



0180

Mandibular Advancement Versus CPAP on Quality-of-Life in Obstructive Sleep Apnea

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Objectives We recently reported in the CRESCENT trial that mandibular advancement devices (MAD) are non-inferior to CPAP in reducing blood pressure in patients with obstructive sleep apnea (OSA) and hypertension. This pre-specified analysis aims to compare the relative effectiveness of MAD versus CPAP in improving quality-of-life (QoL) at a 6-month follow-up.

Methods Between October 2019 and December 2022, 220 participants recruited from 3 Singapore public hospitals with OSA (apnea-hypopnea index [AHI] ≥ 15 events/hour) were randomly assigned to MAD or CPAP (1:1 ratio). QoL questionnaires (Epworth Sleepiness Scale [ESS], SAQLI, FOSQ-30, SF-36, and EQ-5D) were administered at baseline and at 6 months.

Results The MAD and CPAP groups were well balanced (85% male, median age 61 [interquartile range (IQR) 56-65] years, body mass index 27.5 [25.3-30.6] kg/m², AHI 38.2 [24.5-51.7] events/hour). MAD protrusion averaged 9.4 \pm 2.0 mm, while CPAP pressure averaged 10.3 \pm 2.5 mmHg. Treatment adherence for MAD and CPAP was 5.4 [3.7-6.7] hours and 4.9 [3.0-5.9] hours, respectively. A total of 100 participants in each group completed the 6-month follow-up (91% completion rate). Both MAD and CPAP groups showed improvements in ESS, SAQLI, FOSQ, and SF-36 (domains: role-physical, bodily pain, general health, vitality, and role-emotional) ($p < 0.005$ for all). CPAP ($p = 0.013$), but not the MAD group, improved SF-36 (domain: physical functioning). In the between-group analysis, while the CPAP group was more effective than the MAD group in improving ESS (mean difference: 1.45 [95% CI: 0.44-2.46, $p = 0.005$]), no between-group differences were observed in the improvement of SAQLI (-0.08, $p = 0.475$), FOSQ-30 (-0.51, $p = 0.127$), SF-36 (domains ranging from -0.41 to 2.95 with p -values ranging from 0.115 to 0.795), and EQ-5D (-0.03, $p = 0.322$).

Conclusions Both MAD and CPAP were effective in improving QoL at the 6-month follow-up. The relative effectiveness was similar, except CPAP was slightly more effective in improving ESS.