



ORIGINAL RESEARCH PAPER

Physiotherapy

ROLE OF COMBINED TASK-ORIENTED APPROACH AND PATIENT-CENTRED GOAL ORIENTED APPROACH IN IMPROVING QUALITY OF LIFE OF CANCER PATIENT WITH NERVE GRAFTING- A CASE STUDY.

KEY WORDS: Cancer, Quality of life, task oriented approach, goal setting,

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ABSTRACT

The present case report is of 62 years old Cancer patient who has undergone cytoreductive surgery along with nerve grafting. Task-specific training is a term that has evolved from the movement science and motor skill learning literature [6] and is defined as training or therapy where patients 'practice context-specific motor tasks and receive some form of feedback. Goal setting is important for rehabilitation because it can provide the patient with motivation[8], particularly when they are functional and are directly related to real life activities. The purpose of the study is to study the combined effects of Task oriented approach and Patient-centered Goal setting method with the aim of improving patient's functional independence and thereby targeting improvement on Quality of Life of the patient. Apart from traditional methods, patient-centred approach of goal setting was used. According to previously set goals, task-oriented exercises were given by the physiotherapist to improve clients' performance and satisfaction. The following outcome measures were taken:

- 1) For Balance-The Activities-specific Balance Confidence Scale (ABC)
- 2) For Quality of Life-The Functional Assessment of Cancer Therapy-General (FACT-G).

After 3 weeks of therapy, there was improvement in both the scores. Thus we conclude the combination of task oriented approach and patient-centred goal oriented approach helped to improve patient's balance , functional independence, social participation thereby improving Quality of Life.

INTRODUCTION

Cancer is the main health issue in the community across the world and it is one of the most common causes for morbidity and mortality. The results from GLOBOCAN (2012) showed that 14.1 million new patients were diagnosed with cancer and 8.2 million deaths were due to cancer.[1]

Quality Of Life (QOL) is subjective and patients own judgement in this respect is a major determinant, in a way it is described as a "quality of being". Cancer and its treatment has a substantial impact on mental and social health and in conclusion, on QOL of patients. [2]

Task-specific training is a term that has evolved from the movement science and motor skill learning literature [6] and is defined as training or therapy where patients 'practice context-specific motor tasks and receive some form of feedback. [3] In the field of skill learning, it may be associated with different practice conditions, feedback and conditions of transfer training in rehabilitation focuses on improvement of performance in functional tasks through goal-directed practice and repetition. The focus is on training of functional tasks rather than impairment, such as with muscle strengthening. [4]

Goal setting is grounded in psychology and based on the belief that humans can change their behaviour and work towards a goal. Goal setting is important for rehabilitation because it can provide the patient with motivation, particularly when they are functional and are directly related to real life activities. [5]

Generally, two types of goal settings are used in clinical practice. In one type of goal setting, the rehabilitation team assesses the patient, identify the problems and set the goal accordingly. The second newer approach is client-centred approach in which the goal is set according to the client and his relatives' needs and priorities [6].

Patient-centred goal setting encourages the patient to identify their specific aims in relation to their recovery. These

aims are then translated into relevant and meaningful goals and used as the basis for the individual's rehabilitation. These goals are used as the rehabilitation framework for each patient.

The present case report is of Cancer patient who has undergone cytoreductive surgery along with nerve grafting. Besides cancer and post cytoreductive surgical symptoms, weakness of lower limb muscles due to nerve grafting were present which added on to the symptoms whereby affecting QOL of patient.

Purpose Of The Study (AIM)

Studies reveal that Task oriented training and Goal oriented approach is both effective in rehabilitation.

So in our case study , besides Conventional physiotherapy treatment , to find out better strategy we combined Task oriented approach and patient-centred Goal setting method with the aim of improving patient's functional independence and thereby targeting improvement in QOL of this patient.

Patient Information And Medical History

This is a case study of 62 years old Male, a known case of adenocarcinoma of Caecum detected in January 2019, Adenocarcinoma of Prostrate detected in March 2019 and Diabetes Mellitus on oral medication.

