

EFFECT OF MEDICAL QIGONG THERAPY ON FATIGUE , FUNCTIONAL ACTIVITY IN BUCCAL MUCOSA CANCER SUBJECTS UNDERGOING RADIATION THERAPY

Physiotherapy

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ABSTRACT

Buccal mucosa carcinoma is the most common oral cavity cancer in India. One of the most frequent complications that cancer patients receiving radiation therapy describe is fatigue. Medical Qigong therapy is a mind-body intervention aims for rejuvenation and healing. The aim of the study is to know the effect of medical qigong therapy on fatigue and functional activity in buccal mucosa subjects undergoing radiation therapy. **Need Of The Study:** This study investigates the impact of Medical Qigong therapy on buccal mucosa cancers, focusing on fatigue and functional activity levels, aiming to fill gaps in existing research and inform comprehensive cancer care approaches. **Aim Of The Study:** It is to know the effect of Medical Qigong therapy on fatigue, functional activity in Buccal mucosa cancer subjects undergoing radiation therapy. **Objectives & Methodology:** This study evaluates the fatigue level and functional activity level. An experimental study was conducted in Radiation Oncology department on 30 subjects with Buccal mucosa cancer undergoing radiation therapy aged 40-60 years. All the subjects performed Medical Qigong walk cycle for 3 week days for 4 weeks from initiation of Radiation therapy. Scores of fatigue and functional activity using BFI and FIMS were documented at baseline, and 4th week and compared the results between baseline and 4th week. **Results:** The 30 buccal mucosa cancer subjects of mean age group 51.73 ± 5.349 years. The pre and post test scores on comparison of Fatigue and Functional activity levels found a clinically statistical significance with a P value (<0.001) of which showed a decrease in Fatigue levels and increase in Functional activity levels after receiving 4 weeks of Medical Qigong therapy **Conclusion:** MQ therapy was effective in managing levels of fatigue and improving functional activity of all buccal mucosa cancer subjects.

KEYWORDS

Medical Qigong, Buccal Mucosa, Brief Fatigue Inventory, Functional Independence Measure Scale

INTRODUCTION

Cancers are malignant neoplasms including both carcinoma and sarcoma, which arise from the abnormal and uncontrolled division of cells and which invade and destroy the surrounding tissue (1). Oral cancers is considered to be occurred mainly in elderly between 50 and 70 years of age (2). Approximately 22 million individuals world wide suffer from cancer with about 10 million new cases being diagnosed annually (3). Head and Neck Cancers ranks second among all cancers (4,5). In India, oral cavity cancer is the second leading cancer as compared eleventh globally (6). Predominantly oral cavity affects middle aged older age groups (7). Tobacco consumption including smokeless tobacco and heavy alcohol consumption are the principal etiologic factors for the development of oral cancers (8).

Radiation therapy is mostly used in oncology conditions as it shrinks and kills the tumors by using high frequency X-rays, gamma rays and also by alternative sources (9).

"Qigong," or "qi," refers to growing the vital energy life force by using abilities obtained through consistent practice. Based on the Chinese medicine notion of energy channels, "Medical Qigong" is characterized as co-ordination of light activity and relaxation through meditation and breathing exercises (10).

Brief Fatigue Inventory scale (BFI) is used to assess the severity and impact of oncologic pain. It is said to be a one-dimensional questionnaire (11). The Functional Independence Measure Scale (FIMS) which measures one's physical, psychological and social function and thus evaluating their Activities of Daily Living (ADL's) (12).

Need Of The Study

- Previous studies have been conducted on Lung cancers, breast cancers, head and neck cancers and the efficacy of medical qigong therapy has been evaluated.
- However the effects of medical qigong therapy on buccal mucosa cancers have been less reported.
- A number of studies have assessed medical qigong on improving Quality of Life (QOL), inflammation, pain, functional capacity, there is paucity of data on its effects on fatigue and functional activities.

Hence, this study is designed to evaluate the effects of Medical Qigong

therapy on Buccal Mucosa cancers and mainly focusing on fatigue and functional activity levels.

Aim Of The Study

- Aim of the study is to know the effect of Medical Qigong therapy on fatigue, functional activity in Buccal mucosa cancer subjects undergoing radiation therapy.

