Research Article | **Open Access**

Assessment of Head and Neck Cancer Patient's Co-Morbidity in Accordance to the International Classification of Functioning, Disability and Health

Zareena Z. Jangda[1*], Afsheen Maqsood[2], and Kehkishan Azam[3]

[1]Department of Dentistry, Civil hospital, University Road, Karachi, Pakistan
[2]Department of Dentistry, Jinnah Postgraduate Medical Centre, Karachi, Pakistan
[3]Department of Dentistry, Kiran Hospital, Karachi, Pakistan

Abstract

Background: Head and neck cancers are the most common cancers in developing countries, especially in South Asia. The international classification of functioning, disability and health core set for head and neck cancers (ICF-HNC) covers the typical array of problems in functioning, in patients suffering from head and neck cancer.

Objectives: To assess the head and neck cancer patient's co-morbidity using the ICF-HNC as a reference.

Methods: Cross sectional multi-centric study at three different hospitals in Karachi, Pakistan. Data collection included structured question and answer sessions that were carried out by a single researcher, according to the ICF-HNC checklist.

Results: Of the 325 patients, 258 (about 80%) experienced complete problems related to mouth function. The study also demonstrated significant number of patients (187) who had problems related to activity and social functioning. Conclusion: The ICF comprehensively address and structures head and neck cancer patient's problems. Societal and kindred support may well be purposely incorporated in rehabilitation plan of HNC sufferers.

Introduction

The head and neck cancers form the sixth most common cancer, globally [1-4]. Oral cancer has an impact on approximately 14.1 million people, making it one of the most pervasive cancers in the world [5,6]. The disease burden for oral cancer is much higher in South Asian countries when compared with developed countries [7,8]. Oral cancers are predominant forms of head and neck squamous cell cancer (HNSCC) in India, Pakistan, and other Southeast Asian countries; oropharyngeal and tongue cancers are common in the Western world [9,10]. The prevalence of oral cancer is increasing each year making it the most common in males and second most common cancer in females with a cumulative increase of 13,000 cases per year in Pakistan [11]. HNC form 21% of the cancers in males and 11% in females in Pakistan [12].

Head and neck cancers patients endure a vast array of disorders in body functions, for example, breathing and speaking, activity restrictions, like issues in communicating as well as limitations in their partaking in social life, for instance trouble getting back to work and living in the society. These patients often become unemployed as a result of their disease process, which adds financial burden to their already stressful lives.

In the past few years, the awareness and interest in the effect of cancer treatment on functioning of patients with head and neck cancer is growing. The assessment of functioning is multi-dimensional. In 2001, the world health organization (WHO) approved the International Classification of Functioning, Disability and Health (ICF). The ICF provides an internationally recognized nomenclature to classify disability and function related to biological, psychological and social viewpoint [13,14]. The international classification of Functioning, Disability and Health Core Set for Head and Neck Cancers (ICF-HNC)

covers the typical spectrum of problems in head and neck cancer. The purpose of this study is to assess the head and neck cancer patient's co-morbidity using the ICF-HNC as guidance.

Methodology

All the data for our research was collected by a conducting a cross sectional, multi-centric study at three different study centers in Karachi, Pakistan. The three sites included the Civil Hospital, Jinnah Postgraduate Medical Centre and Kiran Hospital. Study duration was three months; from January-March (2016). The sample size is 325 which is calculated by openepi.com.

It was a human based study and the data collection included structured interviews carried by a single researcher keeping the extended ICF checklist as a guideline. The ICF head and neck checklist has a scale from 1 to 5 categorizing 1 as not impaired to 5 as completely impaired functioning.

Respondents' inclusion criteria included patients with head and neck cancer who, from the time of diagnosis and any time thereafter, free from severe unstable psychiatric and/or mental conditions such as suicidal ideation, acute psychosis, or dementia. Exclusion criteria for

this study included pregnant patients. And people who had cancers other than head and neck region.

SPSS version 16 was used for statistical analysis. Chi square fitness of good test was applied.

Ethics Consideration

Prior to the start of this research, approval was taken from the concerned authorities of the Civil Hospital, Jinnah Postgraduate Medical Centre and Kiran Hospital, Karachi, Pakistan. Before beginning with the collection of the data, all participants of this study were given a brief summary about the outlook of this research. An informed written consent was taken from the participants. They were also provided with assurance of discretion of their personal data as well as their shared information.