Patient then underwent multiple surgeries and cycles of Chemotherapy between January 2019 to August 2019. Patient underwent cytoreductive surgery and nerve grafting on 16/10/2019 in tertiary care hospital.

Patient admitted on 15/10/2019 and got discharge on 26/10/2019.

Investigations:

PET CT Scan(30/09/2019) shows disease progression. Evidence by increase in extent and metabolic activity of soft tissue deposit seen in right iliac fossa involving right iliacus muscle, the right para Colic gutter region with new

metabolically active nodular soft tissue deposits seen involving the lower pelvic wall in midline.

HPR(Haptoglobin-related protein) on 16/10/2019, shows moderately differentiated adenocarcinoma mucin secreting(in residual) disease of the right iliac fossa, Metastatic Adenocarcinoma in Omentum and Metastatic adenocarcinoma (in Omental nodules)

Surgery Details:

Right iliac fossa mass identified. Stitch to ileopsoas encasing femoral nerve. Mass excised along with femoral nerve defect of 5 cm seen.

Left Sural nerve graft taken and nerve sutured 6cm. 3 cables and TC gone fixed. Wash given . Drain placed. Wound closed. Procedure uneventful. Left wound closed after hemostasis achieved.

Post cytoreductive surgery, patient underwent first cycle of Chemotherapy on 18/11/2019.

In December 2019, patient admitted twice in hospital each for one week for febrile Neutropenia and multiple loose motions with generalised weakness, oral ulcerations and poor oral intake, treated conservatively.

Patient was referred to physiotherapy post Cytoreductive surgery and nerve grafting surgery in hospital.

After discharge , patient continued Physiotherapy sessions at home for one week and then came to physiotherapy department of tertiary care centre on OPD basis.

Evaluation And Treatment

On evaluation post surgery in hospital:

Patient was conscious, oriented and alert.

On observation, patient was having sutures at lower abdomen area and left leg, left leg covered with crepe bandage, swelling over ankle present bilaterally, right more than left.

On auscultation, air entry bilateral equal but reduced over lower lobes and posterior regions. Sensations, both superficial and deep reduced over right thigh, anterior aspect.

Patient's chief complains were pain over sutures and generalized weakness.

Manual muscle testing: Right lower limb weaker comparatively to left.

On right side :
Hip extensors and abductors around 2+/5, hip flexors 2/5, knee extensors 1/5.

Patient required moderate assistance for in-bed transfers.

Outcome Measures:

The following outcome measures were taken:

- 1)For Balance-The Activities-specific Balance Confidence Scale (ABC)
- 2)For QOL- The Functional Assessment of Cancer Therapy-General (FACT-G)

The Activities-specific Balance Confidence Scale (ABC) was developed by Power and Myer. It consists of a total 16 specific items that demonstrate whether a subject is able to maintain their balance and confidently perform the activities or not. The score is divided from 0 to 100%, and the scores of each item are summed to calculate the total score.[7]

The Functional Assessment of Cancer Therapy-General (FACT-G). It is a self-report survey questionnaire completed by the patient that quantifies total QOL and four specific domains: physical, social/family, emotional, and functional QOL.

The FACT-G total score is computed as the sum of the four subscale scores, provided the overall item response is at least 80% (i.e. at least 22 of the 27 items were answered) and has a possible range of 0-108 points. Negatively worded items are reverse scored prior to summing so that higher subscale and total scores indicate better QOL [8].

Both Scales were taken pre and post 3 weeks of task specific and goal oriented treatment strategies. Results are shown in Table 1.

Guidelines:

Following a review of the task-specific evidence, it is also possible to recommend five strategies to guide application of task-specific training in clinical practice. The strategies are presented in 'practice-ready' dialogue with the aim of assisting therapists in translating them into clinical practice. To facilitate recall, they have been formulated as the five 'Rs': (i.e. task-specific training should be relevant, randomly ordered, repetitive, aim towards reconstruction of the whole task and positively reinforced)[3].

