PREVALENCE OF VOICE DISORDERS IN TERTIARY CARE HOSPITAL

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ABSTRACT

Objective:

To study the prevalence of voice disorder in patients visiting the voice clinic ENT-HNS department of tertiary care center.

Materials and Methods:

This was a retrospective study carried out among the patients visiting voice clinic in the department of ENT-HNS for duration of one year. The patients were evaluated for voice disorder by a team of ENT doctors and Speech pathologists using perceptual and Instrumental evaluation. The patients who required surgical intervention were excluded. A descriptive study was done among patients with voice disorders requiring voice therapy.

Results:

Voice disorders were more frequent in females than males and also in professional voice users as they tend to use voice more daily. The structural cause for voice disorder is the major cause of voice problems in all age groups.

Conclusion:

Voice disorders were more frequent in females than males and also in professional voice users as they tend to use voice more daily. The structural cause for voice disorder is the major cause of voice problems in all age groups.

Keywords: Non-professional, Professional, Speech Pathologist, Vocal abuse, Voice disorder, Voice user

INTRODUCTION

Human communication is the key that differentiates humans from other beings in the world. Communication completes with speech and language and their use; speech, in turn, is defined by the voice of the individual.[1]Voice is the sound produced by the vibration of vocal fold and modified by the resonating cavity in the vocal tract. Abnormal voice occurs when there is an abnormality in the vocal fold which alters the normal vibratory pattern leading to disturbed pitch, quality, and loudness.[2] The voice quality gives identity to the individual and any disorder to the voice results in loss of the identity through voice. A voice disorder is an abnormality of one or more of the three characteristics of voice: pitch, intensity (loudness), and quality (resonance). Age-related voice changes are common mostly in the geriatric population. Although, there are so many causes that can cause voice problems, the major causes being voice abuse and voice misuse. Structural, medical, or neurological alterations of respiratory, laryngeal, and vocal tract mechanism may also result in voice disorder.[3] Voice disorder can range from a subtle change in a voice like hoarseness to dysphonia or aphonia. The prevalence of voice disorder is estimated to be 3 % to 9% in the U.S population with a higher prevalence reported in females than males among the adult population.[4]In an adult, voice disorders are more common among professional voice users. They are the ones who are more prone to get voice issues and they seek more medical and behavioral intervention. Different authors have proposed different classification systems for voice disorders. Green and Mathieson have classified voice disorder into a behavioral category for changes resulting in laryngeal mucosa due to hyper-functional voice use and organic category for voice changes due to neurological condition, endocrinal disorder, and laryngeal diseases.[5] The impact of voice problems in an individual can range from emotional imbalance to degrading the overall quality of life.

The assessment of voice disorder can range from an objective assessment with perceptual evaluation, instrumental evaluation (including both visualizing with scopes to instrumental evaluation of voice through software) to electrophysiological evaluation as EGG (Electro GlottoGraphy). Management of voice disorders can range from surgical, medical to behavioral modifications. Speech-Language Pathologist is the professionals who are the professionals who are responsible for improving the quality of voice in voice-related disorders. This study aims to calculate the prevalence of voice disorder in patients visiting the voice clinic ENT-HNS department of tertiary care center.

MATERIALS AND METHODS

A retrospective study was carried out in the department of ENT-Head and Neck surgery, Tribhuvan University Teaching Hospital from September 2018 to August 2019. All the patients of age more than 15 years with voice disorder, requiring voice therapy that were referred to a special voice clinic for voice evaluation were included. Purposive sampling (total population sampling) was used among the patients with voice disorders in the study duration.

Those patients requiring surgical intervention were excluded and counseled for the primary surgical treatment approach. Patients with psychological disorders with unreliable history, poor compliance to treatment, and those without video laryngoscopy evaluation were also excluded from the study. The included patients were evaluated by the team of ENT surgeons and speech-language pathologists and assessed with in-depth history taking, clinical examination, and thorough video-laryngoscopy examination. A voice disorder in profession group is classified on the basis of voice used as Level I (Professional Elite Vocal Performer), Level II (Semi-Professional Elite Vocal Performer), Level III (Professional Voice User) and Level IV (Semi-Professional).[6]The obtained data were scrutinized and analyzed using Microsoft Excel 2019. Ethical approval was taken from Institutional Ethical Committee.

RESULTS

Altogether 296 patients participated in the study. Out of which 206 patients (69.6 %) belonged to the age group 25 to 50 years, 32 patients (12.5 %) below to age above 50 years, and 53 patients (17.9 %) belonged to the age group below 25 years (Table 1). Among the total participants, 199 (67.2 %) were female and 97 (32.8 %) were male (Table 2).

