

## Nocturnal eating in patient comorbid with multiple sleep disturbances and ESRD

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**Background:** Abnormal nightly eating is classified into two categories: night eating syndrome (NES) and sleep-related eating disorder (SRED). In patients with night eating syndrome, delayed circadian intake of food is the typical feature and high caloric foods are preferred in this group. Recent studies indicated that high prevalence of abnormal nightly eating behavior was noted among groups with restless leg syndrome (RLS) / periodic limb movements (PLMD) and narcolepsy. However, the pathological relationship between abnormal nightly eating and above sleep disturbances is still elusive. In this case report, we demonstrate a case of abnormal night eating syndrome comorbid with multiple sleep disturbances and ESRD to discuss possible pathology of night eating syndrome in patient with multiple sleep disturbances.

**Case report:** A 67-year-old male comorbid with diabetes mellitus (DM) ( $\text{GLU-AC} > 250 \text{ mg/dl}$ ), polyneuropathy and end-stage renal disease (ESRD) under hemodialysis, body mass index (BMI) of  $24.1 \text{ kg/m}^2$ , complained of insomnia, hypersomnolence, habitual snoring and discomfort sensation of limbs during sleep for several years. Both polysomnography (PSG) and CPAP titration were arranged to diagnose sleep disturbance. Severe obstructive sleep apnea (OSA) (AHI: 41.0/h), RLS/PLMD (PLM index: 65.7/h) were diagnosed after PSG and titration. In addition, nocturnal eating with high caloric food and sleep onset REM were also noted during examination. Due to symptoms of RLS, patient could not tolerate CPAP. Based on above symptoms and result of examination, multiple sleep disturbances and nocturnal eating syndrome may lead to intolerance to CPAP, poor sleep quality and ineffective blood glucose control in this case.

**Discussion:** Recent studies indicated that nocturnal eating such as NES and SRED may be common features in RLS group. Some studies demonstrated nocturnal eating in RLS could be improved by dopaminergic medication. The common cause of RLS included ESRD, iron deficiency and diabetic neuropathy. Particularly, hemodialysis-related iron deficiency may affect metabolism of dopamine. Second, recent studies demonstrated a high prevalence of nocturnal eating symptoms in poor control diabetic patients. In this case, nocturnal eating may be the key factor to cause the poor condition of DM and ESRD. Finally, in addition to above evidences, other studies indicated that narcolepsy may be associated with nocturnal compulsive behaviors such as nocturnal eating and RLS. In this case, SOREMP and hypersomnolence were noted in PSG. Further exam such as MSLT may help us to distinguish whether narcolepsy is another factor to induce nocturnal compulsive behaviors.

**Conclusion:** Sleep disturbances such as OSA, RLS/PLMD and circadian rhythm disturbance are common in patient with ESRD. Above sleep disturbances may contribute to night eating symptoms which may deteriorate glucose control and renal function in ESRD group. Due to limited evidences, influence of nocturnal eating on the outcomes of ESRD and diabetic patients may be an inquisitive issue in the future.

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