One common method of goal setting has been derived from SMART goals. SMART goals originated in the field of project management[5]. The acronym stands for:

- S Specific
- M Measurable
- A Attainable or Assignable
- R Realistic
- T Time-related

In our study , we used client-centred approach of goal setting. According to previously set goals, task-oriented training was given by the physiotherapist to improve clients' performance and satisfaction.

Treatment Stages:

Physiotherapy treatment divided into stages.

Table 1- Stage 1 to Stage 4

Stages -

Stages - (Weeks)	Stage 1 Immediate post -op. in hospital and home (two weeks)	Stage 2 Opd basis in physio-department. (2 weeks)	Stage 3 Re-admission in hospital and home (2weeks)	Stage 4 Opd basis physio session re-started (one week)
Physiotherapy treatment	Chest and limb physiotherapy, transfers, walking with walker and right knee brace with moderate assistance	Same as Stage 1 plus progression in exercises as given below	Same exercises as stage 1	Same Exercises as in Stage 2

Re-evaluation and Outcome	Improvement in Incentive spirometry and transfers from bed	Lung and Cardiovascular endurance was increased and generalised weakness was reduced..	Post discharge from hospital, patient shown generalised weakness, endurance level decreased,	Sensations 20% improved , strength improved to 2+/5 in quadriceps and hamstring muscles. Knee joint proprioception improved.
Progression	Patient was able to transfer in bed independently	Patient was able to walk with walker with right knee brace independently but under supervision.	Stage 1 and Stage 2 exercises again started at home for 2 weeks .	Balance and Gait improved , patient can walk with walker with mild assistance independently.
Task oriented exercises and outcomes	-	Balance and Gait training in parallel bar and walking with walker started.	In-bed transfers and walking with walker with moderate assistance	-walking without knee brace with stick independently but under supervision, -step up and down
Therapist Goals	Sit to stand independently, walking with walker independently but under supervision	walking with walker independently but under supervision	In bed transfers independently.	Walking with stick independently and climbing stairs under supervision.
Patient satisfaction (recovery and treatment)	Fair	Fair As no improvement in sensations and right lower limb strength	Low	Low signs of worries and stress, negative outlook and concern for future.

Table 2- Stage 5 to Stage 7

Stages -(Weeks)	Stage 5 (one week)	Stage 6 (one week)	Stage 7 (one week)
Goals(patient-centred) functional goals	1) Getting up from supine to sit independently in less time in one week. 2) Sit to stand independently from bed of moderate height in 2 weeks 3) Walking with stick confidently in 2 weeks.	Goals by patient: 1) Stair climbing in 1 week 2) Toilet transfer at home with raised seat independently in 1 week 3) Getting up from his home Sofa seat(which is bit lower) in 1 week. 4) Going for walk outside home in his building lane which patient was able to go with one people but was not confident. 5) Walking without stick in 2 weeks	1) Walking without stick independently with confidence in one week. 2) Sitting on the floor for prayers and getting up from the floor in 2 weeks Patient re-evaluated, sensation mildly improved by 30% but strength still 2++/5 in quadriceps.
Task oriented exercises and outcomes	In bed transfers, sit to stand, standing on balance board and weight shifts, spot marching, walking forward, backward and sideward in parallel bar and with stick, wedge walking , walking with obstacles, stationary cycling for 5 mins.	Increase in challenges of Stage 5 exercises + Step up and down and treadmill walking for 5 minutes at the speed of 0.5km/hr which after one week progressed to 7 minutes with one hand support at speed of 0.7km/hr.	Progression in Stage 5 and 6 exercises + 1) Walking on foam surface...on mat and on wedge. 2) All fours mat exercises with kneeling and half kneeling with Vestibular ball, kneel walking and half kneeling to standing weight shifts.
Outcomes	Balance and gait improved .Achieved all his three goals mentioned above in one week time.	Patient achieved his most goals with modifications, patient can: 1)climb stairs with minimal support with unaffected leg and down with affected leg, 2)transfer himself from toilet seat and sofa seat independently but under supervision 3) walk without stick but only for few seconds under supervision	patient can: 1) walk approx. 10 minutes without stick under supervision., 2)sit down on floor and get up using upper limbs support and with one person minimal support.
Patient satisfaction	Fair	Good	Very good

(Weeks)

(2 weeks)Stage 3

Stage 1
Immediate post -op. in hospital and home

Re-admission in hospital and home

(two weeks)Stage 2

(2weeks)Stage 4

Opd basis in physio- department.

