

## **Periodic limb movement in sleep following continuous positive airway pressure treatment in patients with obstructive sleep apnea: a meta-analysis**

<sup>1</sup>Department of Neurology, Kaohsiung Medical University Hospital, <sup>2</sup>Department of Psychiatry, Tsy-Huey Mental Hospital, <sup>3</sup>Prospect Clinic for otorhinolaryngology & neurology

Chun-Yi Tsai<sup>1</sup>, Ping-Tao Tseng<sup>2</sup>, Meng-Ni Wu<sup>1</sup>, Yen-Wen Chen<sup>3</sup>, Chung-Yao Hsu<sup>1\*</sup>

**Objective:** Periodic limb movement in sleep (PLMS) can exist alone or in combination with other sleep disorders, including obstructive sleep apnea (OSA). The frequency of PLMS varied before and after continuous positive airway pressure (CPAP) treatment. Thus, we investigated the change of PLMS following CPAP treatment based on meta-analysis.

**Methods:** PubMed was systematically searched up to January 2017. Ten clinical trials were identified and included in this meta-analysis. The primary outcome was the change of periodic limb movement index (PLMI). The secondary outcome was the change of PLM-related arousal index (PLMAI). We also performed subgroup analysis in terms of patient without or without baseline PLMS, patient with baseline apnea-hypopnea index (AHI) >35 or <35, patient with age <60 or >60 years old.

**Results:** The main result revealed that there were no significant change of both PLMI (Hedges'  $G = 0.132$ , 95% CI = -0.052 to 0.316,  $P = 0.160$ ) and PLMAI (Hedges'  $G = 0.212$ , 95% CI = -0.196 to 0.620,  $P = 0.308$ ) before and after CPAP treatment. The subgroup analysis showed significantly increased PLMI in patients without baseline PLMS, and significantly increased PLMAI in patients with either baseline AHI > 35 or age > 60 years old.

**Conclusion:** The meta-analysis showed that CPAP treatment might be associated with PLMS in OSA patients without baseline PLMS, and also associated with PLM-related arousals in patients with either more severe OSA or advanced age. More clinical trials will be needed to elucidate these links.