

A CASE REPORT OF REHABILITATION OF A SUBJECT WITH POST-POLIO SYNDROME

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ABSTRACT

Post-Polio Syndrome (PPS) affects polio survivor's years after the initial polio attack. They report new musculoskeletal symptoms. The purpose of this case report was to determine the effect of a physical therapy intervention on these symptoms in a 53 year old male subject with residual poliomyelitis of left lower limb more than right. Strengthening and aerobic exercises along with lifestyle modification advices were found to be beneficial with respect to all outcome measures taken after 4 and 12 weeks of program, with deterioration in none. This is a first case report documenting benefits of physical therapy following PPS in India. Its findings support the use of exercise in subjects with late effects of poliomyelitis and provide clinically valuable knowledge regarding the treatment efficacy of PPS exercise regimens.

Key-Words: Post-Polio Syndrome (PPS); Rehabilitation; Lifestyle Modification; Pain; Fatigue; Function

Introduction

In the past few years, many polio survivors have experienced late-onset neuromuscular symptoms like fatigue, pain, new and unusual muscular deficits and decreased functional abilities.^[1] Post-polio syndrome (PPS) refers to a clinical disorder affecting polio survivors with sequel years after the initial polio attack. Polio was thought of as a static, non-progressive neurological disorder, but in 2010, the World Health Organization has for the first time recognized PPS. It now has official medical title Post-polio Myelitic Syndrome.^[2] The role of various pharmacological interventions has been investigated and found to be of no additional advantage.^[3] The purpose of the current study was to determine the effect of a rehabilitative protocol in in a subject with PPS.

Case Report

A 53 year old male subject, with residual poliomyelitis in both lower extremities (left more than right) since 12 months of age, had come with complaints of left knee pain, bilateral lower limb weakness and fatigue. Complaints had started to develop 12 months back and gradually increased over a period of time. He started using a stick as assistive device since 8 months when he perceived difficulty in ambulating from place to place. He consulted many doctors in this period and finally came to physiotherapy department of VS general hospital in April 2013.

He has no history of fall, trauma and no co-morbid conditions. His BMI (body mass index) is 23.04 (normal).

He is a chartered accountant by occupation, owns a private office. He drives an auto-start car with hand-operated brakes and has no difficulty in commuting places. He had a history of low back pain 3 years ago, radiating to right lower limb diagnosed as right foraminal bulge of L3-L4 and L4-L5 discs compressing the right exiting nerve roots and right posterior diffuse bulge of L5-S1 discs compressing theca and both exiting nerve roots on an MRI dated 21.06.2010. He underwent a root block procedure and has no complaints in the back since. An MRI of lumbar spine dated 22.07.2012 detected no significant changes as compared to the previous one. A scanogram dated 1.11.2010 suggests left lower extremity being 38.65mm shorter than right lower extremity. Ultrasonography done on 2.11.2010 revealed enlargement of prostate, which is relatively asymptomatic. Recently, degenerative changes in bilateral knee joints were noted on an X-ray dated 12.4.13.

After a thorough clinical assessment, he was diagnosed as having PPS based on following criteria given by Halstead (1985)^[2]: (1) Confirmed history of polio; (2) Partial or fairly complete neurological and functional recovery after acute episode; (3) Period of at least 15 years with neurological and functional stability; (4) Two or more of the following health problems occurring after stable period: extensive fatigue, muscle and/or joint pain, new weakness in muscles previously affected or unaffected, new muscle atrophy, functional loss, cold intolerance; and (5) No other medical explanation found.

Intervention

Nature and purpose of the study was explained to the

subject, and informed written consent was obtained. Ethics approval was taken from Institutional review board of SBB college of Physiotherapy (SBBIRB). The entire session was divided into following 4 phases with mild exercises and adequate rest intervals as per his requirements. Program lasting for 45 minutes, 5 days a week designed to treat his knee pain, lower limb weakness and fatigue was planned. Moist heat was applied to left knee joint for 10 minutes.

Warm-up phase with active ROM (range of motion) exercise of the upper and lower limbs in possible range, which was followed by strengthening exercises of shoulder and elbow muscles using a 1 kg dumbbell. Hip flexors, abductors, knee flexor-extensors on the right side were strengthened using a 1 kg weight cuff. On the left side, active ROM of hip and knee was performed in side-lying position. Aerobic phase with 10 minutes cycling on a static lower extremity cycle ergometer was performed at a comfortable speed, with the seat as high as possible. Cool down phase consisted of passive ROM exercises of the upper and lower limbs.

The following lifestyle modification advices were given: (i) Use of stick on the right and a left knee sleeve side during ambulation; (ii) Maintaining a healthy body weight: avoiding food rich in oil and taking food rich in carbohydrates; (iii) Working with adequate rest periods during office hours (possibly in the lying position); (iv) Prioritizing activities during the day. E.g. finishing the most useful ones first and then others; (v) Planning the weekly schedule in a way that work is equally distributed throughout each day

Results

Visual analogue scale(VAS) for pain intensity, Fatigue severity scale^[4] (FSS) for fatigue, 2 minute walk distance (2MWD) for functional capacity, and PROMIS(Patient Reported Outcomes Measurement Information System) & PHQ-9 (Patient Health Questionnaire-9) questionnaires^[5] for physical and psychological function respectively were taken. The pre and post data along with percentage improvement are shown in table 1.

Table-1: Description of outcome measures

Variable	0 Week	4 Weeks	12 Weeks
VAS	6.3	4.7 (26%)	4.7 (26%)
FSS	44	32 (28%)	32 (28%)
2MWD (meters)	91.1	91.1	93.25
PROMIS	15.75	22.5 (43%)	22.5 (43%)
PHQ-9	4	2 (50%)	2 (50%)

Discussion

There was an improvement in all the outcomes after 4 and

12 weeks of rehabilitation program. These findings support the evidence in literature regarding the use of rehabilitative protocol in subjects with PPS.^[6] In 2009, Merete Bertelson et al^[7] found significantly better functional capacity 3 months after a multidisciplinary physical therapy intervention and at one-year follow-up. The patients showed significant improvement in 3 dimensions regarding quality of life, but only the improvement in “general health” remained after 1 year. In our study, physical function improved by 43% and fatigue by 28%. Julide Oncu et al^[8] in 2008 observed improvement in fatigue, functional capacity and quality of life after an 8 week exercise program consisting of 3 sessions per week lasting for approximately 1.5 hours, in 32 ambulatory PPS subjects. Much in line with this, fatigue improved by 28% and functional capacity showed marginal improvement in our study.

Conclusion

A combination of patient compliance, non-fatiguing aerobic and strengthening exercises, use of assistive devices and maintaining a healthy and active lifestyle contributed to the success of this rehabilitation approach. It led to an improvement in pain, fatigue, functional capacity and function with no deleterious effects or aggravation of symptoms, thus supporting the use of exercise regimens in PPS.

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