



Prevalence of E.N.T. Diseases in diabetic patients: A prospective study

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Abstract

Aim: To the best of our knowledge, the prevalence of Oto rhino laryngological disorders in patients with diabetes has not been properly documented, in this part of country, our study highlighted the prevalence of otorhinolaryngological disorders in the diagnosed patients of DM in this part of Tamil Nadu, India.

Materials & Methods: This Prospective study was carried out over a period of one year, from Jan 2018 to Dec 2018 in the outpatient departments of Medicine and ENT in Government Medical College and ESI Hospital, Coimbatore.

Results: 13,464 patients attended ENT OP and the inclusion criteria is met by 1434 patients, male 803 (56%), female 631 (44%). Males The most common ENT disorder was fungal otitis 630 (44%) followed by sensorineural hearing Loss, 373 (26%) and rhinitis, 258 (18%). Chronic pharyngitis, 172 (12%)

Conclusion: The most common ENT disorder in patients with diabetes mellitus type 2 was fungal otitis, followed by sensorineural hearing loss. Regular visit to ENT is must for all diabetic patients, for early diagnosis and prevent complications.

Keywords: diabetes mellitus, OTO rhino laryngologic diseases, otitis, rhinitis, hearing loss

1. Introduction

Among the most common chronic disorders of modern time, diabetes mellitus (DM) remains unique because of its multisystem ramifications. Type 2 DM is a complex disease with both metabolic and vascular components that affects about 285 million worldwide in 2010 and will rise to 438 million at the end of 2030 with age group of 20-70 years. DM is a major public health problem in India. Its prevalence is on the increase, being as high as 23.7% among adult citizens.

Type 2 DM is associated with a number of micro vascular complications affecting most commonly the eyes and kidneys, and his to pathological studies have shown damages to the nerves and vessels of the inner ear of individuals with diabetes. external otitis, an infection involving the temporal and adjacent bones, is a relatively rare but dangerous complication of external otitis Cutaneous infections, which may be bacterial, fungal

or viral, are common among patients with diabetes, and can affect the skin and soft-tissue structure of the ear and the nose as well. To the best of our knowledge, the prevalence of OTO rhino laryngological disorders in patients with diabetes has not been properly documented. Our study highlighted the prevalence of otorhinolaryngological disorders in the diagnosed patients of DM in a tertiary care medical college hospital in Coimbatore, Tamil Nadu, India.

2. Materials and Methods

This was an observational Prospective study, carried out over a period of one year from Jan, 2018 to Dec, 2018. The study

was conducted at the Ear, Nose and Throat-Outpatient Department (ENT-OPD) and Medicine outpatient department of Government Medical college and ESI Hospital, Coimbatore. The study population was from the diabetic patients who visited the ENT-OPD of the hospital within the period of study.

Patients' information was collected for demography (age and gender), types of diabetes, duration of diabetes, types of diabetic treatment, and final diagnosis of patients done by the specialist in the ENT-OPD. Subjects' random blood-sugar levels and HbA1C levels were collected on the first visit to during the study period.

The levels of random sugar above 200mg/dl and HbA1c >7% were taken as uncontrolled/high respectively.⁹

3. Results

During the period, 1434 patients met the inclusion criteria for this study. Males were slightly predominant than females. Overall subjects' mean age was 51.5 (24-86) years, while mean age of the male subjects was 51.2(20-86) years and the females at 51.8(24-78) years. The majority belonged to the age group of 45-54 years followed by 55-64 years

The mean duration of diabetes was 11.9 years. There were 98% type 2 diabetic patients. Half of the subjects had the duration of diabetes of less than 10 years. Oral hypoglycaemic therapy was used by 92% of patients while 8% was on both oral and injectable therapy. On the other hand, Majority of the ENT disorders were otitis, (44) followed by sensorineural hearing loss (26%) rhinitis (18%) chronic pharyngitis (12%)

Table 1: Demographical Data of Subjects

Age groups	Male	Female	Total
24-34	085	106	191
35-44	105	106	211
45-54	219	170	389
55-64	214	114	328
65-74	127	103	230
>75	53	32	85
Total	803(56)	631(44)	1434(100)

Table 2: Distribution of characteristics of study subjects by features of diabetes

Variables (n=100) %		
Diabetic Type		
1	2	10
2	98	90
Duration of Diabetes		
≤10yrs	50	50
11-20	40	40
>20	10	10
Diabetic Treatment Type		
Oral	77	
Injection	2	
Both	18	
No Treatment	3	
Diabetic Control Blood SugarLevel		
Controlled	49	49%
Uncontrolled	51	51%

