MAR 04, 2020

Levodopa kinetic-dynamic test

PLOS One

Manuela Contin ¹

¹IRCCS- Istituto delle Scienze Neurologiche di Bologna- Dipartimento di Scienze Biomediche e Neuromotorie, Università di Bologna, Bologna Italy

Margherita Galletti

ABSTRACT

Levodopa oral test

Administration of a subacute dose of levodopa (100 mg) plus benserazide (25 mg) or carbidopa (25 mg) under standardized conditions.

Levodopa kinetic–dynamic monitoring

Measurements of plasma levodopa concentrations and clinical effects by objective motor tests (alternate finger tapping test).

OPEN ACCESS

DOI:

[dx.doi.org/10.17504/protocols.io.bbq8imzw](https://doi.org/10.17504/protocols.io.bbq8imzw)

External link:

<https://doi.org/10.1371/journal.pone.0229729>

Protocol Citation: Manuela Contin 2020. Levodopa kinetic-dynamic test.

protocols.io

<https://dx.doi.org/10.17504/protocols.io.bbq8imzw>

MANUSCRIPT CITATION:

Contin, M., Riva, R., Martinelli, P., Albani, F., Avoni, P., and Baruzzi, A. (2001) Levodopa therapy monitoring in patients with Parkinson's disease: a kinetic-dynamic approach. *Ther Drug Monit*, 23:621-629.

License: This is an open access protocol distributed under the terms of the [Creative Commons Attribution License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

Protocol status: Working

Created: Jan 24, 2020

Keywords: Levodopa,
Parkinson Disease,
Pharmacokinetics,
Pharmacodynamics, alternate
finger tapping test.

- 1 Administration of a subacute test dose of levodopa (100 mg) plus benserazide (25 mg) or carbidopa (25 mg) under standardized conditions:
 - Fasting dosing
 - At least 12 hours of levodopa and possibly concomitant antiparkinsonian therapy wash-out
- 2 Blood samplings are drawn by an indwelling catheter before levodopa dosing, at 15-min intervals for the first 90 min, then half-hourly, up to 3 hours after dosing.
- 3 Blood specimens are transferred into heparinized tubes and immediately centrifuged at 1500*g* for 10 minutes at 4°C. Plasma samples are stored at -80°C until analysis (usually within 6 months).
- 4 Levodopa plasma concentration measurements are performed by high-performance liquid chromatography (HPLC) with coulometric detection (Baruzzi, A., Contin, M., Albani, F., and Riva, R. (1986) Simple and rapid micromethod for the determination of levodopa and 3-O-methyldopa in human plasma by high-performance liquid chromatography with coulometric detection. *J Chromatogr*, 375:165-169).
- 5 Motor effects are tested by the alternate index finger tapping test (the number of times the patient could alternately tap two buttons 20 cm apart in 60 seconds with the most affected hand) up to 4 hours post-dosing, using a computerized touch screen system (mTapping, mHealth Technologies srl, Bologna, Italy).
- 6 Possible levodopa induced dyskinesias are rated at the same times as motor responses by the Clinical Dyskinesia Rating Scale (CDRS) (Hagell P., Widner H. (1999) Clinical rating of dyskinesias in Parkinson's disease: use and reliability of a new rating scale. *Mov Disord*, 14: 448-455.).