ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 49. 23

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 3, Issue –4, July - 2018, Page No. : 133 - 138

Kinesiophobia in Head and Neck Cancer Patients – An Observational Study

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Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Background and Objectives: Kinesiophobia is a condition in which a patient has an excessive, irrational and debilitating fear of physical movement and activity. It plays an important role in the rehabilitation process and hence ought to be taken into consideration when planning and designing rehabilitation programmes. Hence, the objective of the study was to evaluate kinesiophobia in head and neck cancer patients.

Methods: Patients diagnosed with having head and neck cancer and who underwent radiation therapy, chemotherapy and surgery were included the study. Kinesiophobia was assessed using Modified Tampa Scale of Kinesiophobia (TSK-11). TSK-11 is a questionnaire which includes 11-items that are scored on a 4-point scale. And the Quality of Life was assessed using Functional Assessment of Cancer Therapy- Head and Neck (FACT-H&N) Scale. This scale consists of a questionnaire which comprises of 5 subscales.

Results: The results depicted significant correlation between kinesiophobia and domains of quality of life which were physical well being, social/family well being and functional well being.

Conclusion: There is a positive association between fear of movement and quality of life in head and neck cancer patients. As kinesiophobia increases the quality of life decreases in these patients.

Keywords: Kinesiophobia, head and neck cancer, Tampa scale, FACT-H&N.

Introduction

Head and neck cancer is a broad term that encompasses epithelial malignancies that arise in the paranasal sinuses, nasal cavity, oral cavity, pharynx, and larynx. Almost all of these epithelial malignancies are squamous cell carcinoma of the head and neck (SCCHN), for which the most important risk factors are tobacco and alcohol consumption. However, increasing evidence has documented human papillomavirus (HPV) as a cause of specific subsets of SCCHN. About two-thirds of patients with SCCHN present with advanced stage disease, commonly involving regional lymph nodes. Distant metastasis at initial presentation is uncommon, arising in about 10% of patients.[5]

In head and neck cancer, quality of survival is critically influenced by performance, or functional ability, in areas of eating and speaking. For this patient population, the ability to maintain some degree of normalcy in their

activities relates to these functions. An individual's ability to perform appropriately in areas of eating and speaking significantly influences a wide range of behaviours from social and family interactions to more internalized feelings of self-esteem and competence. The treatment of head and neck cancers consists of surgery, radiation therapy, or both. During surgery, often an elective or therapeutic neck dissection is performed. As a result of head and neck cancer therapy, morbidity of the neck and shoulder regions may occur. This morbidity manifests itself through pain, loss of sensation, disfigurement, reduced range of motion of the shoulder, and changes in quality of life. [6]

Kinesiophobia is as a condition in which a patient has an excessive, irrational and debilitating fear of physical movement and activity resulting from a feeling of vulnerability to painful injury or re-injury. Kinesiophobia is a factor that plays an important part in the rehabilitation process and hence ought to be taken into consideration when planning and designing rehabilitation programmes.[1] Unlike most other cancers, the side effects related to the treatment of head and neck cancer are immediately noticeable. These include swallowing difficulties, disfigurement and altered speech. These side effects directly hamper the day-to-day ability to enjoy their lifestyle and in turn lead to poor quality of life (QOL).[2] High rates (> 10/100,000) in females are found in the Indian sub-continent, Hong Kong and Philippines. Overall, 57.5% of global head and neck cancers occur in Asia especially in India. Head and neck cancers in India accounted for 30% of all cancers. In India, 60 to 80% of patients present with advanced disease as compared to 40% in developed countries.[3,4]

Kinesiophobia and its role were previously assessed in patient's breast cancer, blood cancer, bone marrow cancer, cancer of gastrointestinal tract and lung but have not included patients with head and neck cancer.[7] Further, there is dearth of literature on kinesiophobia being evaluated in patients undergoing radiotherapy and chemotherapy in head and neck cancer patients. Kinesiophobia is a factor that plays an important role in the rehabilitation process and hence it has to be taken into consideration when planning and designing rehabilitation programmes. Thus, the aim of the study was to evaluate kinesiophobia as well as Quality of Life in head and neck cancer patients undergoing radiotherapy, chemotherapy and surgery.

2. Materials and Methods

2.1 Study Design and Setting

The present study was an observational study which was conducted in a tertiary care hospital among head and neck cancer patients. Ethical clearance for the study was obtained by the Institutional Ethical Review Committee following which the study participants were screened for inclusion i.e. head and neck cancer patients who were undergoing radiation therapy, chemotherapy (Except Hormone Therapy), post-operative head and neck cancer patients, more than 18 years old. All participants gave written informed consent prior to commencement of the study. Participants with metastasis and who were not willing to participate were excluded from the study.

2.2 Participants

The study included thirty-four (34) head and neck cancer patients who were undergoing radiotherapy, chemotherapy and who underwent surgery for the same.

