

**eSupplementary Table 2: Case Reports of sleep disturbance in movement disorders**

Disorder	Author	Year	Cohort	Assessment	Outcome
Parkinsonism	Tracik et al. <sup>1</sup>	2001	PD (1)	48 hours of continuous PSG, MSLT	PLMS and MSLT were normal, patient presented with irresistible sleep onset and 'sleep attacks' marked with K-complexes
Parkinsonism	Cormican et al. <sup>2</sup>	2004	MSA (1)	Thoracic and abdominal strain-gauge impedance plethysmogram	Presence of CSA
Parkinsonism	Suzuki et al. <sup>3</sup>	2010	MSA (1)	Overnight PSG	Complex SBD, central apnea emerged. No RBD or RLS
Parkinsonism	Tachibana et al. <sup>4</sup>	2004	MSAS (1)	One night of PSG longitudinally over three years	Abnormal movements were observed during RWA. Sleep architecture including NREM/REM cycle was intact, although sleep spindles became scarcer in the third PSG. The percentage of REM sleep (including RWA) in total sleep time remained almost the same (11.9, 21.2, 16.3%), but the ratio of RWA to the whole of REM sleep increased (75.8, 84.7, 100%)
Parkinsonism	Garcia-Sanchez et al. <sup>5</sup>	2016	MSA (1)	PSG, ESS	Reduced REM sleep and sleep efficiency, normal ESS, presence of CSA
Parkinsonism	Moccia et al. <sup>6</sup>	2015	PSP (1)	IRLSSG, PSQI, ESS	RLS diagnosis was fulfilled, impaired sleep quality (10) and EDS (13)
Parkinsonism	Tateno et al. <sup>7</sup>	2011	PSP (1)	EMG	Presented with OSA
Parkinsonism	Lee <sup>8</sup>	1991	PSP (1)	PSG	PSG revealed fragmented sleep architecture, very little SWS and REM sleep and central apnea
Parkinsonism	Iriarte et al. <sup>9</sup>	2001	CBD (1)	v-PSG	Nocturnal recordings identified frequent periodic movements – PLMS was 30
Parkinsonism	Kimura et al. <sup>10</sup>	1997	CBD (1)	Overnight PSG	RWA was observed with vocalisations. No sleep disordered breathing
Parkinsonism	Wetter et al. <sup>11</sup>	2002	CBD (1)	Overnight PSG with an interval of 13 months	PSG found RWA and high periodic leg movements in the upper (32) and lower (16) extremities. Reduced SWS
Huntington's Disease	Evers et al. <sup>12</sup>	2003	HD (1)	PSG with PLMS index	RLS was found in a family with HD. Family reports revealed some members had RLS and not HD. Patient had a PLMS index of 10
Huntington's Disease	Savva et al. <sup>13</sup>	2009	HD (1)	PSG, IRLLG	Complaints of daytime sleepiness. PSG confirmed presence of PLMS and suggested that RLS may be an early feature in some HD patients
Huntington's Disease	Banno et al. <sup>14</sup>	2005	HD (1)	Overnight PSG, ESS	OSA during REM sleep – AHI was 6.6 per hour. ESS score was 8
SCA	Shindo et al. <sup>15</sup>	2019	SCA 31 (1)	Overnight PSG	RWA determined by PSG and husband reported patient talking loudly during sleep
SCA	Ghorayeb et al. <sup>16</sup>	2005	SCA3 (1)	Overnight PSG	Abnormal movements occurred during NREM postulated as a parasomnia. PLM were not disclosed by PSG.
SCA	Fukutake et al. <sup>17</sup>	2002	SCA3 (1)	Overnight PSG	Patient reported severe insomnia. PSG showed decreased rates of sleep time and REM stage
SCA	Kapoor et al. <sup>18</sup>	2015	SCA 13 (1)	Overnight PSG	Significantly elevated PLMI, mild OSA and absence of REM sleep, diagnosis of insomnia
Wilson's Disease	Firneisz et al. <sup>19</sup>	2000	WD (1)	PSG	Hypersomnia was confirmed by PSG
Wilson's Disease	Amann et al. <sup>20</sup>	2015	WD (1)	PSG, MSLT, ESS	Patient had an ESS of 13. PSG did not show any abnormalities. The MSLT confirmed diagnosis of hypersomnolence

IgLON5	Högl et al. <sup>21</sup>	2015	IgLON5 (1)	v-PSG	OSA (14.6/h) and stridor was observed. PSG showed increased REM sleep and muscle tone
IgLON5	Simabukuro et al. <sup>22</sup>	2015	IgLON5 (1)	PSG	PSG detected OSA
NBIA	Gore et al. <sup>23</sup>	2016	MPAN (1)	Clinical evaluation	Sleeping 14 hours a day and developed RBD
NBIA	Long et al. <sup>24</sup>	2015	BPAN (1)	Clinical evaluation	Described as a restless sleeper but sleep evaluation was normal
NBIA	Ohba et al. <sup>25</sup>	2014	BPAN (1)	Clinical evaluation	Sleep disturbances were unobserved
NBIA	Endo et al. <sup>26</sup>	2017	BPAN (1)	Clinical evaluation	Showed symptoms of sleep problems
NBIA	Paudel et al. <sup>27</sup>	2015	BPAN (1)	Clinical review	Patient presented with disturbed sleep with early morning awakening
NBIA	Yoganathan et al. <sup>28</sup>	2016	BPAN (1)	EEG, clinical evaluation	Circadian rhythm sleep disorder with fragmented sleep
NBIA	Hoffjan et al. <sup>29</sup>	2016	BPAN (1)	EEG, clinical evaluation	Sleep pattern appeared not to be disturbed
NBIA	Guk et al. <sup>30</sup>	2019	PKAN (1)	PSG	Patient presented with symptoms of OSA, AHI of 16.2/h. AHI was markedly higher during REM sleep (31.4/h). Patient had no PLMS or parasomnia
Tic Disorders	Trajanovic et al. <sup>31</sup>	2004	TS (1)	Longitudinal case report 4yrs, PSG (1999 + 2002)	Report of REM and non-REM parasomnia and PLMS in this patient

**Key:** AHI: Apnea Hypopnea Index, BPAN: Beta-propeller protein-associated neurodegeneration, CBD: Corticobasal Degeneration, CSA: Central Sleep Apnea, EDS: Excessive daytime sleepiness, EEG: Electroencephalogram, EMG: Electromyography, ESS: Epworth Sleepiness Scale, HD: Huntington's Disease, IRLSSG: International Restless Legs Syndrome Study Group, MPAN: Mitochondrial membrane protein-associated neurodegeneration, MSA: Multiple System Atrophy, MSLT: Multiple Sleep Latency Test, NBIA: Brain Iron Accumulation Disorders, OSA: Obstructive Sleep Apnea, PD: Parkinson's Disease, PKAN: Pantothenate kinase-associated neurodegeneration, PLMS: Periodic Limb Movements during Sleep, PSG: Polysomnography, PSP: Progressive Supranuclear Palsy, PSQI: Pittsburgh Sleep Quality Index, RBD: REM sleep behaviour disorder, REM: Rapid Eye Movement Sleep, RLS: Restless Leg Syndrome, RWA: REM sleep without atonia, SBD: Sleep Breathing Disorders, SCA: Spinocerebellar Ataxia, SWS: Slow Wave Sleep, TS: Tourette's Syndrome, WD: Wilson's Disease.



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