Fig. 3. Postencephalitic parkinsonism. Substantia nigra contains no melanin. KV×56. (Treatment a failure.)

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FAILURES OF L-DOPA TREATMENT

F. Gerstenbrand

Failures with L-Dopa treatment can be divided into two groups. In the first group the treatment is interrupted because of insufficient effect. (Some patients decide to stop the medication by themselves.) Insufficient amelio-

ration is observed in cases of severe tremor, especially postural tremor. Figures 1 and 2 show that L-Dopa influences not only rigidity but tremor as well, and especially passive tremor. Those cases with severe tremor are characterized by small differences from other parkinsonian patients; in the initial phase of Dopa therapy, postural tremor can increase.

If a stereotaxic operation is successful, L-Dopa therapy will also be successful postoperatively. In one of our patients Dopa was very effective after unilateral stereotaxic intervention greatly improved the tremor.

Another cause of lack of success with L-Dopa is advanced stage of disease. In patients with severe involvement it is thought that the extrapyramidal

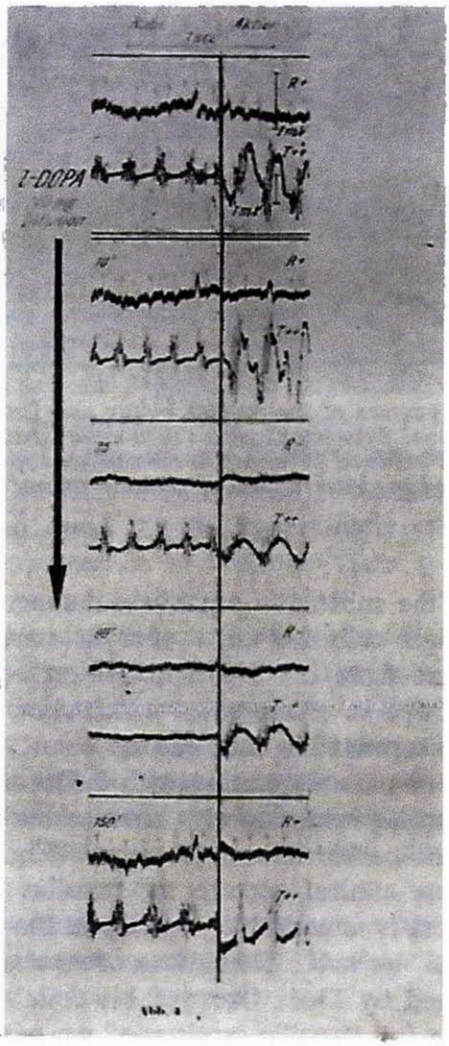

Fig. 1. Electromyogram of patient aged 53, postencephalitic parkinsonism, left-sided rigidity and right-sided tremor. EMG curve on the left during position of rest, on the right in action (light rise of the finger). *Upper curve* (m.bic.hum. coaxial needle electrode): rigidity unchanged in the resting position and in action. *Lower curve* (m.extens.indic. propr., coaxial needle electrode): resting tremor with a frequency of 5/s; on the right, postural tremor with a frequency of 6/s. The amplitude of the postural tremor is higher (6).

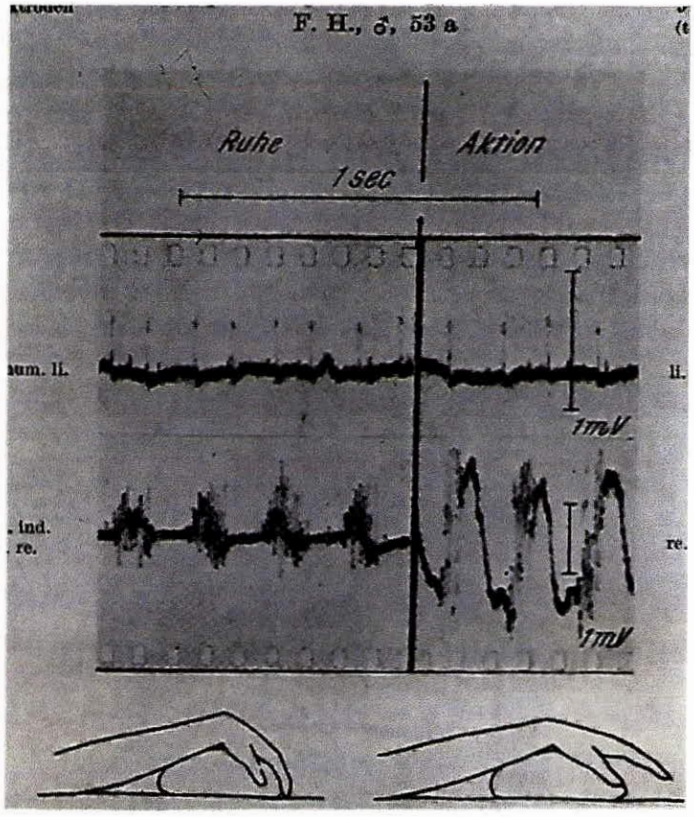

Fig. 2. An electromyogram of the patient before and for 150 minutes after 100 mg intravenous L-Dopa. Between 20 and 120 minutes there is interruption of the rigidity potential and between 40 and 100 minutes of the EMG-potentials of the resting tremor. There is no interruption of postural tremor (compare with description of Fig. 1).

structures, especially the substantia nigra, are damaged to a high degree and that the remaining nigra cells are not numerous enough to utilize the Dopa and to form dopamine from it. This supposition could be an explanation for the failure of L-Dopa in severe cases which show an initial improvement and then a brisk decompensation followed by coma.