Table 3: Distribution of DM patients by type of ENT

Diagnosis	no	percentage
Rhinitis	258	18%
Sensorineural hearing loss	373	26%
Chronic suppurative otitis media	115	8%
Otomycosis	630	44%
Vertigo	28	2%
Otitis Externa	113	8%
Pharyngitis	172	12%
Epistaxis	7	0.5%
Frunculosis Sinusitis	54	4%
Wax	204	14%
Sinusitis	29	2%
Voice disturbances	96	7%
*Miscellaneous	7	0.5%

4. Discussion

Our study showed that OTO mycosis was the predominant ENT disorders in cases of diabetes. This condition is not the proven consequences or complication of DM, but its predominance may be related with the prevalence of uncontrolled DM in the study subjects.

The immune-compromised status of subjects with uncontrolled DM renders them more prone to any acute or chronic inflammatory viral or bacterial infections. On the other hand, 24% of the cases were diagnosed as sensorineural hearing loss, otitis externa and furunculosis, which are related to uncontrolled or poorly controlled DM. Majority of otomycosis cases are prevalent in the hot and humid environment Other predisposing factors for otomycosis, such as bacterial infection, broad-spectrum antibiotics usage, self-inflicted trauma, swimming, steroids usage and failure of ear defence mechanism might be the reason here. Both hypo- and hyperglycaemia have been associated with inner ear dysfunction and hearing may fluctuate with blood-glucose

levels. The relationship between DM, sensorineural hearing loss and vestibular dysfunction has been known for sometimes and his to pathological changes in the temporal bone have been clearly documented. But, according to one study, there was a weak association between diabetes and hearing loss. Taylor and Irwin noted that patients with diabetes as a whole were deafer particularly in the lower frequencies than the controls, gradually approaching each other in the middle range (1-4kHz) and were similar at 8 kHz. Friedman and Schulman studied diabetic patients with peripheral neuropathy. They concluded that 55% of their subjects had symmetrical hearing loss of the sensorineural type, involving at least one frequency, although none gave a history of hearing loss and ear diseases. The hearing loss was unrelated to age, and the impairment was similar at low and high frequencies, with a maximum deficiency between 750 and 2000Hz.¹⁹ A small group of patients with idiopathic sudden hearing loss was investigated to study the possibility of a relationship with diabetes but no correlation was found in the audiological pattern. However, patients with diabetes failed to recover as well in high-frequency loss compared to non-diabetic patients Invasive otitis externa affects predominantly those over fifty years of age and most patients have evidence of micro vascular disease such as DM.

Poorly controlled diabetics have a greater susceptibility to bacterial and fungal infections of the skin, such as furunculosis and carbuncles.^{14,20} In the pre insulin era, the prevalence of common pyodermas such as furunculosis, carbuncle, and erysipelas was much higher in patients with diabetes than for their non-diabetic counterparts.²⁰ A study by Naheed *et al.* of diabetic patients who admitted in medical wards with different problems had shown that 62.2% of them had skin infections, and this was contrary to ours. In their study, the subjects' mean and age range and the prevalence of type II DM subjects were greater than our study. The duration of diabetes is an important factor that determines the appearance of micro vascular complications of diabetes. It seems that the longer duration of DM predisposes more to the development of deafness in many studies, however, mild degree of hearing impairment was detected in many children with diabetic duration of less than four years. Such observation was unusual and might be explained by poor glycaemic control. Elamin *et al.* have proven the relationship of hearing loss in children and adolescent with type 1 DM at middle and high frequencies, which was not present in their controls. This is an observational study, institutional based and not community based study. Thus, it cannot prove the true relationship of DM with OTO rhino laryngological disorders. Being the observational study, we cannot measure the odds ratio or relative risk ratio of the relation between ENT disorders and DM, controlled or uncontrolled. Moreover, the study duration and the subject numbers were too small to conclude any association other than just the descriptive findings. A case-control study is recommended to test the association.

5. Conclusion

The most common ENT disorder in patients with diabetes mellitus type 2 was otis, followed by sensorineural hearing loss. Majority of these patients had poor glycaemic control. This may explain why certain disorders were more prevalent than others. There should be a case-control study to define the relation of DM and otorhinolaryngological disorders.

6. References

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