Objectives Of The Study

- To determine the effect of medical qigong therapy on fatigue by using Brief Fatigue Inventory scale (BFI)
- To determine the effect of medical qigong therapy on functional activity by using Functional Independence Measure Scale (FIMS).

MATERIALS AND METHODS:

MATERIALS: Weighing machine, Measuring tape

METHODOLOGY

Study design: Single-group pre-test/post-test design

Study duration: 4 weeks

Study setting: Physiotherapy Department, Oncology ward, SVIMS, Tirupati.

Sample collection: Radiation Oncology ward, Sri Venkateswara Institute of Medical Sciences, Tirupati.

Sampling method: Purposive random sampling.

Sample size: '30' samples.

Ethical Clearance: Ethical Clearance was obtained from Institutional Ethics Committee [Code : 1549].

Inclusion Criteria:

- Age group between 40 to 60 yrs
- Both male and female were included.
- Subjects undergoing radiation therapy during first week of radiation therapy treatment.

Exclusion Criteria

- Age group <40 yrs and >60 yrs
- Subjects with Neurological and Musculoskeletal disorders.
- Severe Cardiac Conditions and Respiratory disorders
- Subjects who were not willing for the study.

Subjects who were willing and met with inclusion criteria were included in the study and an informed consent was obtained. Regular height, weight and BMI, fatigue and functional activity levels were collected at the time of admission as baseline measurements. Subjects collected were treated with Medical Qigong therapy for 4 weeks of radiation therapy. Pre test values of fatigue and functional activity were noted at 1st week of the study while post test values of both fatigue and functional activity levels were noted at 4th week of the study after Medical Qigong therapy.

OUTCOME MEASURES:

1) Brief Fatigue Inventory Scale (BFI) :

BFI is used to assess fatigue levels in cancer patients. BFI consists of '9' items asking patient whether they felt unusually fatigued or tired during last week. First '3' questions measure worst fatigue, usual fatigue, and fatigue now during the past 24 hrs. The six additional questions gauge how much weariness affects general activities, mood, walking, regular work relationships, and life enjoyment.. Each item will be scored from '0' (no fatigue) to '10' (severe fatigue) (13).

2) Functional Independence Measure Scale :

The FIMS is a tool with '18' items that assess cognitive function, mobility, engagement in daily living activities, and communication skills. Every item has a score ranging from 1 to 7, where 1 indicates the patient is unable to accomplish the task and 7 indicates the activity may be completed independently. The lowest possible score is '18' (total dependence), the highest possible score is '126' (independent function) (14).

Study Protocol

A 40 mins Medical Qigong therapy included,

1. Warm up phase- 10 minutes of Qigong deep breathing Exercises.
2. Walk cycle phase- 20 mins of Qigong walk cycle co-ordinate with breathing
3. Cool down phase- 10 minutes of Qigong deep breathing exercises (15).

STATISTICAL ANALYSIS & RESULTS

The results were analysed using SPSS 21 version for the statistical analysis of the study. In the present study, a total of 30 subjects were included who fulfilled inclusion criteria received Medical Qigong therapy intervention along the course of Radiation therapy for 4 weeks Paired t- test is used as the statistical technique to compare the pre and post values of the dependent variable for parametric data.

The pre and post intervention outcomes included Fatigue using Brief Fatigue Inventory scale (BFI) and Functional activity using Functional Independence Measure Scale (FIMS).

Demographic data:

The demographic data for 30 subjects with an average age of 51.73 $\pm$ 5.349 and the average BMI of 22.9917 $\pm$ 2.16935.

Table 1: comparison of pre and post test values of Fatigue and Functional Activity after Medical Qigong therapy

Variables (N=30)	FATIGUE (BFI)		FUNCTIONAL ACTIVITY (FIMS)	
	PRE	POST	PRE	POST
Mean	32.60	21.70	65.50	82.57
SD	3.874	2.562	7.718	8.186
t-value	12.451		17.496	
t Critical two-tail	3.659		3.659	
Df	29		29	
p-value	0.000**		0.000**	

The above statistical data showed that the pre intervention mean fatigue levels(BFI) decreased significantly from 32.60 $\pm$ 3.874 to 21.70 $\pm$ 2.562 post intervention mean (t-value = 12.451, P-value = <0.001). Correspondingly, the pre-intervention mean of Functional Activity levels(FIMS) increased significantly from 65.50 $\pm$ 7.718 to 82.57 $\pm$ 8.186 (t-value = 17.496, P-value = >0.001). These results show highly significant improvements in both fatigue and functional activity levels following the protocol.

