Assesment of the Effects of L-Dopa on Parkinson's Disease.

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Since the end of February, 1970, when the Neurologist at Karl Bremer Hospital started his research project using L-dopa in the treatment of Parkinsonism, a testing routine has been followed with each patient used in the project in order to assess the effects of the drug.

There is nothing new or startling about the assessment either in technique or its basic form but the reason for, and the result of, the assessment are very exciting and new.

Because of the very prominent and incapaciting symptoms of muscle rigidity and tremor in Parkinson's Disease, its insidious onset and erratic progress, the assessment is most meaningful when performed in terms of functional ability. For this reason all patients were admitted as in-patients at commencement of their course of treatment and were immediately referred to the Occupational Therapy department in order to perform the functional testing to establish their degree of independence, mobility and ability to socialize and cope with their circumstances psychologically.

The programme which is then necessary in order to facilitate the patient's independence and full use of his anticipated progress is planned according to results of the testing and graduated according to progress.

ASSESSMENT

Initially, the basic A.D.L. (Activities of Daily Living) assessment tests are used. These cover mobility, personal hygiene, eating and dressing, communication and for the women basic household tasks.

For the research project itself 12 specific functional activities have been selected which are timed and tested at regular intervals. During the testing, the patient is closely observed in contact with his fellow patients and therapists and his attitude towards the tests is noted.

Functional Tests

1. Gait — time taken to walk 29 ft.
2. Turning 180° to R. and then to L.
3. Microswitch — number of contacts per 60 seconds.
4. Turning over of playing cards — number per 60 seconds.
5. Writing name, address and date.
6. Screwing on and off of Balls jar lid.
7. Undoing and doing up of button.
8. Tying up of shoe laces.
9. Opening and closing of safety pin.
10. Opening up and folding back of newspaper page.
11. Rising from sitting position.
12. Cutting out.

By using the above tests we assess the following:

1. Bradykinesia of the hands

(*a*) By recording the length of time it takes a patient to write his full name and address and the date.
(*b*) By recording the time it takes to undo and do up a button.
(*c*) By the number of playing cards which can be turned over in 60 seconds.

2. Rigidity (Very evident in neck and shoulders)

This is measured by:
(*a*) Folding a newspaper back on itself.
(*b*) Unscrewing the lid of the Balls jar, setting it down and screwing it back on again.
(*c*) The finer movement of opening and closing a safety pin is timed.
(*d*) Cutting out a hexagonal shape with a pair of scissors is also timed.

3. Posture

This is only assessed through observation but it affects most of the tests, particularly if it has deteriorated to a marked degree, because the joints go into flexion. The hands are affected particularly badly.

4. Upper extremity swing

This becomes lost when walking and is noted when the patient's gait is tested.

5. Gait

(*a*) The time when the patient takes to walk a set distance of 29 feet is recorded.
(*b*) Mobility in gait is further tested by timing his turning 180° to the right and 180° to the left.

The degree of blocking may be observed, and also whether he is walking with a heel-toe gait or only on his toes.

6. Tremor

Tremor is partly measured by taking the number of times per 60 seconds that contact is recorded when the patient touches a microswitch by flexing and extending his forefinger at the m.p. joint. Unless purposeful movement is made contact is not recorded.

Tremor is also demonstrated very well in different ways in the handwriting test, the screwing on and off of the lid of the Balls jar, tying the shoe laces, opening the newspaper, opening and closing the pin, and the cutting out of hexagonal shape.

7. Facies

This is mainly recordable if drooling interferes with the time taken to perform a test.

8. Speech

This is often badly affected but is not assessed empirically although a notation is made on the assessment form. (Speech therapy is prescribed for these patients.)

9. Self-care

Self-care is assessed in the following tests and recorded on the A.D.L. assessment forms:
(*a*) Doing up of buttons.
(*b*) Tying of shoe laces.
(*c*) Rising from the chair.

While the patients are in hospital, the testing is done continuously. On discharge it is done at one week intervals, lengthening to two weeks and eventually to three weeks when a plateau is reached and the side effects of the drug have adjusted themselves. The regular testing enables the patient's reaction to the drug to be established from one visit to the clinic to the next visit and the dosage is adjusted accordingly.

We have found that a very good rapport is built up between the patient and therapist through this routine contact, and once the patient is acquainted with the tests he does not feel threatened by them (which does effect his performance to begin with); instead he accepts the testing as a challenge, and it is the therapist and patient against last week's results.

Very good social contact is built up between the patients themselves through the common bond, each going through the same routine testing while visiting the clinic and this has gone a long way towards establishing better social reactions in these patients. In the beginning they all just sat!

Graphs have been plotted against dosage, and the results are very dramatic. In time we hope to compare these performances with those of normal people of comparable age and background.