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ENT

KEY WORDS: Facial Nerve Palsy, Neurootological disorder, Facial nerve damage, Facial muscle.

CLINICO-EPIDEMIOLOGICAL PATTERN OF FACIAL NERVE PALSY IN EKITI

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ABSTRACT

Background: Facial nerve supply muscle of facial expression. Its damage causes functional disability and cosmetically affects the quality of life of the patients.
This study is aimed at determining the sociodemographic distributions, aetiology, clinical presentation, complications and quality of life of patients with facial nerve palsy.
Method: This is a prospective hospital based study of patients with facial nerve palsy. The study was conducted at Ekiti state university teaching hospital Ado Ekiti, Nigeria.
This study was carried out in ear, nose and throat department of the institution over a period of nine years (April 2008 to March 2017).
Ethical clearance was obtained, and consented participants were enrolled into the study. Information obtained were treated confidentially.
Interviewer's assisted questionnaire were administered to obtain data on demographic features, presenting complaints with associated clinical features, source of referral, complications, quality of life and treatment of facial nerve palsy patients.
Data obtained were collated, entered into database and analyzed by SPSS version 16 software. Descriptive statistics was used and expressed with table, pie charts and bar charts.
Results: The total number of patients seen in ear, nose and throat department, during this study, was 19,714 while a total of 207 patients were diagnosed with facial nerve palsy. The prevalence of facial nerve palsy was 1.1%. There were 60.9% males, and the male to female ratio was 3:2 in this study.
The peak age group accounted 35.7% at (21-30) years.
The married and single were the majority, and accounted for 61.4% and 31.4% respectively. Education status of the enrolled participants were: secondary- 42.9% and post-secondary- 31.9%.
Occupational predisposition were students/apprentice and civil servant; they accounted for 26.6% and 24.2% respectively.
The commonest causes of facial nerve palsy were Bell's palsy, temporal bone fracture, and iatrogenic injuries, which accounted for 40.1%, 16.9% and 8.2% respectively. The less common causes were malignant otitis externa, middle ear tumor, and chronic suppurative otitis media which were responsible for 1.9% 3.9% and 4.8% respectively.
Clinical presentation of facial nerve palsy in the study population were mainly 98.6% facial asymmetry, 95.7% mouth deviation, and 90.3% inability to close eye.
Lesser number presenting complaints were 22.7% taste affectation, 26.6% speech affectation, and 47.3% tearing.
Lower motor neuron lesion 87.4% was commoner than upper motor neuron lesion 12.6%. Unilateral facial nerve palsy 99.0% predominate bilateral facial nerve palsy1.0%.
Right facial nerve palsy 58.9% was also commoner than left facial nerve palsy40.1%.
The major complications of facial nerve palsy were 16.4% facial asymmetry and 6.3% hemifacial spasms.
The lesser complications accounted for 2.4% gustatory lacrimation, and 1.4% synkinesis.
Sources referred for the otorhinolaryngological, head and neck review and management, were mainly from 63.3% general practitioner, 12.0% neurologist, and 12.6% self reporting.
Majority of facial nerve palsy affectation of quality of life occurred as 81.2% self-reported less attractiveness and 68.1% lower mood.
Lesser affectation of quality of life occurred as 46.9% depression and 36.2% low self-esteem.
Majority like 90.3% of the patients, were treated conservatively with drugs and physiotherapy while minority like 9.7% had surgical intervention. Full recovery occurred in 78.3% of the cases, 7.7% had partial recovery, while in 14.0%, the outcome was unsatisfactory.
Conclusion: Facial nerve palsy causes loss of function of muscle of facial expression. Complicated cases include emotional distress and ocular manifestation. Managing team must consider quality of life affection to achieve an excellent outcome.

Introduction

Facial nerve palsy is an otological and neurological condition that resulted from pathological lesion of the 7th cranial nerve. This leads to paralysis of muscles of facial expression. This may present an acute or insidious onset of partial or total paralysis of unilateral or bilateral aspect of the face [1].

