
Male	20 (58.82)	7 (58.33)	11 (50)	15 (48.39)	13 (59.09)	5 (100)	1 (100)	10 (52.63)	49 (52.69)	6.31 (0.612) **
Female	14 (41.18)	5 (41.67)	11 (50)	16 (51.61)	9 (40.91)	0 (0)	0 (0)	9 (47.37)	44 (47.31)	
Duration of HIV (year)										
1-5	6 (17.65)	3 (25)	7 (31.82)	14 (45.16)	9 (40.91)	2 (40)	1 (100)	6 (31.58)	4 (4.3)	56.36 (0.0001) *
6-10	16 (47.06)	6 (50)	9 (40.91)	8 (25.81)	7 (31.82)	3 (60)	0 (0)	4 (21.05)	57 (61.29)	
11-15	6 (17.65)	2 (16.67)	2 (9.09)	5 (16.13)	2 (9.09)	0 (0)	0 (0)	3 (15.79)	24 (25.81)	
>15	6 (17.65)	1 (8.33)	4 (18.18)	4 (12.9)	4 (18.18)	0 (0)	0 (0)	6 (31.58)	8 (8.6)	
Duration of ARVT (year)										
1-5	6 (17.65)	3 (25)	7 (31.82)	14 (45.16)	9 (40.91)	2 (40)	1 (100)	6 (31.58)	5 (5.38)	72.41 (0.0001) *
6-10	18 (52.94)	6 (50)	10 (45.45)	8 (25.81)	7 (31.82)	3 (60)	0 (0)	4 (21.05)	64 (68.82)	
11-15	6 (17.65)	2 (16.67)	2 (9.09)	5 (16.13)	2 (9.09)	0 (0)	0 (0)	3 (15.79)	24 (25.81)	
>15	4 (11.76)	1 (8.33)	3 (13.64)	4 (12.9)	4 (18.18)	0 (0)	0 (0)	6 (31.58)	0 (0)	

*Statistically significant (p <0.05), **not statistically significant (p >0.05).

In comparing demographic data and otologic conditions, age and gender distribution were found not to have a statistically significant relationship with presence of otologic conditions in these patients; p value of 0.05 and 0.612 respectively. While the duration of the disease and that of ARVT had statistically significant association with otologic conditions; p value=0.0001 in both (Table 5).

DISCUSSION

In the present study, there was a slight male preponderance similar to other studies.^{15,17} The mean age recorded in the study was 43.82±6.94 years in contrast to a study in Cameroon with a mean age of 35.3 years.¹ While the age range in the present study was 30-69 years in contrast, the study in Cameroon, had a range of 20-49 years.¹⁸

The age range 40-49 years comprised the majority of the study population and as this is the very active age with most of the work force being found in this group, this could likely affect their productivity and ultimately the Nation's economy. The duration of the infection showed that majority has a disease duration of up to 6 to 10 years; n=110 (46%), the number that has lived with it for more than 15 years was also appreciable. This gives credence to the effectiveness of the antiretroviral therapy making it possible for the patients to survive long enough to pave way for emergence of some chronic diseases as a result of either the HIV itself or opportunistic infections. More than half of the study population has been on ARV therapy for at least 6 years.

The commonest complaint in the present study was catarrh followed by tinnitus while aural fullness was third commonest. In contrast some other studies found more of aural fullness, dizziness and tinnitus in that order.^{3,5}

The commonly found otologic disorder was cerumen auris followed by otitis externa. In contrast Chandraskhar and Prasad had chronic otitis media (COM) as the commonest otologic condition while another researcher found OME as the commonest.^{3,5,19} We couldn't find an explanation for these differences. It has been postulated that the incidences of these conditions or disorders especially for otitis externa may not necessarily be higher than that found in the HIV negative patients.¹⁵ Acute otitis media however, commonly occurs in these patients especially the children. In these cases, the disease is usually more severe and easily develops complications.²⁰ Otitis media with effusion on the other hand often arises due to the Lymphoid hyperplasia in the nasopharynx seen commonly in these patients.²¹ Both conditions were the third commonest seen in the present study. It is of note that 38.9% of this population had no detectable otologic abnormality. The prevalence of otologic conditions found in the study was 61.1% which appears higher than that from some other studies; Prasad in his study had 20%, Chandraskhar had 33% and Bengono et al had 21.7%.^{3,5,22}

This could be because these studies are older and it is possible that the recent improvement in the management of this primary disease in these patients has so improved that some of these other conditions such as otologic disorders are now becoming more apparent. However, Alabi et al had a prevalence of 82.8% in their study in Ilorin Nigeria.¹⁶ This much higher prevalence in comparison with the present study could be because the Ilorin study involved all ENT conditions and not just otologic.

The CD4 Count is a measure of the immune status of these patients, it was noted that the otologic disorders were found more in those with CD4 count less than 500/mm². There was a statistically significant difference between CD4 count and presence of otologic disorders.

In the present study, age and gender distribution were found not to have any statistically significant association with otologic conditions in these patients while duration of the disease and treatment with ARV therapy had a statistically significant association with otologic conditions. It is therefore important to routinely have these patients reviewed by the ear nose and throat specialist so as to prevent and institute proper treatment on time therefore avoid complications.

Limitations

Limitations of the study were, owing to the small size of the population studied, the findings deduced from the study may have to be applied cautiously to the general population.

CONCLUSION

Otologic conditions are common among HIV positive patients and cerumen auris and otitis externa are the more commonly occurring disorder. ENT evaluation as part of treatment regime for these patients cannot be over emphasized.

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