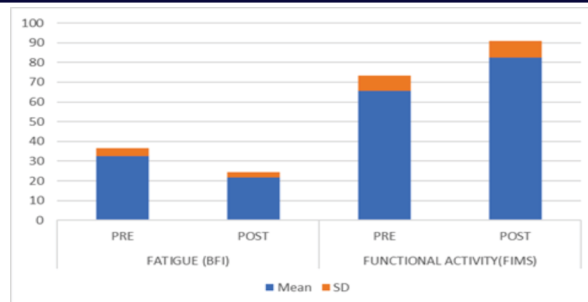


Figure 1: Graph representing the mean differences of fatigue levels in BFI and functional activity levels in FIMS at 1st week and 4th week of the study.

DISCUSSION

The present study aimed to investigate the effectiveness of '4' weeks Medical Qigong therapy on levels of fatigue and functional independence in the hospitalized Buccal Mucosa cancer individuals undergoing Radiation therapy.

The derivations of the current study affirm for effectiveness of the '4' week MQ Walk cycles intervention for reducing the levels of fatigue and simultaneously enhancing functional independence among hospitalized Buccal mucosa cancer subjects.

As per previous study done by **Padma R, Paulraj S, Sundaresan S(2017)**, mean age of occurrence of cancer in different parts of oral cavity is usually between 51 and 55 years in most of the countries. In South India, most of the common oral subsites found to be buccal mucosa carcinoma. In a study over head and neck cancers, reported that about 50% of cases being buccal mucosa carcinoma followed by tongue and lip cancers (16). Similarly the present study also reported the mean age as 51.73 years.

A study done by **Anchal tendan(2018) et al**, revealed most of the patients were in the the age range of oral squamous cell carcinoma patients was in the range of 40-60 years which is consistent with other studies concluded in North India (17).

Similar to this, the buccal mucosa subjects ranged in age from 40 to 60 years were included in the present study.

A study done by **Tian Meng(2021) et al**, evaluating the QOL in women with Breast cancer showed improvement in QOL, anxiety and not significant in improving fatigue levels (18).

Recent study by **Girma Tekle Gebremarian(2018) et al**, showed BFI was an acceptable, valid and reliable self rating assessment tool for screening and monitoring cancer related fatigue (14).

A study done by **Priyanka S. Sagaonkar(2021) et al**, on effect of Medical Qigong therapy in Head and Neck cancer subjects undergoing intensity modulated radiation therapy using BFI showed a declined in fatigue levels (P<0.001) and QOL using FACT-HN questionnaire (p<0.001) thus proving strength of MQ intervention in cancer individuals (15).

A study done by **Maki Itokoza(2022) et al**, evaluating effectiveness of Rehabilitation for cancer patients with Bone metastasis assessed the activities of daily living using FIMS showed improvement in functional activities (p<0.001) in cancer individuals (19).

The observation of present study for Buccal Mucosa subjects receiving Radiation therapy, shows the decline in fatigue levels (P<0.001) using BFI scale and improving in functional activity levels (P<0.001) using FIMS scale thus proving the strength of Medical Qigong therapy intervention in buccal mucosa cancer subject undergoing radiation therapy.

This study intervention which was a mind-body intervention helped restore and cultivate the body's energy favouring the alternative hypothesis of this study.

Limitations:

The study confesses that its 30 participant sample size is slightly short.

The Medical Qigong therapy's four weeks may be seen as a short amount of time.

Recommendations

Further studies on Medical Qigong therapy require a large sample size. Long term follow up to assess the continuity of practice and longer study duration.

CONCLUSION

Medical Qigong therapy which is a mind-body intervention, shows effect on both physical and mental health, which also heals the body by rejuvenation. Medical qigong already shown effect on decreasing anxiety, depression and inflammatory markers in previous studies. So, It is proved that the present study concluded that Medical Qigong therapy was effective in managing levels of fatigue during radiotherapy course and improving daily living activities of Buccal mucosa subjects. The present study accepts the alternate hypothesis, as Medical Qigong therapy shown effect in managing fatigue levels and functional activity levels.

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