

ERRATUM

1. Ibrahim SM, Mohammed B, Yahaya M, Audu BM, Ibrahim HA on the article "Prevalence of Vaginal Candidiasis among Pregnant Women with Abnormal Vaginal Discharge in Maiduguri" on Page Nig. J. Med 2013. 138-142. Should read: Ibrahim SM, Bukar M, Mohammed Y, Audu BM, Ibrahim HM.
2. Mohammad RJ, Gholam T, Zahed M on the article "Dislocation of the Zygomatic Bone into the Nasal Cavity" on Page Nig. J. Med 2013. 151-153. Should read: Jamalpour MR, Farhangi GR, Mohammadi Z.
3. Mbachu I, Udigwe GO, Okafor CI, Umeonunihu OS, Ezeama C, Eleje GU on the article "The Pattern and Obstetric Outcome of Hypertensive Disorders of Pregnancy in Nnewi, Nigeria" on Page Nig. J. Med 2013. 117-122. Should read: Mbachu II, Udigwe GO, Okafor CI, Umeonunihu OS, Ezeama C, Eleje GU.
4. Olusola AS on the article "Profile of Ear Diseases among Elderly Patients in Sagamu, South-Western Nigeria" on Page Nig. J. Med 2013. 143-147. Should read: Sogebi OA.
5. Choriocarcinoma in Enugu, South east Nigeria: A Need for a Shift From Mortality to Survival by: Dim CC, Ezegwui HU. This has been re-published due to some missing signs in the result section of the abstract in Nig. J. Med vol. 22. No. 2, April-June 2013.

Profile of Ear Diseases among Elderly Patients in Sagamu, South-Western Nigeria

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ABSTRACT

BACKGROUND: The elderly constitute a vulnerable group which other people often misunderstand, misrepresent and are potentially prone to abuses and suboptimal care. Ear diseases are important as they may affect the wellbeing of elderly patients and their quality of life. This study took an inventory of the pattern of ear diseases among elderly patients.

METHODS: A five year descriptive retrospective analysis of the clinical information on the elderly patients who presented with Ear Diseases at the ENT Clinic of our hospital.

RESULTS: Data was retrieved from 165 patients and analyzed. Average age was 70 years and females constituted 53.3% of the patients. The three leading symptoms experienced by the patients were tinnitus (84.2%), hearing loss (72.1%) and earache (32.7%) while 57.0% of the diseases affected both ears. The major clinical diagnoses were Presbycusis (38.2%), Otitis (25.5%), and wax impaction (18.8%). Majority (67.3%) of the patients had single pathology while most of the ear diseases affected the inner ear.

CONCLUSION: There was a relatively high prevalence of ear diseases among our elderly patients. The need for proper clinical evaluation of patients with ear diseases was emphasized. The importance of screening for hearing impairment in the elderly patients was also stressed.

KEYWORDS: Cerumen, Ear disease, Elderly, Otitis, Presbycusis

degenerative changes, and it can also occur as part of the symptoms of other ear diseases.⁵ Hearing loss has been noted to be the most common sensory impairment associated with ageing.^{6,7} In 2008, 31% of Americans older than 65 years and 70% of those older than 85 years had presbycusis.⁸ Risk factors for hearing loss include chronic exposure to loud machinery or music, chronic ear infections and increasing age. However other ear diseases have the tendency to cause or aggravate hearing impairment increasing the morbidity, affecting the wellbeing and the quality of lives of the patients.

Particular ear diseases have also been noted among elderly patients; for instance the rate of wax impaction has been reported high among the elderly population.⁹ A previous study done in Nigeria reported wax impaction, hearing loss and infections (notably chronic suppurative otitis media CSOM).¹⁰ as the common types of ear disease diagnosed among elderly hospital patients.¹⁰

The major purpose of this inventory of the pattern of ear diseases in the elderly is to improve the ear health with indirect effect of increasing the quality of life of this vulnerable group of citizens. Also the study aims to describe the anatomical, physiological and pathological types of ear diseases in our hospital.

