Original Article

Personal Habit and Carcinoma of Larynx, Hypopharynx among Bangladeshi lower socio-economic group of people: An Observational Study

*Md. Shaikhul Islam,[1] Md. Monwar Hossain[2], Sharfuddin Mahmud[3], Farjana Akther[4], Md. Jahirul Haque[5], Muhammad Ataur Rahman[6], Md. Mahbubur Rahman Shaheen[7], Rahat Bin Habib[8]

Abstract

Background: Personal habits like, tobacco consumption through smoking and oral intake is one of the most important risk factor of laryngeal and hypopharyngeal cancers among the low socioeconomic group of people. Developing countries like ours face arduous challenge to provide adequate treatment facilities from its poor resource settings to these patients. Constant evaluation of theses cancer patients in regard to their exposure to the hazardous personal habits can portray the current situation, thus can find out the scopes of implementation of necessary control measures and awareness build up actions.

Objective: The present study observed tobacco consumption and other personal habits in patients with laryngeal or hypopharyngeal cancers.
Methods: This is an descriptive type of cross sectional study, where 100 patients with laryngeal or hypopharyngeal cancers have been assessed, from two of the tertiary care hospital in Dhaka division, during the period of 2018 to 2021. Face to face interview was performed and medical records have been checked to collect data.

Result: In the present study, 65 patients were suffering from carcinoma of larynx and 35 patients were suffering from carcinoma of hypopharynx. Carcinoma in the supra-glottic region was evident in 53.0% cases, glottic and subglottic carcinoma were 11.0% and 1.0% respectively. Carcinoma in the pyriform fossa was 29.0% and post-cricoid carcinoma was 6.0%. With the age range of 35 to 75 years, laryngeal carcinoma was highest observed in the age group of 46 to 55 years (26 out of 65 cases) and hypopharyngeal carcinoma was highest observed in the age group of 35 to 45 years (11 out of 35 cases). In 83.0% cases, the respondents were illiterate and in 80.0% cases they were residents of rural area. More than half of the respondents were farmers (57.0%). The monthly income range of the respondents was 2000-12000 BDT and 50.0% of the respondents belonged from the lower quartile of this income range. Among the patients, 99 of them were tobacco consumers where, 93 of them were smokers and 38 of them were oral tobacco leaf consumers; 33 patients recorded to be consumers of tobacco leaf along with smoking.

Conclusion: With this high prevalence of smoking among the laryngeal and hypopharyngeal cancer patients, it can be estimated that, the lower socio economic group of people are at high risk of cancer in the oral region which can increase the overall cancer related morbidity and mortality in our country. Thus, findings from this study urges for strict control and monitoring measures on availability of tobacco products, as well as, necessitates awareness build up actions regarding the harmful health effects of tobacco among the lower socioeconomic group of people.

Keywords: Laryngeal cancer, Hypopharyngeal cancer, Personal habits, Tobacco, Smoking

1. *Assistant Professor, Department of Otolaryngology, Dhaka Medical College Hospital (DMC); Dhaka
2. Professor & Head of Department, Department of Otolaryngology, BIRDEM Medical College Hospital;
3. MS (3rd part Student), Department of Otolaryngology, Dhaka Medical College Hospital; Dhaka
4. Assistant Professor (Radiology & Imaging), National Institute of Mental Health & Hopital, Dhaka
5. Associate Professor (Medicine), Saheed Sayed Nazrul Islam Medical College, Kishoreganj
6. Assistant Professor (Medicine), Saheed Sayed Nazrul Islam Medical College, Kishoreganj
7. Asisstent Professor (Ophthelmology), President Abdul Hamid Medical College Hospital, Kishoreganj.
8. Assistant Professor (Pediatrics), Saheed Sayed Nazrul Islam Medical College, Kishoreganj, Bangladesh

Correspondence: Md. Shaikhul Islam, Assistant Professor, Department of Otolaryngology, Dhaka Medical College Hospital (DMC); Dhaka
Received Date : 10 September, 2022
Accepted Date : 20 October, 2022

