Restless Legs Syndrome/Willis-Ekbom Disease (RLS/WED): a clinical and polysomnographic study

Fabrizio Rinaldi[1, 2], Marco Zucconi[2], Alessandro Oldani[2], Andrea Galbiati[2,3], Sara Marelli[2], Alessandro Padovani [1], Luigi Ferini Strambi[2,3]

[1]Clinical Neurology, University Hospital "Spedali Civili", Brescia
2 San Raffaele Scientific Institute, Dept of Clinical Neurosciences, Sleep Disorders Center, Milan, Italy
3 Vita-Salute San Raffaele University, Faculty of Psychology, Milan, Italy

Introduction

Idiopathic and **secondary RLS/WED** can have a **familial** component. Clinical features variability between familial and sporadic cases has been previously compared.

An association between an **early age-at-onset** and the presence of a **positive family history** of RLS/WED has been reported.

Although the diagnostic criteria for RLS/WED describe the symptoms as confined mainly to the **legs**, some patients report symptoms also in the **upper limbs**.

Aims

To described determine the **clinical** and **polysomnographic characteristics** of a cohort of RLS/WED patients.

Patient and methods

400 RLS/WED patients (229 women, mean age 62.05±13.80 years) were studied, including information on age-at-onset, familial history, time of symptoms onset, the localization of symptoms, disease severity and the presence of impulse control behaviours (ICBs).

The RLS/WED **topography patterns** were classified according to localization in upper limbs (UL), lower limbs (LL) or both, and lateralization.

Discussion and Conclusions

Our analyses support the hypothesis that RLS/WED is divided into **sporadic** and **familial** disease, but with smaller differences than previously reported.

Additionally, patients with a familial history of RLS/WED were **almost ten years younger** than those without, confirming that early onset RLS/WED may have a **genetic** component.

A high percentage of patients showed a **time of symptoms** onset **after sleep onset**. RLS/WED patients treated with DA showed higher **risk of ICBs** than previously reported.

RLS/WED symptoms were typically symmetrical and located in the lower extremities. The clinical characteristics did not change as a function of the localization of symptoms.

Results

Familial RLS/WED was present in 186 (**53.5**%) patients. Patients with familial RLS/WED were **younger** (40.44 ± 16.43 years vs. 49.03±15.33 years, p=0.00). Clinical and polysomnographic characteristics were **similar** in both groups.

RLS/WED was **idiopathic** in **277 subjects** (iRLS/WED). They had **similar age of onset** compared to **secondary** RLS/WED (44.89±16.35 years vs. 45.02±16.64 years, p=0.94). PLM index was higher in iRLS/WED (145±44.65 vs. 83±31.91, p 0.026).

Time of onset of symptoms was in the evening/bedtime in 65.84% of patients, while it was **>1h after sleep onset in 21.34%.**

ICBs were found in **23/173** RLS/WED patients on dopamine agonist (DA) therapy.

Bilateral and symmetric LL localization was the most common (74.7%), while 4.1% exhibited asymmetric LL localization. Four limbs involvement was symmetrical in 17.8% and asymmetrical in 2.7% of patients.

The **severity** of RLS/WED was similar independently of localization.

***TABLE**. Clinical phenotype of RLS/WED patients*

Time of RLS/WED symptoms onset	**Evening 28.04%** **Bedtime 37.80%** **More than one hour after sleep onset 21.34%** **In the afternoon 5.48%** **Both at day and at night 7.31%**
Impulse control symptoms	**Total 13.29%** **Abnormal eating 7.51%** **Sexual behaviours 4.64%** **Gambling 1.15%** **Punding 2.31%**
Comorbidities	**Diabetes 3.93%** **Psychiatric disorders 16.72%** **Hypertension 13.44%** **Neuropathies 4.59%** **Sleep difficulties 80%** **Uremia 0.32%**
Localization of Symptoms	**Bilateral and symmetric lower limbs (LL) 74.7%** **Asymmetric LL 4.1%** **Upper limbs 0.7%** **Four limbs symmetrical 17.8%** **Asymmetrical 2.7%**
Age at Onset	**44.93 16.42**