Outcome Measures

1) Modified Tampa Scale of Kinesiophobia (TSK-11): Kinesiophobia was assessed using Modified Tampa Scale of Kinesiophobia (TSK-11). TSK-11 is a questionnaire which consists of 11-items and each is scored on a four-point Likert type scale. Scoring possibilities range from 'strongly disagree' (score=1) to 'strongly agree' (score=4). Higher the score indicating high kinesiophobia.

2) Functional Assessment of Cancer Therapy- Head & Neck: The Quality of Life of these patients was assessed using Functional Assessment of Cancer Therapy- Head and Neck (FACT-H&N). This scale consists of a questionnaire which comprises of 5 subscales that include physical well-being, social/family well-being, emotional wellbeing, functional well-being, and additional head and neck specific concerns. Lower scores on the FACT-H&N are reflective of poorer quality of life outcomes.

Statistical Analysis

Data was analyzed using SPSS software 20.0. For this purpose data was entered into an excel spread sheet, tabulated and subjected to statistical analyses. Various statistical measures such as mean, standard deviation and test of significance were used. Test for normality of Kinesiophobia (TSK-11) and Quality of life (FACT H&N) were done using Kolmogorov Smirnov test in which scores do not follow a normal distribution, therefore, the non-parametric Spearman's rank correlation method was used. Correlation between Tampa scale of Kinesiophobia (TSK-11) with FACT H&N and its components scores of all the subjects in the study was done using spearman rank test.

Results

Age of females in the study was 52.33 ±10.63 years and the age of males in the study was 53.05 ±13.02. The mean BMI of the participants were 21.58 ±4.47 in females and in females. [Refer table 1]. Kinesiophobia and quality of life in head and neck cancer patients showed statistical significance with p=0.0120. Among the domains of quality of life were physical well being p=0.0040, social/family well being p=0.0001 and functional well being p=0.0060 demonstrated significant correlation. [Refer table 2] Correlation between kinesiophobia with quality of life demonstrated statistical significance, only in the functional well being (0.0221) in all participants. [Refer table 3]

Discussion

The present study was done to assess kinesiophobia in head and neck cancer patients who were undergoing radiotherapy, chemotherapy and who had undergone surgery.

The results from statistical analysis of the present study support that kinesiophobia was present among these patients as this population demonstrating statistically significant scores on Tampa scale of kinesiophobia (TSK-11) (p=0.0120). Also, the quality of life which was assessed using functional assessment of cancer therapy (FACT-H&N) showed statistically significant scores in terms of physical well-being (p= 0.0040), social/family well-being (p=0.0001)and functional well-being(p=0.0060).Kinesiophobia has shown an inverse association with quality of life. Thus, as kinesiophobia increases, there is a decrease in quality of life and vice versa.

Caroline Larsson et al assessed kinesiophobia in a population of older adults with chronic pain in which physical activity was found to be moderately associated with kinesiophobia showing that low levels of physical activity are associated with higher levels of kinesiophobia which was in accordance with the present study.[11] Fear of movement is also present in a majority of patients with chronic venous insufficiency and low activity levels is noted among them.[16] Even the similar situation is observed in the population with heart failure with increased fear of movement and decreased level of physical activity.[17] This may be due to the fact that when a person gets more and more disabled, the more immobilized the person also gets, and lower levels of physical activity can thus be assumed.

Deran Oskay et al.studied the relation between Ankylosing spondylitis and kinesiophobia which depicted

that kinesiophobia was not correlated with disease activity or mobility which was highly different with the present study. Quality of life and functional levels of these patients were lower as compared with patients with low kinesiophobia demonstrating similar results in the present study. This could be explained as kinesiophobia results and develops from the response to previously experienced significantly painful movements. [17] Kinesiophobia is one of the pivotal factors that impair the participation of cancer patient in exercise programs. It is important that physical therapists must be informed about the presence of kinesiophobia, which has not been given much importance during the treatment phase as it is important to identify the patients with dysfunctional fear of movement and avoidance behaviour as avoidance behaviour is extensive and complex and includes avoidance both of movement, activity, social interactions. This can be explained by the fact that the physical therapist has a central role in guiding the patient through the intervention. It is more convincing for the patient to experience that they can perform an avoided movement or activity than simply be told to stay physically active. Fear of movement/reinjury quantified with Tampa scale of kinesiophobia (TSK) influence functional outcome in patients with anterior cruciate ligament reconstruction. Acquiring this knowledge will help determine the importance of addressing fear of movement/ reinjury in rehabilitation as a means of improving short-term functional outcome.[13] The present study was also performed with the similar purpose of making people aware regarding the fear of movement present in them and the negative consequences it has towards the quality of life of these patients.