The extent and degree of paralysis of the muscles of facial expression determines extents of flaccid appearance of the face (unilateral or bilateral). This ranges from loss of the ability to smile, frown, blink, raise eyebrows, and talk normally. This results in emotional and physical effects on the sufferer, and it is up to 16.0%. This causes negative impact on the self-esteem socialization in the affected individuals [2].

Facial nerve palsy is a common otonuerological clinical entity that is very common in otorhinolaryngological practice worldwide. There is no age predilection but it has been reported to be most frequently seen between 20 to 50 years. Facial nerve palsy has been reported and documented in both sex and in pregnancy [3]. In developed country, prevalence of facial nerve palsy was reported to be 0.03% [4]. In the United States of America (USA), it has been reported that the incidence in post trauma conditions ranges from 0.7 to 8.8 cases per 1000 birth [5].

There are seven major groups of aetiological causes of facial nerve palsy and are as follows:

- Idiopathic
- Congenital
- Infectious,
- Neoplastic
- Trauma
- Erpes zoster oticus
- Neoplastic

These aetiological agent includes viral and bacterial in both gender[6,7].

Aetiological causes of facial nerve palsy ranges from Bell's palsy to other form of infection such as otitis media, mastoid abscess. There are various form of trauma leading to facial nerve palsy including iatrogenic, temporal bone fracture, road traffic accident involving face and iatrogenic from surgery of the middle ear or parotid salivary glands. Malignancy which may be primary (acoustic neuroma, middle ear, parotid) or secondary from distance organ has also been implicated. Metabolic disorders, such as cerebrovascular accident, is a known cause of facial nerve palsy. The pattern of causes varied with different study.

Facial nerve palsy may be classified into two based on anatomical location, they are: upper motor neuron and lower motor neuron [8-11]. Each type are caused by different aetiological agent.

The functional deficiency facial nerve produced different form of clinical findings such as: facial asymmetry, mouth deviation, food collection in the vestibule, inability to close the eye, tearing, eye pain, lack of facial expression and lack of taste and so on.

Facial nerve palsy grossly affect the quality of life. The patient also suffers the psychological impact of change in self-image, social functioning and impaired communicative ability.

There is paucity of literature on facial nerve palsy in developing country like Nigeria, Ekiti community in particular. Few studies in Nigeria were mainly on case study and retrospective study. These previous studies stimulate the authors to work on this prospective study. This study aimed at determining the clinicoepidemiological pattern and quality of life in patients with facial nerve palsy.

Methods

This is a prospective study of patients seen and review with diagnosis of facialnerve palsy. These patients were seen and treated at ear, nose and throat department of the Ekiti State University Teaching Hospital, Ado Ekiti, Nigeria. Informed consent was obtained from the patients. Informed consent was obtained from the patients/ parents/guardian. Confidentiality of extracted information was assured. Consented patients were enrolled into the study. The study was carried out from April 2008 to March 2017.

Ethical issue was discussed by the authors. Ethical clearance was sought and obtained. Ethical Review Committee of the Ekiti State University Teaching Hospital gave approval for the study.

Detailed sociodemographic features of all patients was obtained and documented. Presenting complaints, and its detail history was documented. Otological and neurological detailed history were obtained and documented. Past medical/surgical, drug, family and social history were obtained and documented. Detailed otological and neurological examination were carried out and documented. Interviewer assisted questionnaire was administered. Further information were extracted from the patients registered case folders on the requested investigations, complications and treatment offered.

Health-related quality of life by facial nerve palsy on the studied participants was assessed with the soft form (36) health survey. The SF-36 is a general health-related quality of life questionnaire, consisting of 36 questions were used.

Data obtained were collated and analyzed using SPSS statistical package version 16. Obtained data were expressed and summarized by descriptive statistics of frequency tables, pie and bar charts.

