

CSF and serum ferritin levels in narcolepsy type 1 comorbid with restless legs syndrome

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Objectives: To investigate whether cerebrospinal fluid (CSF) and serum ferritin levels differ between patients with narcolepsy type 1 (NT1) comorbid with restless legs syndrome (RLS) or periodic leg movements of sleep (PLMS), and patients with NT1 or controls without comorbid RLS or PLMS.

Methods: 66 drug-free patients with NT1 (44 men, median age 38.5 years [14-81]), with orexin (ORX) deficiency were enrolled, including 20 with RLS, 18 with PLMS index ≥ 15 /hour (six with both RLS and PLMS). 38 drug-free patients (12 men, age 22.5 years [12-61]) without central hypersomnia, RLS, PLMS, and without ORX deficiency were included as controls. Clinical, electrophysiological, and biological (CSF and serum ferritin, and CSF-ORX levels) data were collected and quantified.

Results: NT1 patients with and without RLS did not differ for age, sex, and BMI. No between-group differences were found for CSF, serum ferritin, or CSF-ORX levels. Similarly, no CSF, serum ferritin, or CSF-ORX levels differences were found between NT1 patients with and without PLMS, or between NT1 comorbid with RLS or PLMS vs not. Compared to controls, NT1 patients were older, more frequently men, with a higher BMI, and higher serum ferritin levels. However, CSF-ferritin levels were not different between groups in adjusted analyses. CSF-ferritin levels in the whole population correlated positively with age, Serum ferritin, BMI, and negatively with ORX levels, but not with PLMS index. In patients with NT1, CSF ferritin levels also correlated with age and Serum-ferritin but not with PLMS.

Conclusion: The absence of CSF ferritin deficiency in NT1 patients with comorbid RLS or PLMS indicates normal brain iron levels in this condition. This suggests that the frequent association between RLS, PLMS and NT1 is not based on alterations in brain iron metabolism, a pathophysiological mechanism involved in primary RLS.