In the present study functional well-being of head and neck cancer patients was influenced by kinesiophobia. The reason for this may be the catastrophizing and fear avoidance behaviours may perpetuate a cycle of physical activity aversion, thereby worsening mobility and functional limitations. However, a study in chronic low back pain patients in which kinesiophobia level was not related to walking endurance which was in contention with the present study. [14]

The fear avoidance model proposes that elevated fear avoidance behaviour, altered movement patterns and reduced physical activity, which in turn contributes to muscle guarding, continuous pain and disability. Properties of fear avoidance beliefs questionnaire and kinesiophobia were examined in neck pain patients which revealed significant correlation between fear of movement and physical activity. The relation was found to be fair in magnitude, which is consistent with the findings of the present study. This supports the contention the measurement of physical activity is a separate construct than fear about movement/ reinjury. [15]

Quality of life along with kinesiophobia was evaluated in breast, blood/bone marrow, digestive tract, female genital tract, and lower airway cancer survivor patients which inferred that the activity avoidance component of kinesiophobia was not associated with quality of life whereas, the somatic focus component of kinesiophobia showed to have an association with quality of life. [7] In the present study, kinesiophobia (TSK) with both its components showed to have an association with quality of life. This could be explained by the fact that different types of cancer populations react differently to the disease and its treatment.

The study included only thirty-four subjects. Hence, the study may be carried out in a larger number of patients to generalise the results in a similar clinical settings. However, the present study helped to assess the relation of kinesiophobia with quality of life. Assessment of kinesiophobia in cancer patients should be given utmost importance, during evaluation of patients undergoing treatment for head and neck cancer, so as to identify the fear of movement present in them during cancer treatment.

Increased attention should be paid to prevent kinesiophobia by indulging them in early physical therapy programs and interventions which may prevent them from restraining themselves from physical activity aiding in faster recovery.

Acknowledgements

We are grateful to the Medical Director, tertiary care hospital for granting permission to conduct the study, the statistician and all participants for participating in the study without whom the study would not have been possible.

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Flowchart

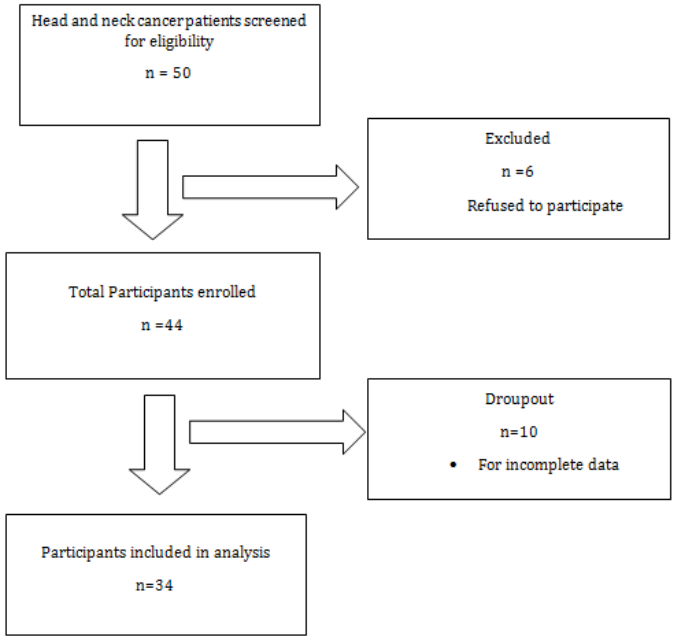

Table 1: Demographic data of all subjects in the study.

Gender	'n'	Age (in yrs)	BMI
		Mean	Mean
Female	12	52.33 ±10.63	21.58 ±4.47
Male	22	54.05 ±13.02	18.51 ±3.52
Total	34	53.44 ±12.09	19.60 ±4.10

Table 2: Distribution of Kinesiophobia (TSK-11) scores and Quality of life (FACT-H&N) scores of all subjects in the study.

Outcome Measures	Z-value	p-value
TSK-11	1.6020	0.0120*
FACT-H&N Components	0.9020	0.3910
Physical well-being	1.7740	0.0040*
Social/family well-being	2.2390	0.0001*
Emotional well-being	1.2050	0.1100
Functional well-being	1.7010	0.0060*
Additional concerns	0.8680	0.4380

*Level of significance p ≤0.05

Table 3: Correlation between Tampa scale of Kinesiophobia TSK-11 with Quality of life FACT H&N and its components scores of all the subjects in the study.

Variables	Correlation between TSK-11 with – FACT H&N			
	N	Spearman R	t-value	p-value
QOL- FACT H&N	34	-0.3175	-1.8942	0.0673
a)Physical well-being	34	-0.2597	-1.5211	0.1381
b)Social/family well-being	34	0.0737	0.4183	0.6785
c)Emotional well-being	34	-0.2208	-1.2804	0.2096
d)Functional well-being	34	-0.3913	-2.4050	0.0221*
e)Additional concerns	34	-0.0677	-0.3839	0.7036

*Level of significance p ≤0.05