Results

The total number of patients seen in ear, nose and throat department during this study was 19,714. A total of 207 consented patients, who presented and diagnosed with facial nerve palsy in ear, nose and throat department, were studied. They were all enrolled and studied. The prevalence of facial nerve palsy was 1.1%. There were total of 126 (60.9%) males and 81 (39.1%) females. The male to female ratio was 3:2 in this study.

The age group distribution were evenly and covered all the age groups. The peak age group was (21-30) years and accounted for 74 (35.7%). The age group distribution of the patients were shown in figure 1.

Participants of Christian faith were the majority, and accounted for 184 (89.1%) of the study population. The married and single were the majority, and accounted for 127 (61.4%) and 65 (31.4%) respectively. Education status of the enrolled participants were secondary 89 (42.9%) and post-secondary 66 (31.9%). Both of which topped the list.

Top in the list of occupational predisposition were students/apprentice and civil servant, and accounted for 55 (26.6%) and 50 (24.2%) respectively. They constituted the majority. This is illustrated in table 1.

Table 2 illustrated the aetiology of facial Nerve palsy in the studied patients. The commonest causes of facial nerve palsy were Bell's palsy, temporal bone fracture, and iatrogenic injuries which accounted for 83 (40.1%), 35 (16.9%) and 17 (8.2%) respectively. The less common causes were malignant otitis externa, middle ear tumor, and chronic suppurative otitis media which were responsible for 4 (1.9%), 8 (3.9%) and 10 (4.8%) respectively.

Clinical presentation of facial nerve palsy in the study population were mainly 204 (98.6%) facial asymmetry, 198 (95.7%) mouth deviation, and 187 (90.3%) inability to close eye. Lesser presenting complaints were 47 (22.7%) taste affectation, 55 (26.6%) speech affectation, and 98 (47.3%) tearing. This is demonstrated in table 3.

Lower motor neurone lesion 181 (87.4%) was commoner than upper motor neuron lesion 26 (12.6%). Unilateral facial nerve palsy 205 (99.0%) predominate bilateral facial nerve palsy 2 (1.0%). Right facial nerve palsy 122 (58.9%) was also commoner than left facial nerve palsy 83 (40.1%). This is shown in figure 2.

The major complications of facial nerve palsy were 34 (16.4%) facial asymmetry, and 13 (6.3%) hemifacial spasms. The lesser complications accounted for 5 (2.4%) gustatory lacrimation, and 3 (1.4%) synkinesis. Table 4 demonstrated the complications of facial nerve palsy.

Sources of referred for the otorhinolaryngological, head and neck review and management were mainly from 131 (63.3%) general practitioner, 25 (12.0%) neurologist, and 26 (12.6%) self reporting. This is shown in figure 3.

Majority of facial nerve palsy affectation of quality of life occurred as 168 (81.2%) self-reported less attractiveness and 141 (68.1%) lower mood. Lesser affectation of quality of life occurred as 97 (46.9%) Depression and 75 (36.2%) lowself-esteem. Figure 4 shown the illustration.

Pattern of management of facial nerve palsy were conservative, medical, physiotherapy and surgical treatment. Majority 187 (90.3%) of the patients were treated conservatively with drugs and physiotherapy, while minority 20 (9.7%) had surgical intervention. Full recovery occurred in 163 (78.3%) of the cases, 16 (7.7%) had partial recovery, while in 29 (14.0%) the outcome

was unsatisfactory.

Figure 1 Age group distribution of the patients.