Introduction

The carcinogenic effect of tobacco has been introduced no longer than 60 to 70 years, while for centuries, tobacco had been consumed through variable means.[1] Personal habits like tobacco consumption through smoking or taking tobacco leaves, chewing betel nuts, drinking alcohol are important risk factors of head and neck cancers inclusive of laryngeal and hypopharyngeal cancers.[2-7] Tobacco consumers remains at 10 times higher risk of developing cancer in the head and neck region comparing to the non-consumers.[8] Among the head and neck cancers, laryngeal cancer attributes to be the second most common head and neck cancer, the annual global incidence of which is 2.76/100,000 and the mortality rate is 1.66/100,000.[9] However, hypopharyngeal cancers are rear type of head and neck cancer, but

they are associated with worse prognosis compared to cancers from any other sites in the head and neck region.[10] It occurs with a yearly global incidence rate of 0.4% of all new cancers and 0.4% of all cancer-related mortality.[10] Overall, the annual global incidence of hypopharyngeal cancer is 0.8/100,000.[11] Tobacco consumption, mainly through smoking, is still an upward trend in low socioeconomic countries despite of the widespread knowledge of it's precarious health effects.[12] Bangladesh is one of the top ten countries in the world with high tobacco use, where 35.3% people aged above 15 years are currently actively consuming tobacco.[13,14] The 5 year prevalence of laryngeal carcinoma in Bangladesh is 6.96/100,000 and hypopharyngeal carcinoma is 5.79/100,000.[15] Carcinoma in the head and neck region are mostly diagnosed at advanced stages, when treatment outcomes are not always assertive and surgical ablation often requires expurgation of functional characteristics of the involved organs as well as surrounding tissues.[16] Thus, prevention through risk factors modification is mandatory. On this ground, the present study summarized the findings of the history of tobacco consumption and other personal habits in patients with laryngeal or hypopharyngeal cancer.

Methodology

Subject and methods: This was a descriptive type of cross sectional study, conducted in the ENT department of two of the government facilitated tertiary care hospitals from two divisions of Bangladesh, during the period of 2018 to 2021. A total 100 histo-pathologically diagnosed cases of carcinoma larynx or carcinoma hypopharynx, who were admitted in the hospital for treatment purpose and who met the selection criteria of the study, were recruited.

Data collection and analysis: Data regarding demographic information and medical history, clinical examination, laboratory investigation, radiography, endoscopy and histopathological examination were evaluated by face to face interview and checking medical records and documented in a preformed semi-structured questionnaire. The collected data has been analyzed with IBM SPSS (statistical package for social science) software, version 22. Findings have been summarized using tabulations and diagrams.

Ethical consideration: Prior to the commencement of the study, ethical approval was obtained from the concerning ethical review board. Patients have been explained about the aims and objectives of the study, assured about the confidentiality of the information and preservation all of their rights and then, informed written consent was availed from them.

Result

In the present study, among the 100 cancer patients, 65 cases were carcinoma of larynx and 35 cases were carcinoma of hypopharynx. In majority of the cases, the site of carcinoma was in the supra-glottic region (53.0%). Glottic and subglottic carcinoma were 11.0% and 1.0% respectively. Carcinoma in the pyriform fossa was in 29.0% cases and 6.0% cases was post-cricoid carcinoma (Figure I).

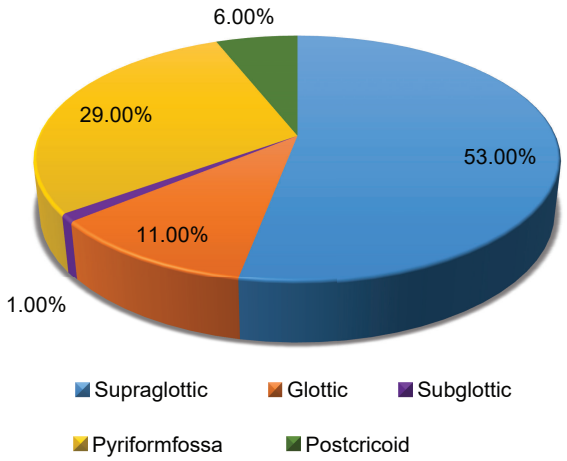

Figure 1: Distribution of the location of the carcinoma

In 97.0% cases the affected patient was male. There were 3 cases of female patients among whom, all had malignancy in the hypopharynx site. The age range of the respondents in this study was 35 to 75 years, among whom the age group of 46 to 55 years was comprised of the highest number of cases. It has been observed that, the age group of 46 to 55 years had most of the of laryngeal carcinoma (26 out of 65 cases), while in case of hypopharyngeal carcinoma, the age group of 35 to 45 years (11 out of 35 cases) and 46 to 55 years (9 out of 35 cases) was the most affected age group. Supra-glottic carcinoma was most prevalent in 46 to 55 years of age group (43.40%), glottic and subglottic carcinoma was most prevalent in 76 to 85 years age (41.67%), carcinoma of pyriform fossa was most prevalent in 36 to 45 years age (27.59%) and post-cricoid carcinomas also most prevalent in 36 to 45 years of age group (50.00%). In 83.0% cases, the respondents were illiterate and in 80.0% cases they were residents of rural area. More than half of the respondents were farmers (57.0%). Economic status of the respondents showed that, the range of monthly income of the respondents was 2000 to 12000 BDT, and based on income, 50.0% of the respondents belonged from the lower quartile, 40.0% belong from the middle quartile and 10.0% belong from the upper quartile (Table I).