Another subgroup of patients treated with L-Dopa shows other complications; this group comprises patients who after secondary traumatic midbrain lesions develop pseudo-parkinsonian symptoms (Fig. 3). In these patients (we call the complete clinical picture an "apallic syndrome") sometimes significant improvement is remarkable not only in the parkinsonian symptoms but in the "coma vigil" as well. The course of remission is accelerated. Our experience is confirmed by Dalle Ore and his collaborators (personal communication). For the full "apallic syndrome" we recommend first the intravenous administration of L-Dopa. The dose depends on the stage of the condition; we use doses of between 300 and 1000 mg per day. Failures are caused by the high irritability of the circulatory system and the exaggerated reaction of the autonomic system in "apallic" patients.

Failures can also be explained by the use of L-Dopa when indications do

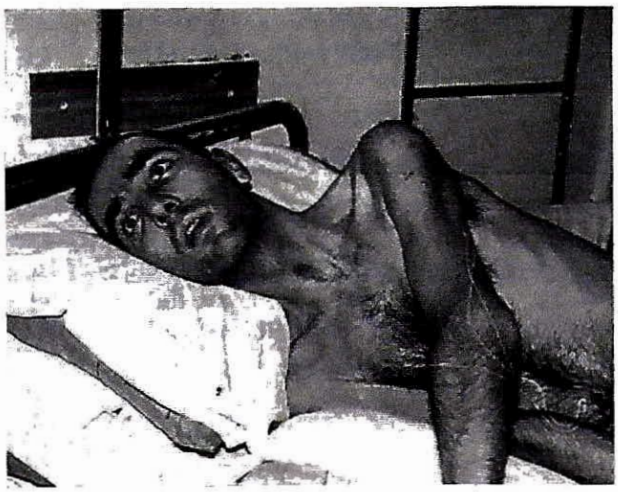

Fig. 3. A patient aged 27 with traumatic apallic syndrome with Parkinson symptoms.

not warrant it, such as with postencephalitic tic with slight parkinsonian symptoms, or the akinetic-rigid form of Huntington's chorea.

The second major group of failures is caused by side effects such as dyskinesia, hallucinations and a severe decrease of blood pressure.

The dyskinesias are very similar to the hyperkinesias which appear with treatment with high doses of Majeptil in psychotic or neurotic patients.[1] Calne and collaborators [2] confirm this opinion. From this analogy, the hyperkinetic movements might be explained as an overaction of extrapyramidal structures to a surplus of dopamine. A decrease in dosage stops the dyskinesias in nearly all cases. If the hyperkinetic movements persist with lower doses of L-Dopa, damage to the neostriate system is possible; the L-Dopa therapy should be cancelled.

Hallucinations are introduced by a period of restlessness and dysphoria. The hallucination state can change to a delirium with visual hallucinations. Hallucinatory patients often show signs of cerebral arteriosclerosis and abnormalities in the electroencephalogram; such abnormalities increase during treatment. Patients with distinct arteriosclerotic symptoms should be refused L-Dopa in order to avoid delirium and hallucinatory reaction. (Incidentally, hallucinations during L-Dopa treatment are very similar to hallucinations from Artane or belladonna.)

Occasionally L–Dopa therapy fails in patients with unstable hypertension because of persisting reactive hypotension. In these cases, L-Dopa cannot be administered in doses sufficient to be effective.

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PARKINSONISM AGGRAVATED OR UNIMPROVED BY L-DOPA. PARTICULAR CLINICAL SIGNS

R. Tissot

At examination we are unable to determine which patients will benefit from treatment with L-Dopa and which patients will not. At best we have perhaps obtained some indices which we would like to discuss here.

First, the etiological forms of parkinsonism, as far as one can identify them, do not seem important.

On the other hand, the three teams directed by Ajuriaguerra, Gauthier and myself, trying to evaluate the therapeutic effects of L-Dopa, came independently upon the same indices: patients aggravated or unimproved by L-Dopa had paradoxical kinesias. Akinesia (hypokinesia) was severe, but also peculiar. Difficulty in initiating movements was quite pronounced, lasting perhaps for several seconds. Once started, however, relatively rapid activity followed.

This latter manifestation was especially noted in walking: Blocked as if glued to the floor, patients start abruptly and quite rapidly, sometimes even running for several meters. Such was the case of a patient worsened by L-Dopa whose family was struck by this peculiarity. Stopped at the curbstone, he would take off into the street unable to stop and risking collision.

The "stick phenomenon," well known in the majority of patients with parkinsonism, is observed spontaneously in these patients. It is simply one index of an otherwise classic clinical picture.

These paradoxical kinesias must correspond to very particular modifications of muscle tone.

We hope to go beyond our strictly clinical observations by objectively noting changes in muscle tone with Paillard's method of comparative registration of H and T reflexes.

L-DOPA
and
PARKINSONISM

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