Results

Total 325 patients having head and neck cancer were included in this study, the frequencies and the valid percentages were calculated as descriptive statistics for all the questions (Tables 1 and 2). On the other hand we cumulated questions into categories and generated new overall variables. For the first eight questions that included questions regarding problem in biting, chewing, moving food around the mouth, saliva, swallowing, sucking, taste and mouth function a new variable overall mouth function was created. And same was done for the remaining questions. Overall voice function variable was customized for the next three questions. From questions twelve to twenty five overall structure of the mouth variable was created. Then modes were calculated for new generated variables maximum and minimum mode. Maximum mode was selected. The remaining statistical analysis was executed on calculated mode. Next we calculated their frequencies for the new variables and applied Chi square fitness of goodness test. The P value was set at less than 0.01 as statistically significant (Table 3).

Most of the head and neck patients around 80% (258) experienced complete problem and 14 patients were living with mild trouble related to mouth function with a p-value of < 0.01 regarding voice function 229 patient felt severe problem p-value < 0.01. When the patients were asked about their overall structure of mouth, 239 out of 325 participants have complete problem regarding this. For the questions concerning the activity and social functioning, 187 felt severe problem, 50 with complete problem and 52 with moderate problem with a p-value < 0.01.

When these participants were asked about that living environment have either helped or hindered their progress, 43.3% experienced hindrance from family, but the health professionals have helped 83.4% of them. When they were enquired about food and diet 31.1% answered that diet have helped in their health progression. All of the participants responded that the medicine that were prescribed to them were very effective and they have helped them in improving their quality of life and health status.

Discussion

The International Classification of Functioning, Disability and Health designate human functioning in all characteristics including psychological and biosocial aspects of life [15]. The use of the ICF provides us the benefit of a thorough and inclusive evaluation of functioning and disability in patients with head and neck cancer. It acts as a reference framework which proves essential when communicating between health professionals and patients [16,17].

For the study, information was collected by asking the questions

Questions	None	Mild	Moderate	Severe	Complete
Biting			3 (0.9%)	50 (15.4%)	272 (83.7%)
Chewing			53 (16.3%)		272 (83.7%)
Moving Food	14 (4.3%)		19 (5.8%)	50 (15.4%)	242 (74.5%)
Saliva	29 (8.9%)		245 (75.4%)	1 (0.3)	50 (15.4%)
Swallowing	64 (19.7%)	1 (0.3%)	40 (12.3%)	186 (57.2%)	34 (10.5%)
Sucking	64 (19.7%)	24 (7.4%)	62 (19.1%)	153 (47.1%)	22 (6.8%)
Taste	23 (7.1%)	164 (50.5%)	15 (4.6%)	16 (4.9%)	107 (32.9%)
overall MF		1 (0.3%)	297 (91.4%)		27 (8.3%)
Producing Sound	201 (61.8%)	32 (9.8%)	26 (8.0%)	22 (6.8%)	44 (13.5%)
Quality of Sound	64 (19.7%)	2 (0.6%)	194 (59.7%)	22 (6.8%)	43 (13.2%)
Voice Function	257 (79.1%)	1 (0.3%)	2 (0.6%)	22 (6.8%)	43 (13.2%)
Emotional Function	22 (6.8%)	38 (11.7%)	2 (0.6%)	186 (57.2%)	77 (23.7%)
Energy	22 (6.8%)	38 (11.7%)	153 (47.1%)		112 (34.5%)
Breathing	51 (15.7%)	50 (15.4%)	194 (59.7%)	17 (5.2%)	13 (4%)
Teeth	14 (4.3%)	51 (15.7%)	47 (14.5%)	213 (65.5%)	
Lips	14 (4.3%)	244 (75.1%)	51 (15.7%)	16 (4.9%)	
Tongue	30 (9.2%)	50 (15.4%)	72 (22.2%)	172 (52.9%)	1 (0.3%)
Roof of Mouth		50 (15.4%)	30 (9.2%)	209 (64.3%)	
Parts of Mouth	14 (4.3%)	82 (25.2%)	53 (16.3%)	175 (53.8%)	1 (0.3%)
St of mouth overall		14 (4.3%)	283 (87.1%)		28 (8.6%)
Throat	14 (4.3%)		67 (20.6%)	22 (6.8%)	222 (68.3%)
Voice Box	14 (4.3%)		50 (15.4%)	22 (6.8%)	239 (73.5%)
Head and Neck	152 (46.8%)	1 (0.3%)	89 (27.4%)	50 (15.4%)	33 (10.2%)
Shoulder	58 (17.8%)	82 (25.2%)	81 (24.9%)	51 (15.7%)	53 (16.3%)987
Pain	168 (51.7%)	94 (28.9%)		1 (0.3%)	62 (19.1%)
Speaking	80 (24.6%)	3 (0.9%)		208 (64%)	34 (10.5%)
Drinking	79 (24.3%)	4 (1.2%)	12 (3.7%)	213 (65.5%)	17 (5.2%)
Eating	2 (0.6%)	15 (4.6%)	50 (15.4%)	52 (16%)	206 (63.4%)
Daily Routine	22 (6.8%)	3 (0.9%)	243 (74.8%)		57 (17.5%)
Financial	8 (2.5%)	22 (6.8%)	179 (55.1%)	1 (0.3%)	115 (35.4%)
Family	232 (71.4%)		24 (7.4%)		69 (21.2%)
Intimate	250 (76.9%)		24 (7.4%)	50 (15.4%)	1 (0.3%)