Table 1. Age distribution of the patients with voice disorder. (n=296)

		Frequency	Percent
Age(in years)	Less than 25	53	17.9
	25 to 50	206	69.6
	More than 50	37	12.5
	Total	296	100.0

Table 2. Genderdistribution of the patients with voice disorder. (n=296)

		Frequency	Percent
Gender	Female	199	67.2
	Male	97	32.8
	Total	296	100.0

Out of the total participants, there were slightly more professional voice users. Among professional voice, user maximum was in the L3 group followed by L1.(Table 3)

Table 3. Classification of voice disorder according to the profession.(n=296)

		Frequency	Percentage
Non-Professional		136	45.9%
Professional	L1 (Professional Elite Vocal Performer)	15	5.1 %
	L2 (Semi-Professional Elite Vocal Performer)	1	0.3 %
	L3 (Professional Voice User)	143	48.3 %
	L4 (Semi-Professional)	1	0.3 %
Total		296	100 %

Voice disorder due to structural causes was more evident in all the age groups but more evident in the 25 to 50 year age group. The functional cause for voice disorder was found to be the second most leading voice disorder in all the age groups but again more evident in the 25 to 50 years age group. The other causes for voice disorder were the least common in all the age groups (Table 4).

Table 4. Classification of voice disorders based on the cause in the different age group

		Voice disorders					Total
		Functional	Neurogenic	Normal	Structural	Vocal Abuse	
Age Group (in years)	Less than 25	2	1	0	50	0	53
	25 to 50	13	3	2	185	3	206
	above 50	3	1	4	29	0	37
Total		18	5	6	264	3	296

DISCUSSION

Voice is an important medium to communicate and understand others. Any complete or partial loss of voice can lead to severe functional impairment in both professional and non-professional voice users.[7] Voice is said to be normal if it capable of fulfilling the linguistic and paralinguistic function. Voice disorder results from faulty structure or function somewhere in the vocal tract: in respiration, phonation, or resonance.[8]

Normal changes in voice also occur as a function of change in age, gender, and some other factors but it can also be due to faulty use of voice.[9] Data on voice disorder suggest the prevalence of 0.65 % to 15 % in the general population.[10] Women tend to have more voice disorders compared to men. The gender difference also extends for occupational voice users and it becomes significant for females. This may be because females use their voices more due to familial circumstances. Also, the anatomic differences in the larynx and endocrinal difference along with the behavioral aspect of women to speak more can be reasons for them being more prone to a voice problem.[11]Hormonal changes can lead to a reduction of the fundamental frequency and cause hoarseness in the female voice.[12]

In this study, Voice disorder was more common in females compared to males in both professional and non-professional voice user group. The structural cause was found to be the most prevalent cause for voice disorder in both genders with a slightly higher prevalence in females compared to that of males. Zhukhovitskaya et al. found Reinke's edema more common in older women while sulcus vocalis and polyp more common in males.[13] Karki et al. found 73% female and 27 % male population in their study.[14] Similarly, Woo et al. found vocal polyp as the second most leading laryngeal pathology after vocal nodules with no significant difference in age range and gender.[15] Likewise, Parajuli R. reported vocal nodules as the major cause for change in voice quality with 31-40 years as the most affected age group.[16] Klein et al. reported a higher prevalence of structural vocal lesions in males compared to women aged between 17- 59 years.[17]Eric et al. found female professional voice users are at greater risk of developing voice disorders in comparison to males.[11]

The age group which had more voice problem was 25 to 50 years. Most of the professional career-oriented activities are also performed at this age group which leads to increase demand for vocal use leading this group as the most vulnerable group to get voice disorders. In our study, there was a female predominance in the age group which might be the reason for the other reason for more voice problems in the age group.

This indicated 45.9 % as Non- professional voice users and 54.1% as Professional voice users in our study. Due to the nature of their job, they tend to speak more and this may be the reason that the professional voice user tends to develop more voice issues than non-professional. Professional voice users tend to use more throat clearing as they perceive more laryngeal sensations like dryness, burning, and feeling of a lump in the throat.[18] Professional voice singers and actors are at greater risk of a voice problem, as they have higher endurance to manage vocal load at their work leading to inappropriate vocal habits.[19] Lack of vocal hygiene and the vocally abusive habit has been reported for developing dysphonia in professional voice users.[20]

There are few studies mentioning voice disorders in Nepal. The study gives an overview of the prevalence and gender distribution of the voice disorder of the tertiary referral center. However, the retrospective nature and small sample size is the potential limitation of our study. Evaluation of the voice using objective test would have further given extra information that is lacking in our study.

CONCLUSION

The result of the present study indicated that significant numbers of the population at risk of the vocal disorder are female with most falling in the age group of 25-50 years. Professional voice users are more prone to get vocal pathology. The structural cause for voice disorder is the major cause of voice problems in all age groups.

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