Continuous positive airway pressure (CPAP) supported by telemedicine improves sleepiness and quality of life but not blood pressure in high cardiovascular risk obstructive sleep apnea (OSA): A randomized, controlled trial

Body: Rationale: Correction of sleep apnea with CPAP induces only a modest reduction in blood pressure (BP) in patients compliant to therapy. Combined strategies are needed to increase objective CPAP use and improve BP control. We aimed at evaluating the effects of a combination between CPAP and a telemedicine intervention in reducing BP in high cardiovascular risk patients with OSA. Methods and results: 107 OSA patients with a ten-year total cardiovascular mortality risk predicted by SCORE>5% or in secondary prevention (age: 63±9 years; BMI: 29.9±4.8 kg/m2; AHI: 39.0±16.7/h) were randomized to standard CPAP care versus CPAP plus telemedicine follow-up for 16 weeks. Telemedicine consisted of a smartphone allowing both to assess outcomes and to provide lifestyle counseling. The primary outcome was home self-measured BP. Secondary outcomes were physical activity objectively measured by actigraphy, CPAP adherence, subjective sleepiness and quality of life. Telemedicine associated with CPAP did not significantly improve self-measured BP, CPAP adherence or physical activity when compared with standard care whereas sleepiness and quality of life scores significantly improved in both arms. Patients in primary prevention showed greater benefit from CPAP in terms of BP reduction compared to those in secondary prevention. Conclusion: CPAP treatment even supported by telemedicine is not successful in reducing BP in
high cardiovascular risk OSA patients. This study emphasizes the need for multi-modal interventions when prescribing CPAP.