Table I: Demographic characteristics and location of the carcinoma among the study participants (N=100)

	Larynx (N1=65)		Hypopharynx (N2=35)		
	Supra-glottic (n1=53)	Glottic and subglottic (n2=12)	Pyriform fossa (n3=29)	Post-cricoid (n4=6)	Total (N=100)
Gender					
Male	53 (100.00%)	12 (100.00%)	27 (93.10%)	5 (83.33%)	97
Female	0 (0.00%)	0 (0.00%)	2 (6.90%)	1 (16.67%)	3
Age					
36 to 45 years	4 (7.55%)	1 (8.33%)	8 (27.59%)	3 (50.00%)	16
46 to 55 years	23 (43.40%)	3 (25.00%)	7 (24.14%)	2 (33.33%)	35
56 to 65 years	12 (22.64%)	3 (25.00%)	7 (24.14%)	1 (16.67%)	23
66 to 75 years	9 (16.98%)	5 (41.67%)	7 (24.14%)	0 (0.00%)	21
76 to 85 years	5 (9.43%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	5
Education					
Illiterate	42 (79.25%)	10 (83.33%)	25 (86.21%)	6 (100.00%)	83
Primary level	3 (5.66%)	2 (16.67%)	2 (6.90%)	0 (0.00%)	7
Secondary or above	8(15.09%)	0 (0.00%)	2 (6.90%)	0 (0.00%)	10
Location					
Rural	52 (80.0%)	28 (80.0%)	80		
Urban	13 (20.0%)	7 (20.0%)	20		
Occupation					
Farmer	29 (54.72%)	9 (75.00%)	17 (58.62%)	2 (33.33%)	57
Business man	6 (11.32%)	1 (8.33%)	2 (6.90%)	0 (0.00%)	9
Rickshaw puller	2 (3.77%)	0 (0.00%)	1 (3.45%)	2 (3.33%)	5
Day laborer	3 (5.66%)	0 (0.00%)	2 (6.90%)	1 (16.67%)	6
Clerical job	2 (3.77%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2
Hawker	2 (3.77%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2
Other	9 (16.98%)	2 (16.67%)	5 (17.24%)	0 (0.00%)	16
Unemployed	0 (0.00%)	0 (0.00%)	2 (6.90%)	1 (16.67%)	3
Economic status					
Lower quartile	26 (49.06%)	3 (25.00%)	17 (58.62%)	4 (66.67%)	50
Middle quartile	22 (41.51%)	7 (58.33%)	11 (37.93%)	0 (0.00%)	40
Upper quartile	7 (13.21%)	0 (0.00%)	2 (6.90%)	1 (16.67%)	10

The carcinoma of the supra-glottic region showed that, majority of the patients were smokers (62.26%); 41.51% of them used to take tobacco leaf along with smoking and 3.77% of them had the habit of consuming tobacco leaf alone. The carcinoma of the glottis and subglottic region showed that, majority of the patients were smokers (58.34%); 31.03% of them used to take tobacco leaf along with smoking and 8.33% of them had the habit of consuming tobacco leaf alone. The carcinoma of pyriform fossa showed that, 62.07% patients were smokers, 31.03% patients were both smokers and tobacco leaf consumers, 3.45% patients were only tobacco leaf consumers, 3.45% patients had habit of snuff diffing along with consuming tobacco leaf and in 3.45% cases there was no history of such habits. The carcinoma of post-cricoid region showed that, 33.33% of the patients were smokers, 33.33% of the patients were consumers of tobacco leaf along with smoking and 16.67% of them had the habit of taking tobacco leaf only (Table II).