MATERIALS AND METHODS

This is a descriptive study with retrospective analysis of data obtained on the clinical information of the elderly patients, aged sixty years and above, who presented with ear diseases at the Ear, Nose and Throat (ENT Clinic) of Olabisi Onabanjo University Teaching Hospital (OOUTH), Sagamu, south-western Nigeria. The data obtained was for the four year period from January 2007 to December 2010. Information was retrieved from the case-notes of all patients and included personal biodata like age, sex, occupation/ present vocation. Other information obtained included presenting symptoms, findings on examination and clinical diagnosis(s). Results of Pure Tone Audiometry (PTA) as part of study on epidemiology of hearing impairment in the elderly were noted. PTA was done using the diagnostic audiometer GSI67 (Entomed AB, Sweden), with air and bone (masked) conduction hearing thresholds done stepwise at frequencies ranging from 125 to 8000Hz. Bacteriological results for ear discharge taken for Microscopy, Culture and Sensitivity (M.C.S.) as well as mycology as applied were noted. Other associated chronic medical conditions such as Hypertension and

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INTRODUCTION

The elderly population is an emerging population in Nigeria. Life expectancy in Nigeria has steadily increased from 36 years in 1960 to 53 years in the early 2000s and is expected to increase further in the next decade.^{1,2} With increasing age there is a reduction in physical, cognitive and emotional activities with associated long-term disability affecting a quarter of people over 60 years.³ The incidence of basic disability in adults was found to increase from 50 to 54 years and progressively accelerated until the age of 65-69 years.⁴ Senior citizens constitute a vulnerable group which other people often misunderstand, misrepresent and are potentially prone to abuses and suboptimal care. Hearing impairment is disproportionately common among elderly people, occurring as part of generalized

Diabetes found in the patients were noted as well. Patients whose information were not complete in the case notes and those whose case notes could not be retrieved were excluded from the study.

ETHICS: The protocol for this study was approved by **OOOUTH-** Health Research and Ethics Committee.

STATISTICAL ANALYSIS

The data obtained was entered into a spreadsheet for analysis. Presentation of the findings was in simple descriptive forms as proportions, and means. The analysis was done using SPSS version 17.0.

RESULTS

There were one hundred and sixty-five patients whose data were obtained and analysed comprising a simple majority of females (53.3%). The average age of all the participants was 70 years. The number of ear diseases tended to decrease along the increasing age groups reducing gradually from 51.5% in the 60-69 years group to 1.2% in the 90-99 years group. Half of the patients were still working actively while 27.3% were completely retired and not involved in any type of work. Details of these are seen in Table 1.

Table 1: Socio demographic characteristics of the Patients

Variable	Male n=77 (%)	Female n= 88 (%)	Total
Age group			
60-69	34 (46.8)	49(55.7)	85(51.5)
70-79	28(36.4)	28(31.8)	56(33.9)
80-89	11(14.3)	11(12.5)	22(13.3)
90-99	2 (2.6)	0 (0.0)	2 (1.2)
Mean (±SD)	70.9(±7.8)	70.0(±7.5)	
Occupation group			
Actively working	38(49.4)	43(48.9)	81(49.4)
Retired but doing minor work	15 (19.4)	24 (27.3)	39 (23.8)
Retired not working	24 (31.2)	21 (23.9)	45 (27.3)
Total	77	88	165

Table 2: Clinical features experienced by the Patient

Symptoms	Frequency (%)
Hearing loss	119 (72.1)
Tinnitus	139 (84.2)
Vertigo	32 (19.4)
Otalgia	54 (32.7)
Otorrhoea	35 (21.2)
Side of Ear involved	
Right	48 (29.1)
Left	23 (13.9)
Bilateral	94 (57.0)
Associated diseases	
Hypertension	9 (60.0)
Diabetes	2 (13.3)
Others	4 (26.7)

Table 2 depicted the clinical features seen in the patients. The three leading symptoms experienced by the patients were tinnitus (84.2%), hearing loss (72.1%) and earache (32.7%). Majority (57.0%) of the diseases affected both ears but in subjects with unilateral ear involvement, there were more right than the left ear involvement (R:L= 29.1%;13.9%). The most common chronic medical condition that was found in some of the patients with the ear diseases was hypertension.

Table 3: Clinical and Pathological diagnosis

Main clinical diagnosis	n (%)
Otitis externa or media	42 (25.5)
Presbycusis	63 (38.2)
Wax impaction	31 (18.8)
Meniere's disease	12 (7.3)
Positional vertigo (BPPV)	2 (1.2)
Idiopathic tinnitus	13 (7.9)
Eustachian tube dysfunction	2 (1.2)

Number of Pathology

Single	111 (67.3)
Multiple	54 (32.7)

Pathological classification

Infection/inflammation	36 (21.8)
Degeneration	63 (38.2)
Physiological aberrations	33 (20.0)
Metabolic	27 (16.4)
Trauma	6 (3.6)

Part of the Ear involved

External	32 (19.4)
Middle	13 (7.9)
Inner	70 (42.4)
Combined	50 (30.3)

Table 3 showed the clinical diagnosis and the pathologies seen in the patients. The major clinical diagnoses were Presbycusis (38.2%), Otitis (externa and media 25.5%), and Wax impaction (18.8%). Positional vertigo and Dysfunction of the eustachian tube were the least common diagnoses constituting 1.2% each. The trend in diagnosis depicted an etiological profile of degeneration, infection and inflammation, and physiological aberrations. Over two-third (67.3%) of the patients had single pathology while most of the ear diseases affected the inner ear.

