

Parkinson's Rehabilitation: Achieving the Goal of Independence in Daily Activities.

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ABSTRACT

There is a growing need to address rehabilitation issues to supplement medical therapy in Parkinson's Disease. The aim of this prospective follow-up study was to assess the impact of education about daily activities on the functional status in patients with Parkinson's disease. A total of 76 cases with Parkinson's Disease on a stable pharmacological regimen and moderately disabled participated in this study. All patients were educated about daily activities to practice at home. All the cases were evaluated with UPDRS II & VI (Activities of Daily Living) at baseline and at 3 months. The study demonstrated improvement in mean score of UPDRS II & VI, but it was statistically significant only in UPDRS VI. The activities of daily living like dressing, turning in bed and walking respond favourably to reduce the impact of disability. So, in conclusion systematic program of daily activity schedule is beneficial in moderately disabled Parkinson's disease.

Keywords: Activities of Daily Living, Parkinson Disease, Rehabilitation.

Introduction

People with Parkinson's disease need to exercise to prevent the negative effects of inactivity. Being active is one of the most important things you can do to maintain your physical and mental well-being. Exercise will not alter the progression of Parkinson's but it is essential for maintaining your quality of life. The goal of rehabilitation is aimed at effecting a change in the occupational performance, performance possibilities or performance competencies of the patient or caregiver. These changes can be at the level of the person himself, the activity or the social and physical environment. The strategies and interventions that are selected depend on the preference of the persons with Parkinson's or caregiver as well as the potential for changing aspects of the person, the activity and the environment. A combination of interventions usually applies. At level of the person, changing occupational performance can involve interventions directed at: i) improving and maintaining

skills during the performance of activities. ii) applying compensatory skills or strategies during the performance of activities. iii) increasing insight and knowledge in order to adequately deal with current and future limitations in daily activities (self-management).

Material and Methods

Patients of any age and either gender diagnosed with PD by the UKPD Society Brain Bank Criteria, on a stable pharmacological regimen attending Movement Disorder clinic, PGIMER & Dr Ram Manohar Lohia Hospital New Delhi, during period of study and for six months before entry into study and able to ambulate and function independently were included in the study. Patients having Hoehn and Yahr¹ 4/5 PD, dyskinesia, Parkinsonism variants, neurosurgical intervention, cognitive deterioration, psychiatric disturbances, head trauma, other neurological diseases and medical contraindications to exercise were excluded from the study. The procedures followed were in accordance with the ethical standards of the institutional committee. Patient demographics, including race, education, and employment status, were recorded. The Unified Parkinson Disease Rating Scale II, Schwab and England Activities of Daily Living Scale VI² were applied at baseline and at 3 months.

The program was of a 4-month period. All patients were

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Received: 03.03.16

Accepted: 03.03.16

taught the same set of daily activities for one month and were asked to continue the same exercises at home. During follow-up, the patients were evaluated at about the same time of the day and about the same duration after drug intake to decrease clinical fluctuations that may hamper evaluation.

Schwab and England Activities of Daily Living Scale VI rates independency from 0% = Vegetative functions such as swallowing, bladder and bowel functions are not functioning. Bedridden to 100% = completely independent. able to do all chores without slowness, difficulty or impairment. essentially normal. unaware of any difficulty.

Unified Parkinson Disease Rating Scale II. Activities of Daily Living (for both "on" and "off") rates speech, salivation, swallowing, handwriting, cutting food and handling utensils, dressing, hygiene, turning in bed and adjusting bed clothes, falling, freezing when walking, tremor and sensory complaints on 0-4 likert scale.

Prescription of Daily Activities

Rest and Sleeping: Keep the bedroom floor clear of things that could cause tripping and falling. For example, don't leave shoes, books or papers on the floor.

To get into bed: Approach the bed as you would a chair; feel the mattress behind both legs. Slowly lower yourself to a seated position on the bed, using your arms to control your descent. Lean on your forearm while you allow your

trunk to lean down to the side. As your trunk goes down, the legs will want to go up, like a see-saw.

To get out of bed: Bend knees up, feet flat on the bed. Roll onto your side toward the edge of the bed by letting the knees fall to that side. Reaching across with the top arm. Turn your head and look in the direction you are rolling. Lower feet from the bed as you push with your arms into a sitting position. A straight back chair anchored at the side of the bed or a bed rail can help you roll more easily.