Table II: Personal habits among the study participants (N=100)

	Larynx (N1=65)		Hypopharynx (N2=35)		Total (N=100)
	Supra-glottic (n1=53)	Glottic and subglottic (n2=12)	Pyriform fossa (n3=29)	Post-cricoid (n4=6)	
TL	2 (3.77%)	1 (8.33%)	1 (3.45%)	1 (16.67%)	5
TS	33 (62.26%)	7 (58.34%)	18 (62.07%)	2 (33.33%)	60
TS & TL	22 (41.51%)	4 (33.33%)	9 (31.03%)	2 (33.33%)	33
TL & SD	0 (0.00%)	0 (0.00%)	1 (3.45%)	0 (0.00%)	1
NH	0 (0.00%)	0 (0.00%)	1 (3.45%)	0 (0.00%)	1

TL denotes tobacco leaf

TS denotes tobacco smoking

SD denotes snuff diffing

NH denotes no habit

Discussion

This study represents the low socio-economic group of patients with laryngeal and hyppopharyngeal carcinoma in Bangladesh. The remarkably alarming finding from the present study is that, among the 100 patients with cancer in the larynx and hypopharynx, 99 of them were tobacco consumers where 93.0% of them were smokers and 38.0% of them were oral tobacco leaf consumers. In one other national study, similar rate of tobacco consumption among carcinoma of larynx patients had been observed; they showed that, tobacco consumption through smoking was prevalent in 87.7% cases and tobacco consumption through chewing tobacco leaf was prevalent in 57.1% of the patients.[17] Study findings also directs toward the similar fact that, the smoking habit is more common among the lower socio economic group of people.[18,19] Moreover, research findings have recognized smoking to be the most significant risk factor of laryngeal cancer.[5,6,20,21] In this study, it has been observed that, there was 65 cases of carcinoma of larynx, where in 53 cases, the site of carcinoma was in the supra-glottic region; Glottic and subglottic carcinoma were 11.0% and 1.0% respectively. Among the 35 cases of carcinoma of hypopharynx, in 29 cases, the site of carcinoma was pyriform fossa and in 6 cases the site of carcinoma was post-cricoid region. According to the American Cancer Society, estimated 60.0% of laryngeal malignances start in the glottis and about 35.0% initiates in the supra-glottis; while subglottic carcinoma is rare.[22,23] In case of hypophayryngeal cancer, approximately 70.0% of the lesions originate in the pyriform sinus and around 5.0% in the post-cricoid region.[24,25] National and international studies showed that, laryngeal and hypopharyngeal cancer patients predominantly comes to clinical attention on their fifth to seventh decades of life with the most common age being the sixth decade, this study findings are at accordance with that.[23,26,27] Respondents of this study was mainly rural inhabitants (80.0%) and farming found to be the way of living for majority of them (57.0%). With the monthly income range of 2000 to 12000, this study represents the low-socioeconomic group of patients to be the sufferer of laryngeal and hypopharyngeal carcinoma come for treatment in the government tertiary care hospital, which was similar to the findings of the study by Hossain et al.[17]

Conclusion

Majority of the respondents of this study represents the low socio-economic group of rural people with no formal education, among whom tobacco consumption is alarmingly high. With the continuity of this trend of tobacco consumption the prevalence of laryngeal and hypopharyngeal cancers can increase which mandates for immediate strict controlling measures.

References

1. Argiris A, Karamouzis MV, Raben D, Ferris RL. Head and neck cancer. The Lancet. 2008 May;371(9625): 1695–709.

2. Almeida AÁ de, Bandeira CM, Gonçalves AJ, Araújo AJ. Nicotine dependence and smoking habits in patients with head and neck cancer. J Bras Pneumol. 2014 Jun;40(3):286–93.

3. Boçi B, Çuko A, Boçi B, Çuko A. Laryngeal cancer, risk factors, symptoms and treatment. Archives of Otolaryngology and Rhinology. 2020 Apr 23;6(1):021–8.

4. Jurkiewicz D, Dzaman K, Rapiejko P. [Laryngeal cancer risk factors]. Pol Merkur Lekarski. 2006 Jul;21(121):94–8.

5. Saffiotti U, Kaufman DG. Carcinogenesis of laryngeal carcinoma. Laryngoscope. 1975 Mar;85(3):454–67.

6. Sanders O, Pathak S. Hypopharyngeal Cancer. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 [cited 2022 Mar 14]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK567720/

7. Sasco AJ, Secretan MB, Straif K. Tobacco smoking and cancer: a brief review of recent epidemiological evidence. Lung Cancer. 2004 Aug;45 Suppl 2:S3-9.

8. Jethwa AR, Khariwala SS. Tobacco-related carcinogenesis in head and neck cancer. Cancer Metastasis Rev. 2017 Sep;36(3):411–23.

