

Demographic Correlates of Hoarseness of Voice & their Etiological Factors

Dileep Kumar Khatri,^{*} Muhammad Iqbal Rao,^{*} Noor Alam Ansari^{**}

ABSTRACT

Objective: To determine the demographic correlates and their association with etiological factors for hoarseness of voice.

Study Design: Cross sectional study.

Place & Duration: Department of ENT, Muhammad Medical College, Mirpurkhas from 26th April 2013 to 25th October 2013.

Material & Methods: Total 97 patients with complaint of hoarseness of voice for more than one week were included. Temperature was noted. Indirect laryngoscopy was carried out to see the state of laryngeal mucosa for redness, congestion, vocal nodules and growth. Chi square test was applied to see the association between variables.

Results: The mean age of the patients was 41.7±11.2 years with 50.5% patients having laryngeal infection, 35.1% having laryngeal tumor and 14.4% having vocal nodule. Most of the patients belonged to 31-50 years (62 patients), among them 38 had laryngeal infection, 5 had vocal nodule and 19 had tumor of larynx. Male patients were more for the complaint of hoarseness of voice (76 patients), among them 35 had laryngeal infection, 9 had vocal cord nodule and 32 had tumor of the larynx. The road side vendors were more in the study, among them, 10 had laryngeal infection, 4 vocal nodule and 18 had tumor of larynx.

Conclusion: The etiology ranges from trivial infections to life threatening malignancy. Hoarseness should not be ignored if it persists for more than three weeks particularly in men, elderly and professionals prone to it.

Key Words: Hoarseness, Laryngeal Infection, Laryngeal Tumor, Vocal Nodule

INTRODUCTION:

Hoarseness is characterized by production of coarse scratchy sound associated with conditions causing abnormalities in vocal cords, particularly to their vibratory margins.¹ The pathophysiology of voice change is usually due to edema, stiffening or a lesion of the vocal cord(s) interfering with the mechanics of vocal cord

vibration.² Hoarseness is merely a symptom and warrants determination of underlying cause.³ On the basis of onset, it can be divided into acute and chronic.⁴ Factors causing the former may include viral infection, smoking, thyroid surgery and trauma to larynx. Later may be due varieties of reasons including vocal cord nodules, neoplasms of larynx and thyroid, laryngeal infections, and systemic diseases.⁵ Having a vocal complaint is not uncommon, especially among professional voice users.⁶ However, non-professionals also significantly contribute to the problem. Moreover, literature shows benign lesions contribute more commonly to hoarseness than malignant disorders.⁷

Voice serves as an important tool of communication in different occupations. Certain occupations have high prevalence rates, including

* Assistant Professor, Deptt. of ENT
PUMHS Nawabshah.
* Assistant Professor, Deptt. of ENT
PUMHS Nawabshah.
** Professor and Chairman, Deptt. of ENT
PUMHS Nawabshah.

Correspondence to:

Dr. Dileep Kumar Khatri

Assistant Professor, Department of ENT,
PUMHS Nawabshah-SBA

Email: pilotomnivore@hotmail.com

telemarketers (31%), aerobics instructors (44%), and teachers (58%).¹ A study done locally found that infection (32%) was the most common cause of hoarseness closely followed by tumor (20%) and tumors like conditions (19%).⁶ However, there have not been any study conducted that determines demographic correlates of hoarseness of voice and their association with the etiological factors. This study therefore, was designed to fulfil this objective.

MATERIAL & METHODS:

This cross sectional study was carried out at the Department of ENT, Muhammad Medical College, Mirpurkhas from 26th April 2013 to 25th October 2013. A total of 97 patients of both genders, aged 10 years and older, having complaint of hoarseness of voice for more than one week were included to determine the frequency of etiological factors like Infection of larynx, Vocal nodules, and Tumors of larynx. Patients who were medically not fit for general anesthesia, had history of psychological disorders, critically ill patients, and those with history of total laryngectomy and neck injuries were excluded from the study.

Approval from the ethical committee was taken before the commencement of the study. Informed consent was also obtained from all the patients after explanation of the study protocol. Body temperature of all patients was measured and recorded. After this, indirect laryngoscopy was carried out to see the state of laryngeal mucosa for redness, congestion, vocal nodules and growth. Following this, blood samples of patients were extracted to know the total leucocyte count. The variables laryngeal infection, vocal nodule and tumor of larynx were labeled as positive when the above said conditions were fulfilled.

The data was analyzed on SPSS version 17.0. The frequency & percentage was calculated for qualitative variable like gender, professions, and etiological factors. Mean±SD was computed for quantitative variables like age and duration of hoarseness. The effect modifiers and bias were controlled through stratification of age, gender, profession, and duration of hoarseness.

Chi square test was applied to see the association of etiological factors and ANOVA was used to see the significance of mean difference of duration of disease among etiological factors. P-value <0.05 was considered as significant in all analysis.

RESULTS:

Among total 97 study subjects, the mean age was 41.7±11.2 years. Mean duration of hoarseness was 11.9±3.5 months (Table-1).

Table 1: Descriptive Statistics of Age & Duration of Hoarseness

	Age (years)	Duration of Disease (weeks)
Mean±SD	41.7±11.2	11.9±3.5
Range	43	11
Minimum	18	7
Maximum	61	18

There were maximum patients (63.9%) aged 31-50 years. Males were predominant in our study population than females (78.4% v/s 21.6%) with male to female ratio of 3.63:1 Moreover, most of the patients in this study were road side vendors (33%) (Table-2).

