

Effects of Acute Dopamine-Agonist Treatment on Sleep Architecture and NREM Sleep Instability in Restless Legs Syndrome

Raffaele Ferri,^a Mauro Manconi,^b Debora Aricò,^a Carolina Sagrada,^b Marco Zucconi,^b Oliviero Bruni,^c Alessandro Oldani,^b Luigi Ferini-Strambi,^b

a Sleep Research Centre, Department of Neurology I.C., Oasi Institute (IRCCS), Troina;

b Sleep Disorders Center, Department of Neurology, Scientific Institute and University Ospedale San Raffaele, Vita-Salute University, Milan;

c Pediatric Sleep Center, Department of Developmental Neurology and Psychiatry, Sapienza University, Rome, Italy

The aim of this study was to analyze cyclic alternating pattern (CAP) in restless legs syndrome (RLS) and the eventual changes induced by the acute administration of pramipexole. Thirty-four patients were included: 19 patients received 0.25mg pramipexole and 15 were given placebo. The control group included 13 normal subjects. Nocturnal polysomnography was carried out in all subjects and a second night was recorded after pramipexole or placebo. Sleep stages, CAP, and leg movement activity were scored following standard criteria.

At baseline, only REM sleep latency was significantly longer in RLS patients than in normal controls; also the periodic leg movements during sleep (PLMS) index was significantly higher. On the other hand, many CAP parameters appeared to be significantly different with a general increase in CAP rate in patients due to a higher number of arousal-related events (CAP subtypes A2 and A3) and to a relative decrease in slow-wave containing events (A1 subtypes). Acute administration of pramipexole induced moderate sleep architecture changes (increased stage shifts, sleep efficiency, and sleep stage 2), and decreased wakefulness after sleep onset and PLMS index. No treatment effects were observed on CAP.

RLS patients show significant sleep microstructure abnormalities, represented by an excessive sleep instability/discontinuity. Acute pramipexole administration seems to exert no action on these abnormalities and the moderate effects seen on sleep architecture might be interpreted as the beneficial consequence of the removal of pre-sleep RLS symptoms and PLMS.