Opd basis physio session re-started

(one week)Physiotherapy treatmentChest and limb physiotherapy, transfers, walking with walker and right knee brace with moderate assistanceSame as Stage 1

plus progression in exercises as given belowSame exercises as stage 1Same Exercises as in Stage 2Re-evaluation and Outcome Improvement in Incentive spirometry and transfers from bedLung and Cardiovascular endurance was increased and generalised weakness was reduced.. Post discharge from hospital, patient shown generalised weakness, endurance level decreased, Sensations 20% improved , strength improved to 2+/5 in quadriceps and hamstring muscles.

Knee Joint Proprioception Improved.

Progression Patient was able to transfer in bed independently Patient was able to walk with walker with right knee brace independently but under supervision.Stage 1 and Stage 2 exercises again started at home for 2 weeks .Balance and Gait improved , patient can walk with walker with mild assistance independently.Task oriented exercises

and outcomes-Balance and Gait training in parallel bar and walking with walker started. In-bed transfers and walking with walker with moderate assistance -walking without knee brace with stick

independently but under supervision,

-step up and downTherapist GoalsSit to stand independently,

walking with walker independently but under supervision walking with walker independently but under supervisionIn bed transfers independently.Walking with stick independently and climbing stairs ubder supervision.Patient satisfaction (recovery and treatment)Fair Fair

As no improvement in sensations and right lower limb strength Low Low

signs of worries and stress, negative outlook and concern for future. Table 2- Stage 5 to Stage 7

Stages -(Weeks)

Stage 5 (one week)Stage 6 (one week)Stage 7 (one week)Goals(patient-centred)

functional goals1)Getting up from supine to sit independently in less time in one week.

2)Sit to stand independently from bed of moderate height in 2 weeks

3)Walking with stick confidently in 2 weeks.

Goals by patient:

1) Stair climbing in 1 week

2)Toilet transfer at home with raised seat independently in 1 week

3) Getting up from his home Sofa seat(which is bit lower) in 1 week.

4) Going for walk outside home in his building lane which patient was able to go with one people but was not confident.

5) Walking without stick in 2 weeks 1) Walking without stick independently with confidence in one week.

2) Sitting on the floor for prayers and getting up from the floor in 2 weeks

Patient re-evaluated, sensation mildly improved by 30% but strength still 2+ +/5 in quadriceps.Task oriented exercises

and outcomesIn bed transfers, sit to stand, standing on balance board and weight shifts, spot marching, walking forward, backward and sideward in parallel bar and with

stick, wedge walking , walking with obstacles, stationary cycling for 5 mins.Increase in challenges of Stage 5 exercises +

Step up and down and treadmill walking for 5 minutes at the speed of 0.5km/hr which after one week progressed to 7 minutes with one hand support at speed of 0.7km/hr. Progression in Stage 5 and 6 exercises +

1) Walking on foam surface...on mat and on wedge.

2) All fours mat exercises with kneeling and half kneeling with Vestibular ball, kneel walking and half kneeling to standing weight shifts. Outcomes Balance and gait improved .Achieved all his three goals mentioned above in one week time.

Patient achieved his most goals with modifications, ptient can:

1)climb stairs with minimal support with unaffected leg and down with affected leg,

2)transfer himself fromtoilet seat and sofa seat independently but under supervision 3) walk without stick but only for few seconds under supervision patient can: 1) walk approx.10 minutes without stick under supervision.,

2)sit down on floor and get up using upper limbs support and with one person minimal support.

Patient satisfaction Fair GoodVery good

From the table,

In stage 4, patient again regain his Independence in walking and mobility better than before but still he was worried about why he cannot lift his leg(SLR) while lying and sitting (dynamic quadriceps exercises) and why he was still feeling less sensation on right thigh as compared to left thigh, so patient's satisfaction level was low

In stage 5, Patient was counselled and explained to have patience but still dissatisfied.