Table 2: Frequency Distribution of Age Groups, Gender, Marital Status & Professions.

		Frequency	%
Age Groups	10-30 years	15	15.5%
	31-50 years	62	63.9%
	51-70 years	20	20.6%
Gender	Male	76	78.4%
	Female	21	21.6%
Marital Status	Married	88	90.7%
	Unmarried	9	9.3%
Professions	Teacher	25	25.8%
	Road Side Vendor	32	33.0%
	Bus Conductor	18	18.6%
	Singer	7	7.2%
	Medical Representative	5	5.2%
	Waiter	10	10.3%

The etiological factors were analyzed according to age groups, gender, marital status, professions, and hoarseness. Association of etiological factors with these variables was also observed and the results are presented in Table-3. Demographic correlates that were significantly associated with etiological factors of hoarseness of

voice included age groups ($p = 0.011$), gender ($p = 0.018$) and type of profession ($p = 0.001$) As far as duration of disease is concerned, the mean duration among the etiological factors was evaluated. The mean difference among the etiological factors was not significant with $p=0.159$ (Table-4).

Table 3. Frequency & Association of Etiological Factors with Age Groups, Gender, Marital Status & Professions.

		Infection of larynx (n=49)	Tumor of larynx (n=34)	Vocal nodule (n=14)	TOTAL	P-VALUE
Age Groups	10-30 years (n=15)	6(40.0%)	4(26.7%)	5(33.3%)	15	0.011**
	31-50 years (n=62)	38(61.3%)	19(30.6%)	5(8.1%)	62	
	51-70 years (n=20)	5(25.0%)	11(50.0%)	4(20.0%)	20	
Gender	Male (n=76)	35(46.1%)	32(42.1%)	9(11.8%)	76	0.018**
	Female (n=21)	14(66.7%)	2(9.5%)	5(23.8%)	21	
Marital Status	Married (n=88)	44(50.0%)	32(36.4%)	12(13.6%)	88	0.627
	Ummarried (n=9)	5(55.6%)	2(22.2%)	2(22.2%)	9	
Professions	Teacher (n=25)	19(76.0%)	1(4.0%)	5(20.0%)	25	0.0001*
	Road Side Vendor (n=32)	10(31.3%)	18(56.3%)	4(12.5%)	32	
	Bus Conductor (n=18)	5(27.8%)	11(61.1%)	2(11.1%)	18	
	Singer (n=7)	5(71.4%)	0(0%)	2(28.6%)	7	
	Medical Rep: (n=5)	2(40.0%)	3(60.0%)	0(0%)	5	
	Waiter (n=10)	8(80.0%)	1(10.0%)	1(10.0%)	10	

* Significant at 0.01 levels **Significant at 0.05 levels

DISCUSSION:

Hoarseness is vague term that patient often uses to describe a change in quality of voice ranging from voice harshness to voice weakness.⁸⁻¹⁰ It has been more common in men than women. In our study, males were predominant than females (78.4% v/s 21.6%) with male to female ratio of 3.63:1. This finding was supported by the studies of Baitha et al, Deshmukh, Parikh, Mehta with 2:1, 1.5:1, 2:1 and 1.8:1 respectively.¹¹⁻¹⁴ According to Harrington-Hall et al.,¹⁵ laryngeal pathologies are more common in older age groups because of the vocal dysfunction in elderly which in most of the cases, is caused either by vocal fold paralysis or carcinomas. In this study, we had a majority of patients aged 31-50 years (63.9%) followed by 51-70 years (20.6%) and least likely, 10-30 years (15.5%). This finding coincides with the results of Baitha et al and Banjara H et al who had a majority of patients aged 31-40 years in their studies.^{11,16} With reference to profession, road side vendors (33%) and teachers (25.8%) contributed to the most of population in our study. Only 7.2% of the patients in this study were singers. Banjara H et al.,¹⁶ had similar findings as ours with 4% vocal professionals and 85.5% non-professionals. In two local studies, the different professions were evaluated in which vocal abuse leading to vocal cord nodules such as teachers, singers, drill instructors or young boys memorizing Quran etc. accounts 12.5 and 17.7%.¹⁷⁻¹⁹ In our study, 14.43% patients had vocal cord nodules which is consistent with the findings of Pandey et al.²⁰

Laryngeal infection topped the list of etiological factors (50.5%) causing hoarseness of voice. Among acute infections, acute viral laryngitis was the commonest cause of hoarseness whereas chronic non-specific laryngitis was the commonest chronic infectious cause. The incidence of nonspecific laryngitis in a study conducted by Aslam M was 18%.²¹ The incidence of laryngeal tuberculosis in the study of Iqbal K et al was 47%.²² In the category of trauma the blunt neck trauma was the first important cause of hoarseness the neck trauma was caused by road traffic accidents, strangulation, assault and fall. The incidence of hoarseness due to blunt neck

trauma in a study was 44.44%.²³ Among the neoplastic causes majority of cases were malignant due to squamous cell carcinoma of larynx, lung and nasopharynx. The contribution of carcinoma of larynx was 35% in contrast to the study of Aslam M in which it was 69%.²¹ Hoarseness of voice is prevalent in Asian and other developing countries where smoking and tobacco consumption is very common, with other contributing factors like low socioeconomic and poor nutritional status, unhealthy environment and poor hygiene.

CONCLUSION:

The etiology ranges from trivial infections to life threatening malignancies. Hoarseness should not be ignored if it persists for more than three weeks and does not respond to conventional therapy particularly in men, elderly and professionals prone to it.

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