To roll or turn over in bed: Bend your knees up with feet flat. Allow knees to fall to one side as you begin to roll. Turn your head in the direction you are rolling and reach top arm across the body.

To scooting over in bed: Bend your knees up with feet flat. Push into the bed with feet and hands to lift your hips up off the bed. Then shift hips in the desired direction. Finish by repositioning feet in the direction your hips moved.

Helping handle/bed rail provides assistance with rolling and support for pushing yourself to an upright position. It attaches between the mattress and box spring. An inexpensive alternative to a bed rail is a straight-back chair laced to the bedframe.

Getting around: If balance or strength is affecting your ability to walk, a mobility aid such as a cane, walker or wheelchair can help you keep moving. A straight cane with a rubber tip is better. Handgrips should be

Table 1: Demographic characteristics of study participants

n = 76	Percentage Mean (SD)	Range
Sex	68 M / 8 F	
Age (yr)	65.6(+/- 11.4)	41-86
Duration of PD (yr)	8.3(+/-7.2)	0-27
Highest level of education		
College or higher	51.6	
High school or technical school	32.8	
Employment status		
Unemployed, disabled, or retired	67.7	
Employed	32.3	
Living situation		
Alone	11.3	
With spouse or family	88.7	
Total UPDRS	53.4(+/- 22.9)	25-121
Hoehn and Yahr stage	2.7(+/-1)	1 to 5

comfortable, and the height of the cane should be adjusted for the best support.

Choosing a Chair: Chairs should have a stable base and average height chair with firm, smooth cushions and sturdy armrests.

Changing positions: Stiffness, rigidity and slowed movement can make it difficult to do activities such as getting in and out of a chair. Here are some helpful tips to make these activities easier. When possible, it is best to work with a physical or occupational therapist to learn the best techniques.

Sitting to standing: Scoot hips forward near the edge of the chair. Feet should be shoulder width apart, and flat on the floor. Position feet behind bent knees. Lean forward until head is positioned “nose over knees”. Push forward and up from armrests using both hands. Keep head down (looking at floor) initially when rising. Rocking back and forth can provide the extra “momentum” needed to stand up.

Standing to sitting: Take large steps as you approach the chair. Avoid short, shuffling steps. Make a wide turn and position yourself so chair is centered directly behind you. You should feel the chair against the back of both of your legs before sitting. Reach back for the armrests as you lean forward from the waist. Use arm rests to slowly lower body into the chair, this helps avoid “crash” landings.

To getting in and out of a car: First make sure the car is parked far enough away from the curb so that you can step onto the level ground before you go into, or get out of, the car. Have the seat far enough back so that you have enough room for your legs.

To get into a car: Turn and back in toward the seat so that your buttocks are leading the way. Reach back for

the seat or dashboard and slowly lower yourself to sit. Never hold on to the moving door. Reach over to the inside edge of the seat and begin lifting one leg in at a time. Use a pillow to make low seats higher

To get out of a car: Reach inner arm for the dashboard and begin moving one leg at a time out of the car. Your body should be in the car and your legs should be out on the ground. Scoot forward to the edge and lean forward while pushing up from the seat or dashboard. Never pull up on the car door.

Recreation and Exercise Moving, stretching and exercising as much as you can will also help prevent secondary effects that may develop such as: poor posture and balance, decreasing range of movement (losing flexibility), decreased strength particularly in the muscles that hold you upright, resulting in a tendency to stoop forward, decreasing endurance (being out of breath or fatigued). Plan your physical activities and exercise during “on” times when your medication is working well. Exercise groups are a good option for some people. Leisure activities such as gardening, playing with children or pets, painting, or walking offer enjoyable options for movement and exercise.

Bathing: Shower/commode chairs allow you to sit in the shower while you bathe. Dry off using several small towels rather than one large towel.

Bathroom safety instruments: handrails; shower curtains to make transferring easier and to prevent slipping by keeping your floor dryer; non-skid rubber bath mat. All bath rugs should have a rubber backing; nightlight. A 3-in-one bedside commode converts to a toilet frame, raised toilet seat, or shower-chair. This particular commode style is usually covered by insurance if you have a prescription from your physician.