Table 1: Descriptive statistics (I).

from patients and the health professional filling the questionnaire. In some other studies, the survey was based upon the response of physicians, physiotherapists, psychologists, and social workers dealing with head and neck cancer patients [18]. While our survey was solely

Questions	Hindrance	Help	Neither
Family (help/hindrance)	144 (44.3%)	120 (36.9%)	61 (18.8%)
Professionals (help/hindrance)		271 (83.4%)	54 (16.6%)
Diet (help/hindrance)		101 (31.1%)	174 (53.5%)
Medicines (help/hindrance)		325 (100%)	

Table 2: Descriptive statistics (II).

Overall function	None	Mild	Moderate	Severe	Complete	p-value
Mouth function	14 (4.3%)		3 (0.9%)	50 (15.4%)	258 (79.4%)	< 0.001**
Voice function	14 (4.3%)	51 (15.7%)	4 (1.2%)	229 (70.5%)	27 (8.3%)	< 0.001**
Structure of Mouth	14 (4.3%)			72 (22.2%)	239 (73.5%)	< 0.001**
Activity and Social functioning	36 (11.1%)		52 (16%)	187 (57.5%)	50 (15.4)	< 0.001**

Table 3: Frequency distribution by Chi Square fitness of goodness test.

based upon the response of patients.

In our study, the main areas of limitation in mouth functioning were related to biting (83.7%), chewing (83.7%), moving food around the mouth (74.5%). For the component of voice function (13.2%), majority of people had no major issues. The emotional function (23.7%) was affected in some of the patients. When considering the structure of mouth, the major parts affected were the throat (68.3%) and voice box (73.5%). Lastly looking at the aspect of activity and social functioning, the main complaint was about the issues in eating (63.4%).

Considering some other studies, it was mentioned that the patients were facing problem that were related to voice production, food intake and experiencing intense pain. When section of body functioning was considered the cancer survivors were confronting problem in speaking and socializing. Whereas, in social parameters eating and drinking were the main restrictions they were facing [19].

Furthermore, another significant and relevant area about which the patients were questioned about was whether their family, health professionals, diet and medicines were a help, hindrance or neither. Surprisingly for most of the patients, family support was not a feature and they considered them as a hindrance (44.3%), as a help (36.9%) and (18.8%) considered them to be neither a help nor a hindrance. As far as health professionals are considered, (83.4%) agreed that they were a help. Accessing the component of Diet, (53.5%) considered it to play no role while (31.1%) thought it helped. Lastly (100%) participants thought that the medicines were a help throughout.

The Comprehensive ICF-HNC defines; the most relevant aspects in the interdisciplinary upkeep of head and neck cancer patients. An exemption are the personal factors, which are not a part of the ICF classification so far, hence not in the ICF-HNC. Even though they are significantly important for practitioners [20]. Nevertheless, The ICF core sets help to comprehensively address and structure patients' problems. This may be substantially useful during medical training but may also be of prime value in the hands of experienced clinicians, since physicians may underestimate patients' functional problems [21].

Significant consideration should be given to prevention of head and neck cancer, by spreading awareness and educating the general public about the risk factors especially tobacco in any form (smoke or smokeless form). Early diagnosis or identification of pre-malignant lesions would also help in limiting the disease occurrence and its complications.

Conclusion

The international classification of functioning, disability and health chiefly identifies the problems which a head and cancer patient is going in their life span, first and foremost. The importance of family and social support is particularly highlighted in the results. It is principally suggested that a keen interpersonal interest from the fellow members of patients should be given an immense consideration in rehabilitation of HNC.

Competing Interests

The authors declare that they have no competing interests.

