A prospective, randomised, double-blind study effect of levodopa in combination with physiotherapy on functional motor recovery after stroke.

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Background and Aims:

Functional disability is generally caused by hemiplegia after stroke. Physiotherapy used to be the only way of improving motor function in such patients. However, administration of amphetamines in addition to exercise improves motor recovery in animals, probably by increasing the concentration of norepinephrine in the central nervous system. Our aim was to ascertain whether levodopa could enhance the efficacy of physiotherapy after hemiplegia.

Methods:

We did a prospective, randomised, placebo-controlled, double-blind study in which we enrolled 49 primary stroke patients. For the first 3 weeks patients received single doses of levodopa 100 mg or placebo daily in combination with physiotherapy. For the second 3 weeks patients had only physiotherapy. We quantitatively assessed motor function every week with Rivermead motor assessment (RMA).

Results:

FINDINGS:Six patients were excluded from analyses because of non-neurological complications. Motor recovery was significantly improved after 3 weeks of drug intervention in those on levodopa (RMA improved by 6.4 points) compared with placebo (4.1), and the result was independent of initial degree of impairment ($p<0.004$). The advantage of the levodopa group was maintained at study endpoint 3 weeks after levodopa was stopped. At the end of the study the total RMA score gain for the levodopa group was 8.2 points compared with 5.7 in the placebo group ($p=0.020$).

Conclusions:

A single dose of levodopa is well tolerated and, when given in combination with physiotherapy, enhances motor recovery in patients with hemiplegia. In view of its minimal side-effects, levodopa will be a possible add-on during stroke rehabilitation.