

## **PET FINDINGS IN OBSTRUCTIVE SLEEP APNEA PATIENTS WITH RESIDUAL SLEEPINESS UNDER CPAP**

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Despite sufficient CPAP therapy some patients with the obstructive sleep apnea syndrome (OSAS) still suffer from excessive daytime sleepiness (EDS). In some of them no cause of the persistence of EDS can be found. Brain damage due to nocturnal hypoxemia is a potential cause for this unclear persistent sleepiness (UPS). This study was done to evaluate this hypothesis. Patients with UPS were identified among the OSAS patients, who came for a CPAP-therapy checkup to our sleep disorders center. UPS criteria were a ESS-score  $\geq 12$  after at least one year of CPAP therapy, with no explanation for persistence of EDS, as evaluated by standard diagnostic procedures. To investigate possible brain damage, FDG-PET was used. Out of 167 patients under CPAP therapy, 48 scored ESS  $\geq 12$ , and 13 of them had UPS. We obtained FDG-PET in 7 of the 13 UPS-patients. Abnormal PET findings were concentrated in frontal area. Three patients showed frontal glucose hypoutilization and one had frontal glucose hyperutilization. The findings in other brain regions were inconsistent. In all but one previous neuroimaging studies in OSAS, no specific changes in the frontal area were reported. Since all previous studies examined patients irrespective of the presence of UPS, the changes in frontal area reported here may reflect the pathophysiological processes underlying UPS in OSAS.