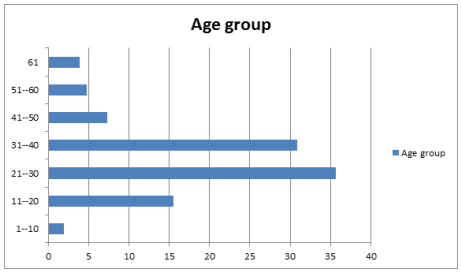

Table 1 sociodemographic features of the participants

Sociodemographic	Number	Percentage (%)
Gender		
Male	137	66.3
Female	70	33.7
Religion		
Christianity	184	89.1
Islamic	23	10.9
Educationlevel		
None	8	3.9
Primary	44	21.3
Secondary	89	42.9
Tertiary	66	31.9
Maritalstatus		
Single	65	31.4
Married	127	61.4
Divorce	15	7.2
Occupation		
Students/apprentice	55	26.6
Applicant	39	18.8
Civil servant	50	24.2
Farming	14	6.8
Trading	18	8.7
Others	31	14.9

Table 2 Aetiology of facial nerve palsy among the patients

Aetiology	Number	Percentage (%)
Stroke	14	6.8
Bell's Palsy	83	40.1
Temporal bone fracture	35	16.9
Chronic Suppurative OM	10	4.8
Middle ear Tumor	8	3.9
Iatrogenic injuries	17	8.2
Malignant otitis externa	4	1.9
Parotid tumor	11	5.3
HIV	12	5.8
Other causes	13	6.3

Table 3 Clinical features of facial nerve palsy among the patients

Features	Number	Percentage(%)
Earache	160	77.3
facial asymmetry	204	98.6
Inability to close eye	187	90.3
Mouth deviation	198	95.7
Collection of food in mouth	128	61.8
Taste affectation	47	22.7
Eye pain	122	58.9
Tearing	98	47.3
Eye irritation	144	69.6
Speech affectation.	55	26.6

Figure 2 Type of facial nerve palsy

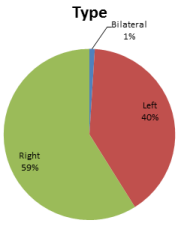

Table 4 Complications of facial nerve palsy among the patients

Complication	Number	Percentage (%)
Corneal ulceration	5	2.4
Exposure keratitis	8	3.9
Hemifacial spasms	13	6.3
Facial asymmetry	34	16.4
Gustatory lacrimation	5	2.4
Synkinesis	3	1.4

Figure 3 Source of referral of patients with facial nerve palsy

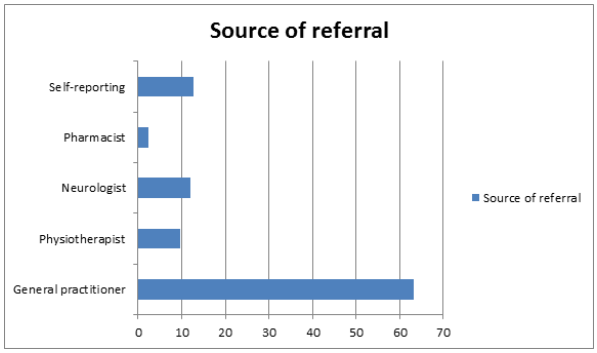

Figure 4 Quality of life among patients with facial nerve palsy

Discussion

Facial nerve palsy is not an uncommon presentation in otorhinolaryngological, head and neck surgical practice worldwide. Ekiti state community is not an exemption. Study on prevalence of facial nerve palsy is very rare and the prevalence of 1.1% was found in this study. The prevalence value in this study is high compared to other studies [3,5].

This study further revealed the factors responsible for this high prevalence of facial nerve palsy in the studied population. The factor examined were age, sex, marital status, occupation and causative agent among facial nerve palsy patients in Ekiti state university teaching hospital, Ado Ekiti, Nigeria. Facial nerve palsy has no predilection for age group, sex, religion, marital status, educational level to mention but few. Outdoor activity has dual purposes. Outdoor activities and its health hazards mostly predispose individual to the risk of developing facial nerve palsy. Secondly, these activities aids in early people recognition of even mild facial asymmetry by contact people. High prevalence of facial nerve palsy were found in men, students/apprentice, single, and applicants in this study. Similar result were noticed in similar studies [5-7].