References

1. Parkin DM, Stjernsward J, Muir CS (1984) Estimates of the worldwide frequency of twelve major cancers. Bull World Health Organ 62: 163-82.

2. Vigneswaran N, Williams MD (2014) Epidemiologic trends in head and neck cancer and aids in diagnosis. Oral Maxillofac Surg Clin North Am 26: 123-141.

3. Leethanakul C, Patel V, Gillespie J, Pallente M, Ensley JF, et al. (2000) Distinct pattern of expression of differentiation and growth-related genes in squamous cell carcinomas of the head and neck revealed by the use of laser capture microdissection and cDNA arrays. Oncogene 19: 3220-3224.

4. Parfenov M, Pedamallu CS, Gehlenborg N, Freeman SS, Danilova L, et al. (2014) Characterization of HPV and host genome interactions in primary head and neck cancers. Proc Natl Acad Sci USA 111:15544-15549.

5. Warnakulasuriya S (2009) Global epidemiology of oral and oropharyngeal cancer. Oral Oncol 45: 309-316.

6. Parkin DM, Bray F, Ferlay J, Pisani P (2002) Global cancer statistics, 2002. CA Cancer J Clin 55: 74-108.

7. de Camargo Cancela M, Voti L, Guerra-Yi M, Chapuis F, Mazuir M, et al. (2010) Oral cavity cancer in developed and in developing countries: Population-based incidence. Head Neck 32: 357-367.

8. Franceschi S, Bidoli E, Herrero R, Munoz N (2000) Comparison of cancers of the oral cavity and pharynx worldwide: etiological clues. Oral Oncol 36: 106-115.

9. Joshi P, Dutta S, Chaturvedi P, Nair S (2014) Head and Neck Cancers in Developing Countries. Rambam Maimonides Med J 5: e0009.

10. Khan Z, Tönnies J, Müller S (2014) Smokeless tobacco and oral cancer in South Asia: a systematic review with meta-analysis. Journal of Cancer Epidemiology.

11. Mishra A, Meherotra R (2014) Head and Neck Cancer: Global Burden and Regional Trends in India. Asian Pac J Cancer Prev 15: 537-550.

12. Bhurgri Y, Bhurgri A, Usman A, Pervez S, Kayani N, et al. (2006) Epidemiological review of head and neck cancers in Karachi. Asian Pac J Cancer Prev 7: 195-200.

13. World Health Organization (2001) International classification of functioning, disability and health: ICF.

14. Escorpizo R, Stucki G (2013) Disability evaluation, social security, and the international classification of functioning, disability and health: the time is now. J Occup Environ Med 55: 644-651.

15. Cieza A, Geyh S, Chatterji S, Kostanjsek N, Üstün BT, et al. (2006) Identification of candidate categories of the International Classification of Functioning Disability and Health (ICF) for a Generic ICF Core Set based on regression modelling. BMC Medical Research Methodology 6: 1.

16. Tschiesner U, Cieza A, Rogers SN, Piccirillo J, Funk F, et al. (2007) Developing core sets for patients with head and neck cancer based on International Classification of Functioning, Disabilty and Health (ICF). Eur Arch Otorhinolaryngol 264: 1215-1222.

17. Kostanjsek N (2011) Use of The International Classification of Functioning, Disability and Health (ICF) as a conceptual framework and common language for disability statistics and health information systems. BMC Public Health 11: 4.

18. Kirschneck M, Sabariego C, Singer S, Tschiesner U (2014) Assessment of functional outcomes in patient s with head and neck cancer according to the International Classification of Functioning, Disability and Health Core Sets from the perspective of the multi-professional team: Results of 4 Delphi surveys. Head Neck 36: 954-68.

19. Tschiesner U, Linseisen E, Baumann S, Vanessa S, Stelter K, et al. (2009) Assessment of Functioning in Patients with Head and Neck Cancer According to the International Classification of Functioning, Disability, and Health (ICF): A Multicenter Study. Laryngoscope 119: 915-923.

20. Becker S, Kirchberger I, Cieza A, Berghaus A, Harréus U, et al. (2010) Content validation of the Comprehensive ICF Core Set for Head and Neck Cancer (HNC): the perspective of psychologists. Psychooncology 19: 594-605.

21. Steiner WA, Ryser L, Huber E, Uebelhart D, Aeschlimann A, et al. (2002) Use of the ICF model as a clinical problem-solving tool in physical therapy and rehabilitation medicine. Phys Ther 82: 1098-1107.