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Obstructive sleep apnoea treatment and blood pressure: which phenotypes predict a response? A systematic review and meta-analysis

Martino F. Pengo[1], Davide Soranna[1,7], Alice Giontella[2,7], Elisa Perger[1], Paola Mattaliano[1], Esther Irene Schwarz[3], Carolina Lombardi[1], Grzegorz Bilo[1], Antonella Zambon[4], Joerg Steier[5], Gianfranco Parati[1,6], Pietro Minuz[2] and Cristiano Fava[2]

Affiliations: [1]Dept of Cardiovascular, Neural and Metabolic Sciences, IRCCS Istituto Auxologico Italiano, Milan, Italy. [2]Section of General Medicine and Hypertension, Dept of Medicine, University of Verona, Verona, Italy. [3]Dept of Pulmonology and Sleep Disorders Centre, University Hospital of Zurich, Zurich, Switzerland. [4]Dept of Statistics and Quantitative Methods, Università di Milano-Bicocca, Milan, Italy. [5]CHAPS, Faculty of Life Sciences and Medicine, King's College London, London, UK. [6]Dept of Medicine and Surgery, University of Milano-Bicocca, Milan, Italy. [7]These authors are joint co-authors.

Correspondence: Cristiano Fava, Dept of Medicine, University of Verona, Azienda Ospedaliera Universitaria Integrata di Verona, General Medicine and Hypertension Unit, Hospital "Policlinico G.B. Rossi", Piazzale L.A. Scuro 10, 37134 Verona, Italy. E-mail: cristiano.fava@univr.it

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This study identified age, blood pressure levels before treatment and hypoxic burden expressed by the minimum desaturation as potential predictors of blood pressure reduction in patients treated for obstructive sleep apnoea http://bit.ly/31LdrJA

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ABSTRACT The treatment for obstructive sleep apnoea (OSA) with continuous positive airway pressure (CPAP) or mandibular advancement devices (MADs) is associated with blood pressure (BP) reduction; however, the overall effect is modest. The aim of this systematic review and meta-analysis of randomised controlled trials (RCTs) comparing the effect of such treatments on BP was to identify subgroups of patients who respond best to treatment.

The article search was performed in three different databases with specific search terms and selection criteria. From 2289 articles, we included 68 RCTs that compared CPAP or MADs with either passive or active treatment. When all the studies were pooled together, CPAP and MADs were associated with a mean BP reduction of −2.09 (95% CI −2.78–−1.40) mmHg for systolic BP and −1.92 (95% CI −2.40–−1.43) mmHg for diastolic BP and −1.27 (95% CI −2.34–−0.20) mmHg for systolic BP and −1.11 (95% CI −1.82–−0.41) mmHg for diastolic BP, respectively. The subgroups of patients who showed a greater response were those aged <60 years (systolic BP −2.93 mmHg), with uncontrolled BP at baseline (systolic BP −4.14 mmHg) and with severe oxygen desaturations (minimum arterial oxygen saturation measured by pulse oximetry <77%) at baseline (24-h systolic BP −7.57 mmHg).

Although this meta-analysis shows that the expected reduction of BP by CPAP/MADs is modest, it identifies specific characteristics that may predict a pronounced benefit from CPAP in terms of BP control. These findings should be interpreted with caution; however, they are particularly important in identifying potential phenotypes associated with BP reduction in patients treated for OSA.