

# Characterising non-motor patterns of early morning off periods in Parkinson's disease: an international study.

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## BACKGROUND:

### Non-motor Fluctuations

- are common and disabling.
- can be assessed by Wearing-off Questionnaire (WOQ).<sup>1,2</sup>
- frequently described symptoms are anxiety (66%), drenching sweats (64%), slowness of thinking (58%), fatigue (56%) and akathisia (54%).<sup>3</sup>

### Early morning off periods (EMO)

- are thought to be common in Parkinson's disease (PD) but the exact prevalence is unknown.
- clinical characteristics and non-motor associations have not been specifically studied.
- possibly motor and non-motor (sleep dysfunction related) subtypes can be identified by PD Sleep Scale (PDSS) 1 and 2.<sup>4,5</sup>

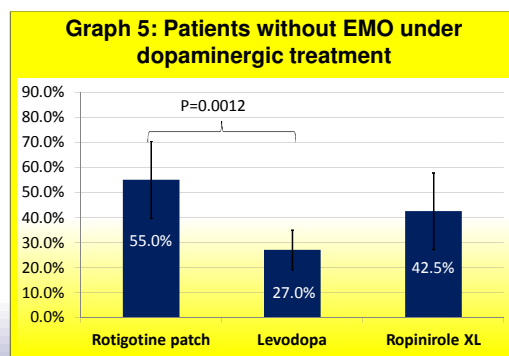
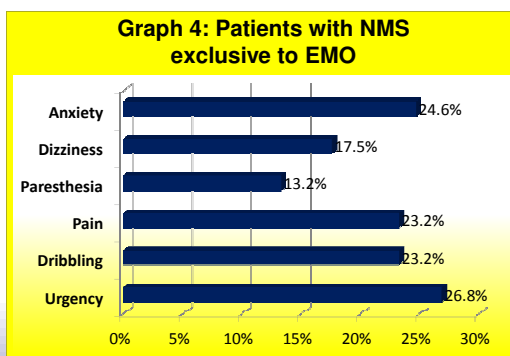
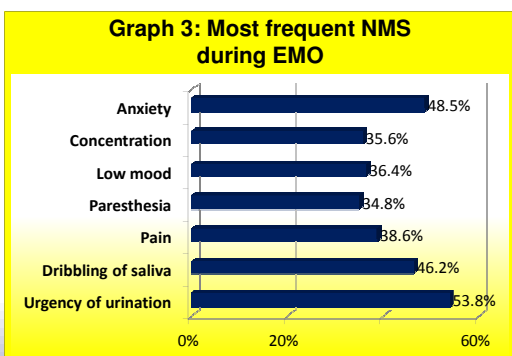
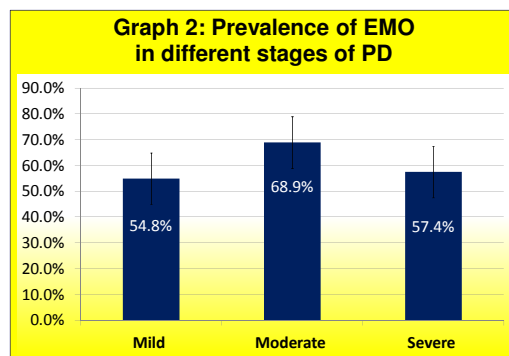
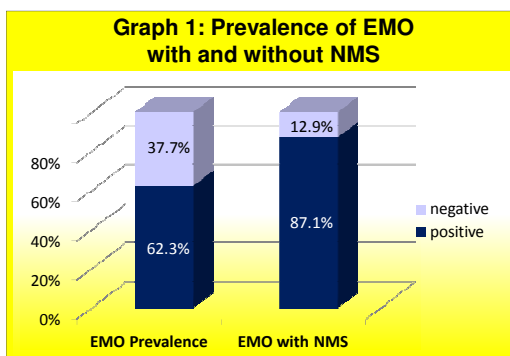
## OBJECTIVE:

To characterise range and nature of non-motor aspects of early morning off periods (EMO) in a consecutive series of PD patients across all stages.

## METHODS:

- In this ongoing European observational collaborative study
- PD patients satisfying UKPD brain bank criteria on dopaminergic treatment were identified.
  - EMO was evaluated by a structured questionnaire, including a UPDRS and a PDSS item.
  - EMOs with non-motor symptoms (NMS) were assessed by retrospective application of NMSQuest in those with EMO.
  - EMOs were classified to motor and mixed (motor + non motor).
  - Patterns of NMS with EMO were identified and compared to NMS occurring during the day.

Demographics	Mean/ No	Median/ Range/ %
Patients	212	
Males	140	66.0%
Females	72	34.0%
Age (yrs)	68.3	42–88
H&Y stage (yrs)	2.8	3.0±2.0
Duration of Disease (yrs)	7.2	0–24



## RESULTS 1:

- A consecutive series of 212 patients with treated PD (42-88 yrs) have been assessed so far (table 1).
- EMO being present in 62.3% (58.6% of males, 69.4% of females) with most (87.1%) being mixed in character (motor (M-EMO) and non-motor (NM-EMO)) while only 12.9% are pure motor in type (graph 1).
- M-EMO and NM-EMO were equally prevalent in mild (H&Y stages 1-2), moderate (H&Y 2.5-3) and in severe disease (H&Y 4-5) (graph 2).

## REFERENCES:

- <sup>1</sup>Antonini et al., Mov Disord 2011 Oct; 26(12):2169-75.  
<sup>2</sup>Stacy et al., Mov Disord 2005; 20:726-33. 55.  
<sup>3</sup>Wijjas. et al., Neurology 2002 Aug; 59 (3): 408-413.  
<sup>4</sup>Chaudhuri et al., JNNP 2002; 73:629-635  
<sup>5</sup>Trenkwalder et al., Mov Disord 2011; 26 (4):644-652.

## RESULTS 2:

- Most prevalent NMS in EMO were anxiety, concentration problems and low mood, pain and paresthesia, dribbling of saliva and urgency (graph 3).
- In some patients NMS like urgency, dribbling, paresthesia, pain or dizziness occur during EMO, but not during the rest of the day (graph 4).
- When comparing patterns of dopaminergic therapy, 55% of the cohort on rotigotine patch were free of M/NM-EMO, while significantly less (27%) of levodopa treated cohort (incl. levodopa CR) reported no EMO (graph 5).
- In most patients NMS in EMO were unrecognised.

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**CONCLUSIONS:** Early morning off periods are frequent across all stages of PD and are often associated with a number of non-motor symptoms. Recognition is important, as these NMS may be treatable e. g. by longer acting dopaminergic therapies.