9. Nocini R, Molteni G, Mattiuzzi C, Lippi G, Section of Ear Nose and Throat (ENT), Department of Surgical Sciences, Dentistry, Gynecology and Pediatrics, University of Verona, Verona 37134, Italy, Service of Clinical Governance, Provincial Agency for Social and Sanitary Services, Trento 38123, Italy, et al. Updates on larynx cancer epidemiology. Chinese Journal of Cancer Research. 2020;32(1):18–25.

10. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018 Nov;68(6):394–424.

11. Shield KD, Ferlay J, Jemal A, Sankaranarayanan R, Chaturvedi AK, Bray F, et al. The global incidence of lip, oral cavity, and pharyngeal cancers by subsite in 2012. CA Cancer J Clin. 2017 Jan;67(1):51–64.

12. Ramsey T, Guo E, Svider PF, Lin H, Syeda S, Raza SN, et al. Laryngeal cancer: Global socioeconomic trends in disease burden and smoking habits. Laryngoscope. 2018 Sep;128(9):2039–53.

13. WHO. Global adult tobacco survey (GATS): Bangladesh [Internet]. 2009 [cited 2022 Mar 17]. Available from: https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/global-adult-tobacco-survey

14. Bangladesh Bureau of Statistics and National Tobacco Control Cell. Global Adult Tobacco Survey Bangladesh Report 2017. Dhaka. Bangladesh Bureau of Statistics and National Tobacco Control Cell,; 2019.

15. Cancer today [Internet]. 2021 [cited 2022 Mar 15]. Available from: http://gco.iarc.fr/today/home

16. Hashim D, Genden E, Posner M, Hashibe M, Boffetta P. Head and neck cancer prevention: from primary prevention to impact of clinicians on reducing burden. Ann Oncol. 2019 May 1;30(5):744–56.

17. Hossain MA, Ali MI, Rahman M, Huque SN, Alam MM, Islam MA, et al. Study on topographical distribution of carcinoma larynx. Bangladesh Journal of Otorhinolaryngology. 2011;17(2):96.

18. Hitchman SC, Fong GT, Zanna MP, Thrasher JF, Chung-Hall J, Siahpush M. Socioeconomic Status and Smokers' Number of Smoking Friends: Findings from the International Tobacco Control (ITC) Four Country Survey. Drug Alcohol Depend. 2014 Oct 1;143:158–66.

19. Garrett BE. Socioeconomic Differences in Cigarette Smoking Among Sociodemographic Groups. Prev Chronic Dis [Internet]. 2019 [cited 2022 Mar 21];16. Available from: https://www.cdc.gov/pcd/issues/2019/18_0553.htm

20. Pavlovska I, Taushanova B, Zafirova B. Risk for Occurrence of Laryngeal Cancer Among Current Cigarette Smokers. JGO. 2018 Oct;4(Supplement 2):13s–13s.

21. Lee Y-CA, Marron M, Benhamou S, Bouchardy C, Ahrens W, Pohlabeln H, et al. Active and involuntary tobacco smoking and upper aerodigestive tract cancer risks in a multicenter case-control study. Cancer Epidemiol Biomarkers Prev. 2009 Dec;18(12):3353–61.

22. Tobacco and Cancer | American Cancer Society [Internet]. [cited 2022 Mar 15]. Available from: https://www.cancer.org/cancer/cancer-causes/tobacco-and-cancer.html

23. The American Cancer Society. Throat Cancer Statistics | Cases of Throat Cancer Per Year [Internet]. 2022 [cited 2022 Mar 14]. Available from: https://www.cancer.org/cancer/laryngeal-and-hypopharyngeal-cancer/about/key-statistics.html

24. Krstevska V. Early stage squamous cell carcinoma of the pyriform sinus: a review of treatment options. Indian J Cancer. 2012 Jun;49(2):236–44.

25. Pignon JP, Bourhis J, Domenge C, Designé L. Chemotherapy added to locoregional treatment for head and neck squamous-cell carcinoma: three meta-analyses of updated individual data. MACH-NC Collaborative Group. Meta-Analysis of Chemotherapy on Head and Neck Cancer. Lancet. 2000 Mar 18;355(9208):949–55.

26. Aich M, Joarder MAH, Datta PG, Alauddin M. Hypopharyngeal carcinoma: a clinical study. Bangladesh Journal of Otorhinolaryngology. 2008;14(1):23–9.

27. Snow JB, Wackym PA, Ballenger JJ, ProQuest (Firm). Ballenger's otorhinolaryngology head and neck surgery. Shelton, CT; Hamilton, Ont.; London: People's Medical Publishing House/B C Decker; 2009.