

SHORT REPORTS

Controlled trial of physiotherapy and occupational therapy for Parkinson's disease

Physiotherapy is used routinely in Parkinson's disease, but there are no properly controlled trials to support its use. We describe such a trial.

Patients, methods, and results

Twenty-four patients with Parkinson's disease attending the neurological clinic were included in a controlled cross-over trial of physiotherapy and occupational therapy. Medication was stable in all cases, and no patient had received physiotherapy or occupational therapy before.

Speech, gait, posture and balance, tremor in the worst arm, and rigidity in the worst arm were assessed and graded as normal (0) to severely disabled (4); and the following specified activities were timed: rising from a seat, walking 6 m, turning round, walking back to the chair, and sitting down; number of times the patient could open and close his fist fully in 10 seconds (worst hand); time taken to insert a set of pegs into a peg board; and time taken to insert a sheet of cardboard into an envelope. After initial assessment the patients received either active or inactive treatment. They were then reassessed, and after a three-month gap crossed over to receive the alternative treatment. For each treatment the patients attended hospital eight times in four weeks.

During active treatment physiotherapy and occupational therapy were planned according to individual needs. Active physiotherapy was geared to positive treatment using proprioceptive neuromuscular facilitation and Bobath and Peto methods. These were used to improve rotation, balance, and walking, reduce festination, and increase the range of movement where rigidity was a problem. Active occupational therapy was aimed at improving personal independence and functional activities, such as mobility, feeding, dressing, and cooking. During active therapy relatives were invited to observe treatment and encourage the patient's activities at home. Inactive treatment consisted of infrared radiation to the thorax and diversional activities such as table games and crafts, with minimal supervision.

Of the 24 patients (18 men, average age 68.9 years; six women, average age 73.1 years), eight were withdrawn: one during the initial treatment, four during the three-month gap before cross-over, and three during the second course of treatment. One of these eight patients died, four required treatment for other illnesses, and three could not continue for social reasons. Twenty-three patients completed an initial course, and 16 the full cross-over study.

Results (table) obtained in each test in the assessment made by the doctor before treatment were compared with those obtained immediately after treatment using the sign test for comparison of grades (assessments 1-5) and Wilcoxon's rank paired test for the timed data (assessment 6-9). In no test was there a significant change after treatment.

Comment

Our results suggest that remedial therapy in a hospital outpatient department is not helpful for patients with Parkinson's disease whose condition is relatively stable and whose medication does not require adjustment. We studied outpatients whose neurological condition

Results of assessments (expressed as mean scores before and after treatment)

	Active treatment (n = 21*)		Inactive treatment (n = 18*)	
	Before	After	Before	After
Speech (0-4)	1.318	1.285	0.944	1.222
Gait (0-4)	1.136	1.238	1.278	1.677
Posture and balance (0-4)	0.956	0.810	1.000	1.222
Rigidity (0-4)	1.09	1.19	1.111	1.389
Tremor (0-4)	0.652	0.572	0.722	0.778
Time in seconds to stand, walk 6 m, and sit	14.95	12.71	24.37	30.92
Number of times opened and closed fist (worst hand) in 10 s	15.42	12.19	13.22	13.44
Time in seconds to insert 6 pegs into board	12.10	13.45	12.78	13.78
Time in seconds to put cardboard sheet into envelope	23.13	19.50	15.53	12.86

*Figures in parentheses are numbers of patients completing treatment.
Statistical—No significant difference in any assessment before and after treatment ($p > 0.05$ for each pair of observations).

had not been altering appreciably from one outpatient visit to the next; but physiotherapy and occupational therapy might help those who are rapidly deteriorating and in whom several factors might be leading to increasing disability.

Instead of concentrating resources on outpatient remedial therapy, doctors, therapists, and social workers should be providing help within the home to patients with Parkinson's disease and their relatives. Only if remedial therapy is proved useful should it be provided as a routine outpatient service.

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Raised serum haemolytic complement activity in glomerulonephritis: a bad prognostic sign

Depression of total serum haemolytic complement (CH_{50}) activity or concentration of the third component (C3), or both, is a feature of acute glomerulonephritis, mesangiocapillary glomerulonephritis, and systemic lupus erythematosus. Most patients with other forms of glomerulonephritis have normal serum complement values, but in a minority these may be raised. Excess serum complement has aroused little comment, but in 1972 Gabriel *et al*¹ noted more rapid deterioration in renal function in patients with raised CH_{50} activity. No prospective study has been reported to confirm or refute their finding.

Patients, methods, and results

Serum complement was studied in 110 patients with various forms of glomerulonephritis. CH_{50} activity was measured by a kinetic method,² and C3 and C4 concentrations by single radial immunodiffusion³ with Behringwerke Partigen plates. Thirteen patients had CH_{50} activity more than 2 standard deviations (SD) above the normal mean. A further seven were picked at random from those with high normal levels (1-2 SD above the mean). These 20 patients were matched with a control group of 20 subjects chosen from the 60 patients with CH_{50} activity ± 1 SD from the normal mean. They were selected, firstly, to match perfectly for histological diagnosis and sex, then to match as closely as possible for age, duration of the disease, degree of proteinuria, and excretory function (creatinine clearance). As a result the two groups at the start were perfectly matched for histological diagnosis and sex; well matched for mean age (37 v 36 years), duration of disease, (6.5 v 7.0 years), proteinuria (3.6 v 2.8 g/24 h), creatinine clearance (97 v 109 l/24 h), and hypertension (6/20 v 5/20); but the plasma creatinine concentration was significantly higher in the "high-complement" group than in the controls (144 v 110 $\mu\text{mol/l}$ (1.6 v 1.2 mg/100 ml); $p < 0.01$).

The figure shows the progress of renal function, as judged by plasma creatinine concentration. Of 10 of the 20 patients with raised CH_{50} activity plasma creatinine concentration rose, in six cases to over 500 $\mu\text{mol/l}$ (5.7 mg/100 ml). Three of these six showed rapid deterioration of renal function during the first 18 months. Of the controls, only one showed mild deterioration of renal function. The difference between the two groups in numbers of patients showing deterioration (10/20 v 1/20) was significant (χ^2 test: $p < 0.01$).

CH_{50} activity in the controls remained within the normal range throughout the observation period. All patients with raised CH_{50} activity showed wide fluctuations during follow-up, but in only two did the levels fall from high to