DISCUSSION

Ear diseases constituted almost a third (29.8%) of the total ENT diseases found among the elderly patients seen in this period in our ENT Clinic and its prevalence decreased gradually along the age groups. This decrease might be a reflection of the socio-demographics of the society. It appears that many of the patients were relatively active and may continue to be physically-engaged until their physical, cognitive and emotional

strength wanes. The level of activity may also be related to the fact that over half of our patients were relatively 'young' elderly patients less than seventy years in age. The concept of active ageing is recently being promoted and it is premised on encouraging the elderly to be involved in some form of physical and other activities. Physical activity even at low levels is beneficial in maintaining cognitive function and balance, reduce the risk of falls, and maintain a self-supporting life for elderly individuals.^{11,12} Furthermore, physical activity is inversely associated with all-cause mortality in older men and women.¹³

Prompt and adequate assessment is required for all patients presenting with ear diseases which overtly or covertly cause hearing loss. Hearing loss can be conductive, sensory, neural or can be a combination of any of these. Conductive hearing loss is generally amenable to corrections once the causative diseases have been treated or eradicated. Our elderly patients however had more of inner ear diseases. These diseases are sensory or neural in type, tend to be irreversible and are more difficult to treat. The remedial and rehabilitation measures for hearing impairment include the use of hearing aids, assistive listening devices and cochlear implants in severe and profound hearing loss.¹⁴ The symptomatology of the different types of hearing loss may however be different.

Physicians need to be conversant with the common symptoms that may be the pointers to these ear diseases and look-out, probe and ask specific questions concerning them. The most common symptom of the patients in this study was Tinnitus, a perception of sound or noise in the absence of an external or internal acoustic stimulation.¹⁵ Pinto *et al.*, reported a prevalence of Tinnitus of 33% in elderly Brazilian patients.¹⁶ The mechanism responsible for tinnitus is complex and could involve an impaired control of the microcirculation of the inner ear.¹⁷ Tinnitus often occurs intermittently but it can be persistent, unrelenting and objective in some situations. It is imperative to find the cause of a tinnitus moroso that it may be associated with chronic systemic diseases like hypertension and diabetes.^{18,19} Occasionally the tinnitus is assumed to be idiopathic when a cause could not be found. 7.9% of the patients in this study experienced idiopathic tinnitus as a diagnosis of exclusion. Tinnitus as a symptom can be disturbing and it evokes concern, hence sufferers tend to present to the physician for otological evaluation.

The effects of tinnitus are more pronounced when it coexists with a hearing loss as commonly occurs. Kim *et al* found that even if patients with tinnitus do not have any subjective hearing impairment, most of them have high frequency hearing loss, (HFHL) at sound frequencies at 2 kHz and extended HFHL at 8kHz.²⁰

Incidentally, hearing loss was the second common symptom experienced by our patients. Combination of these two symptoms is the hallmark of age-related hearing impairment (Presbycusis). The criteria for diagnosis of Presbycusis is audiographic evidence of bilateral sensorineural hearing loss of at least 25dB average in both ears in the elderly with exclusion of common environmental risk factors like perennial exposure to environmental noise, use of ototoxic drugs.¹⁴ Presbycusis was the most common clinical diagnosis made in 38.2% of our patients. This is at variance with the finding of a similar study done in Ilorin Nigeria, where 6.3% of the patients had Presbycusis. This disparity may be connected with our practice of routine audiometric screening of all elderly patients which led to early discovery of many patients who had subtle and mild forms of hearing impairment. Frequent exposure to environmental noise which is common in our locality may be a confounder to the Presbycusis. Progression and irreversibility of this ailment contributes to social isolation, loss of autonomy and is associated with anxiety, depression, and cognitive decline.²¹ Physicians are encouraged to screen for hearing impairment with either screening or diagnostic audiometry or with objective tests like electrocochleography and otoacoustic emissions in all elderly patients. Patients with metabolic diseases like Meniere's disease also tend to present with features of tinnitus and hearing loss in addition to vertigo due to the affectation of the vestibular apparatus.