Eating: Schedule meals during “on” times, or when medication is working best. Cut food into small-bite size pieces so that it is easier to chew and swallow. If you have swallowing problems, don't drink thin liquids or use a straw. Sit up as straight as possible when eating, and stay upright for at least 30 minutes after each meal. Helpful eating aids: Insulated dish keeps food at the right temperature for slow eaters. Hi-lo scoop plate keeps food from sliding off. Rocker knife cuts meat and other foods with a simple rocking motion. A pizza cutter also works well. Easy-to-hold angled utensils make mealtime easier.

Handwriting: Think “big strokes” when writing. Use lined paper. Vary the size, shape, and weight of your pen. Change pens when your hand tires. Change your grip on the pen. Place the pen between your index and middle finger and wrap your thumb around the bottom of the pen for better stabilization and support. Try a roller point, ball point, or felt tip. Decide which one works best.

Results

Seventy six patients (68 males and 8 females) with mean (\pm SD) age of 65.6 (\pm 11.47) years satisfying the inclusion criteria participated in the study. Four patients dropped out of the study because of not able to follow-up due to other health reasons. Descriptive statistics including mean and standard deviation distribution were found out for each quantitative variable. To compare scores related to UPDRS section II & VI (activities of daily living) between baseline and 3 months, paired t-test was used. There was improvement in mean score of both UPDRS II & VI (activities of daily living) at 3rd month, but improvement in UPDRS II score was statistically non-significant while UPDRS VI mean score showed statistical significant improvement.

Discussion

The present study showed regular rehabilitation exercise program helped to improve ADL in patients with

moderate Parkinson's disease. The programs must be designed and tested to determine how best to reinforce self-management gains and sustain improvement of patients and family caregivers as the disease progresses. People with Parkinson's disease responded to a six-week program of self-management rehabilitation with health related quality of life benefits beyond best medical therapy³. According to Borrione P et al tailored physical activity is a valid tool to be included in the therapeutic program of PD patients, considering that this approach may ameliorate the symptoms as well as the overall physical incapacity, reduce the risk of falls and injuries, and ultimately improve quality of life⁴. The Environmental Skill-Building Program reduces burden and enhances caregiver well-being in select domains and has added benefit for women and spouses⁵.

A limitation of this study is that neurobehavioral symptoms including mood, anxiety, and optimism were not assessed, and cognitive function was only assessed with the MMSE. The presence of extrapyramidal symptoms including bradykinesia, rigidity, and dyskinesia may pose unique challenges to patient insight regarding motor performance. Another potential source of discrepancy is that performance in the home environment may be different than the office setting. The capacity for compensatory strategies in the home may not be reflected in performance-based tasks in the office. The use of assistive devices, familiar routine, assistance from family, and variable lighting conditions may raise or lower the level of function in one place compared to another. Because clinical assessment of daily function and disability are integral to clinical decision-making and clinical trials, the accuracy of current methods of functional assessment are an important area for further study.

Suggestions for special caregiving concerns: Gradually add minutes of activity to your program. Minutes count and your goal is to build up your activity level to a total of

Table 2 : UPDRS Unified Parkinson Disease Rating Scale (n-number of cases, SD-Standard deviation, \$ Non significant between baseline and 3 month.)

		Baseline	3 month
UPDRS Section II ADL	Mean (n=76)	9.86	8.79
	SD	2.99	2.67
	p value		0.022 ^{\$}
UPDRS Section VI (Schwab & England ADL)	Mean (n=76)	78.81	80.02
	SD	2.67	2.99
	p value		0.009

30 to 60 minutes a day. It is never too late to become active. Here are some specific ideas you can try to increase your activity level: Take a walk 20 steps in your normal way, then take 20 long steps, then 20 normal steps, then swing your arms for 20 steps. Repeat for the duration of your walk. Get off the bus one stop early or park the car one block away. Use the stairs instead of the elevator. Lift cans of soup, or any small weight, to exercise your arms (see strengthening exercises section). Do leg exercises while watching television. Join an exercise class. One of the best ways to stay motivated is to exercise with others. Play your favourite music and dance or move to the beat.

Conflicts of interest: Nil

Ethics: Patient confidentiality and safety were protected

Funding: Self funded

Guarantor: Dr. K. S. Anand will act as guarantor of this article on behalf of all co-authors

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