Patient-centred goal setting approach was adopted.

When the patient was asked what he expected from the treatment, his focused was still on improving impairments.

Patient then was educated about importance of functional activities and functional Independence and so encouraged him to keep functional as well as social goals.

So patient kept functional Goals as given in table but when patient was asked about time frame he was clueless, on the contrary, he asked therapist about how much time he would take to achieve following goals, so time-frame was decided by therapist.

In stage 7, even though patient could not fully achieved his goals in stages 6 and 7 , his satisfaction level was very good and he was satisfied with his improvement and with given treatment.

RESULTS:

Table 3: The pre and post scoring of ABC balance scale and FACT-G are shown in following table-

	Pre- baseline (stage 4)	Post- after 3 weeks (stage 7)
ABC balance score	10.63%	25%
FACT-G TOTAL	43	74
Physical*	9	20
Social	15	17
Emotional*	10	20
Functional	9	17

* Reverse scoring done

Pre- baseline(stage 4)Post- after 3 weeks (stage 7)**ABC balance score10.63%25%FACT-G TOTAL 4374** Physical *920 Social 1517 Emotional* 1020 Functional 917* Reverse scoring done

From Results, In ABC balance score, confidence improved but still risk of fall present.

Improvement present in items of walking at home, stair climbing, reaching out for object and getting into or out of the car.

Patient did not show much improvement in muscle strength in open chain but functional strength in weight bearing improved thereby significantly improving daily functional activities and QOL as seen by FACT-G scores which increased from 43 to 74.

DISCUSSION

Mackinnon demonstrated that early nerve repair results in improved functional outcomes. However, despite optimal nerve repair, the rate of axonal regeneration is slow at 1-2 mm/day. No therapeutic methods have been devised to speed the rate of regeneration. There is an accepted window period of 12-18 months for muscle re-innervation to occur in order to achieve functional recovery before irreversible motor end plate degeneration occurs. The time frame for sensory re-innervation is longer but not infinite. So for this patient there is minimal improvement in strength and sensation.[9].

In this study, during initial physiotherapy sessions, patient was improving in balance and Activities of Daily Living , but no significant improvement in sensation and motor strength. So patient was worried and dissatisfied with his progress as he was constantly worried about why he can't lift his leg in lying(SLR) and in sitting (Dynamic quadriceps). His main focus was on muscle strength and sensation which were not improving significantly so he was worried and dissatisfied affecting his QOL.

Later when he was asked to set functional Goals and Physiotherapy sessions were also completely Task Oriented Activities that is based on patient's functional goals, patient started feeling motivated , happy and satisfied thereby improving his QOL. Patient's muscle strength was still not significantly improved but there was significant improvement in QOL, thus pointing towards the importance of client-centred Goal Oriented and Task oriented approach.

The strength of the task-specific training approach is in its scientific origin. There is increasing evidence of neural plastic changes associated with training (Richards et al., 2008). Learning is reported to be maximal for the specific task trained (Schmidt, 1991; Goldstone,1998). The evidence indicates that cortico-motor neuron pools are organized relative to specific tasks rather than specific muscles.

Pollock claims that when the client participates in goal-formulation, planning and decision-making, the potential for active participation in the rehabilitation process has been shown to increase.[10]

Client-centred approach promotes clients and health care providers as equal partners in the management of the client's health care and rehabilitation process with an understanding of and respect for the clients' individual needs. Moreover, adopting a client-centred approach strives to incorporate clients' perspectives into the provision of services at the system level and to maximize the chance of a successful transition between rehabilitation programs and the community [11].

Involving the patient in this goal-setting process has positive effects on treatment adherence, motivation, and satisfaction [5]

In our study, when patient started setting goals, his motivation and satisfaction increased thereby improving QOL.

CONCLUSION

Combination of task oriented approach and patient-centered goal oriented approach helped to improve patient's balance , functional independence, social participation thereby improving Quality of Life.

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