Earache (otalgia) was a common symptom reported by our patients. The distress associated with otalgia tends to compel patients seek medical attention. Ootalgia can be the only presenting symptom of serious otologic conditions, hence it poses a diagnostic challenge for which orderly and diligent evaluation are needed to fully explore its etiology.^{22,23} Etiology could vary from inflammation and infection (typified by otitis externa and media), trauma, to seemingly physiological aberrations like wax impaction and eustachian tube malfunction.

In patients with otitis, otalgia is often associated with fever and otorrhoea, while there is associated ear blockage and hearing loss in cerumen impaction and eustachian tube dysfunction. Otitis and cerumen impaction were the second and third most common diagnosis found in this study. Chronic suppurative otitis media (CSOM) has been found to be more common than acute suppurative otitis media (ASOM) in both children and adults in our environment.^{24,25} In the elderly patients CSOM is due to persistence or progression of the previous disease of the earlier years. Some of these patients also had features suggestive of otitis externa (tragal tenderness), which could have resulted from inflammation of the EAC in the chronically-discharging

ears, or from repeated mopping of the mucopulent discharge usually with a cotton bud.²⁶

Wax impaction has been found to be common in the elderly patients possibly due to the physiological reduction in the functioning of the cerumen clearance activity associated with ageing without a concomitant reduction in the level of production. The resultant effect is the accumulation of wax in the EAC. Safe methods of managing wax impaction ranges from application of cerumenolytic agents, to irrigation of the ear, and manual evacuation of the wax with good outcome.⁵ Despite the finding that wax impaction was not as common in our study compared to others, we advise its adequate management and hearing assessment afterwards.^{26,27}

Eustachian tube dysfunction may occur either as a blockage or as abnormal patency and may be difficult to diagnose. History of fullness in the ear and discomfort especially with changes in atmospheric pressures at different altitudes characteristic during air flights is often suggestive. Diagnosis is confirmed by doing a tympanometry which will show the C type of graph (representing accumulating negative pressure) with associated reduced intra-acoustic reflexes.²⁸ Treatment modalities include simple measures like the *Valsalva* maneuver, or more invasive surgical procedures like ventilation tubes insertion to restore middle ear ventilation.²⁹ Incidentally eustachian tube dysfunction, along with positional vertigo was the least diagnosed pathologies among our elderly patients.

Positional vertigo occurs in many forms, but the common manifestation in our environment is as benign paroxysmal positional vertigo (BPPV). BPPV is characterized by brief recurrent episodes of vertigo triggered by changes in head position. Patients with suspected positional vertigo should undergo *Dix Hallpike* and other head turning maneuvers to confirm the diagnosis.³⁰ Spontaneous recovery may be expected even with conservative treatments. However, canalith repositioning maneuvers usually provide an immediate resolution of symptoms.³¹

In this study, 57.0% of our patients had pathologies in both ears, while 29.1% had in the right ear. This trend was observed in ear syringing study in Ibadan.³² Furthermore, one third (32.7%) of our patients had multiple pathologies. Although most (42.4%) of the diseases involved the inner ear, 30.3% affected more than one part of the ear. It is important that clinical history and examinations of patients be carried out to include all parts of the ear and both ears must be examined. Meticulous examination is invaluable in making a diagnosis.

Despite the familiarity of Otolaryngologists with the symptomatology and presentation of ear diseases,

general duty physicians sometimes find them tasking. A statistically significant difference was found between the ability to diagnose and treat ear diseases among the elderly by ENT specialists compared to general practitioners.²⁷ Update and refresher courses on the pattern of ear diseases as part of continuing professional development will assist the general duty physicians in adequately making a diagnosis, management or referral of patients to specialists.

The retrospective and hospital-based natures of this study are acknowledged as limitations. There is a need for further studies on this subject within the communities incorporating the primary health care centers in this region. These will provide more concise information and clarify our findings. It is also suggested that geriatric care should be developed to include home care services for the elderly so as to improve the ear and by extension, the general health of this population.

In conclusion, this study has found a relatively high prevalence of ear diseases among our elderly patients, most presenting with symptoms of tinnitus, hearing loss and earache. The potentially-disabling presbycusis, followed by otitis and cerumen impaction in descending order were the common diagnoses. The need for proper clinical evaluation including examination of the ears is emphasized more so multiple pathologies; in different parts of the ear and involvement of both ears occur frequently. The importance of screening for hearing impairment in the elderly patients is also stressed.

CONFLICT OF INTERESTS: None to declare.

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