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Therapeutic and adverse effects of chronic oral intake of Mucuna pruriens seed extracts or L-DOPA methyl ester in 6-hydroxydopamine lesioned rats

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FENS Forum 2010 - Amsterdam

- Posters: to be on display from 8:00 to 13:15 in the morning and from 13:30 to 18:45 in the afternoon. Poster sessions run from 09:30 to 13:15 in the morning and from 13:30 to 17:30 in the afternoon. A one hour time block is dedicated to discussion with the authors (authors should be in attendance at their posters as from the time indicated.)
- For other sessions, time indicates the beginning and end of the sessions.

First author Jørgensen, Monica (poster)

Poster board C24 - Wed 07/07/2010, 11:15 - Hall 1
Session 197 - Parkinson's 3
Abstract n° 197.24
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Title Therapeutic and adverse effects of chronic oral intake of Mucuna pruriens seed extracts or L-DOPA methyl ester in 6-hyroxydopamine lesioned rats

Text Chronic levodopa (L-DOPA, L-3, 4-dihydroxyphenylalanine) therapy in Parkinson's Disease (PD) is associated with motor complications, including dyskinesias. Seeds of Mucuna pruriens (MP) are rich in L-DOPA, and in traditional Ayurvedic Indian Medicine MP preparations are used to treat PD. It has been suggested that MP preparations induce less motor complications in PD patients than synthetic L-DOPA preparations. In a pilot-study, in the unilateral 6-hydroxydopamine (6-OHDA) lesioned rat model of PD, using daily intraperitoneal injections of 12.5 mg DOPA/kg for 3 weeks, we observed less L-DOPA-induced abnormal involuntary movements (AIMs) in MP (methanol extract) - treated rats as compared to L-DOPA methyl ester (LDME) -treated rats, although plasma DOPA levels reached similar levels 30-60 min post injection. Fluctuating plasma DOPA levels are, however, known to contribute to L-DOPA-induced dyskinesias and in PD patients L-DOPA is mainly administered orally. Therefore, we studied here whether chronic (3-4 weeks), oral intake of LDME or MP via drinking water (1-2 mg DOPA/ml) causes AIMs in the 6-OHDA rat model. Plasma DOPA levels reached peak values at the end of the dark, i.e. active, period with about 5-fold higher peak levels in LDME–treated rats. Parkinsonian forelimb use (i. e. contralateral to the 6-OHDA lesion) was improved using 1.5-2 mg/ml DOPA, but six out of eleven LDME-treated rats developed AIMs of variable severity. Whether chronic oral intake of MP extracts - prepared by solvents of different polarities - induces AIMs or other adverse effects remains to be investigated.

Theme C - Disorders of the nervous system
Parkinson's disease - Animal models

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