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**Introduction:** Obstructive sleep apnea (OSA) is a prevalent sleep-related breathing disorder which might be caused by multiple pathogeneses primarily including upper airway (UA) anatomic impairment, ventilatory drive instability and oropharyngeal muscle dysfunction. However, the previous studies have demonstrated that most OSA population has been regarded as collapsible UA with poor oropharyngeal function. OSA is defined by repetitive events of complete and partial obstructions of the upper airway. The repetitive hypoxia and re-oxygenation increase the systemic inflammation and deteriorate the oxidative stress. Recently, OSA has been proven high comorbidity with cardiovascular diseases which in inflammatory processes control the critical pathway. The prevalence of cardiovascular diseases among OSA compared to healthy population is higher. Therefore, we propose a comprehensive oropharyngeal rehabilitation program with 12 weeks intervention may attenuate the inflammation of OSA population.

**Objectives:** The purpose of this study is to investigate the biological effect of rehabilitation training for obstructive sleep apnea on the inflammatory expression of endothelial cells.

**Methodology:** We use RCT with participant single blinded design to explore the different inflammatory expression between pre and post intervention. The inflammatory expression was used the flow cytometric analysis (FACScan) to detect the ICAM-1 and VCAM-1 of the endothelial cell surface in response to patient's serum.

**Results:** In our study, we recruited 6 moderate to severe OSA patients and they have divided into intervention group and control group. Patients in intervention group received rehabilitation training for 12 weeks and patients in control groups had no treatment. The result of intervention group on the expression of ICAM and VCAM difference between pre- and post-intervention were  $-2.57 \pm 1.7$  and  $-4.75 \pm 8.6$ , respectively and that of control group were  $-0.37 \pm 1.6$  in ICAM and  $1.32 \pm 4.8$  in VCAM.

**Conclusion:** The clinical implication of our finding is that rehabilitation training may attenuate the inflammatory expression of endothelial cell for OSA patients, which was caused by repetitive hypoxia and re-oxygenation.

**Discussion:** There was no significant difference in inflammatory expression between two groups, but the preliminary result demonstrated that the expression of ICAM and VCAM decreased in the rehabilitation training intervention group.

### Biography

Chih-Ju Chang is currently pursuing his Master's degree in the Department of Physical Therapy in National Cheng Kung University, Taiwan. She is a Physical