In this study, the right sided facial nerve palsy had a higher prevalence than the left sided facial nerve palsy. This findings is similar to the result in other study [12,13]. Right handed and body predispose to right side body and facial injury during fall.The findings in this study is contrary to the reported result in other study with higher prevalence of left facial nerve palsy than the right sided facial nerve palsy [13]. There are prevalence of bilateral facial nerve palsy in this study, and there is no prevalence of bilateral facial nerve palsy in other study [13].

In this study, lower motor neuron facial nerve palsy was found to

be commoner than upper motor neuron facial nerve palsy. This is similar to other study which indicated that lower motor neuron lesion is commoner than lower motor neuron lesion in all ages and race [14].

This study has found Bell's palsy to be the commonest causative factor of facial nerve palsy, and this is followed by other traumatic agent. This findings is in agreement with other study [16]. Head injury, with skull base fracture, is one of the most frequent causes of injury to the lower motor neuron portion of facial nerve [15,16]. In temporal bone fracture, high index of suspicion of facial nerve palsy should be considered to institute prompt management. The injury may be neuropraxia, direct trauma, haematoma or traumatic inflammation with oedema, compressing the facial nerve[17,18]. Other less condition such as infective or malignancy were also documented in this study [16,18]. In this study, otitis media and malignancy of middle ear and parotid salivary gland were among the less common causes of facial nerve palsy.

Facial nerve palsy patients were mainly referred to ear, nose and throat department by the general practitioner and neurologist. This is because general outpatient department and casualty are the main entry point for patients to the hospital. None of the patient was seen in the casualty department.

Facial asymmetry and mouth deviation are the commonest presenting compliant in this study. Any alterations in the normal facial appearance are easily noticed, reported and commented. This results into social stigmatization of these patients. This manifestation may occur at rest or with activities depending on the degree of facial nerve damage. The least presenting complaints are taste and speech affectation. Taste bud on contralateral side compensate for the taste. Mild degree of facial nerve damage leads to some speech manifestation which is also compensated for.

A number of complications can occur as a result of facial nerve palsy as noticed in this study. The degree of complications depends on the extent of facial nerve damage. Patients with long-term complications of facial nerve palsy are more likely to occur by a complete facial palsy due to no facial movement at all on the affected side of face. When the eyelid is too weak to close, the protective tear film becomes less effective; this leads to corneal dryness and ulceration with subsequent infection and blindness if not timely treated. Synkinesias of the eye and mouth occurs when the nerve of the face grow back in a different way. This causes eye to wink when eating, smiling and laughing, or eye close completely during meals. Facial tightness is due to facial muscular contracture causing permanent facial tense. This may lead to facial disfigurement such as small eye, bulky cheek, or deeper line between the nose and the mouth.

Facial nerve palsy caused great emotional effect due to loss of facial muscular functions. Patients with disfigurements are usually preoccupied with their appearance and the possible reaction it may have on other people. In this study, the major impact were lower self-reported attractiveness, lower mood and social functioning. This is mainly due to societal perception of male, female, adults and children with facial disfigurement and it's mostly negative. In a study, student with facial nerve palsy are perceived as less intelligent by their teachers and often, score lower on examinations of psychosocial fitness compared with their peers [19]. Another study on treatment-seeking patients with facial nerve palsy revealed that this condition was significantly associated with increased depression and worse, quality of life scores [20]. Female sex with facial nerve palsy was significantly associated with increased lowerself-reported attractiveness than male sex. In addition, patients with a greater severity of facial paralysis were more likely to suffer more emotional effect. The managing team are to bear this in mind in the course of management.

Conclusion

Facial nerve palsy causes loss of function of muscle of facial expression. Complicated cases include emotional distress and ocular manifestation. Managing team must consider quality of life affection to achieve excellent outcome.

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