

Blood pressure control in hypertensive sleep apnea patients of the ESADA cohort-effects of PAP and antihypertensive medication

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Introduction

We analysed longitudinal blood pressure data from hypertensive obstructive sleep apnea (OSA) patients from the European Sleep Apnea Database (ESADA) cohort. The study investigated the interaction between positive airway pressure (PAP) induced blood pressure (BP) change and antihypertensive treatment (AHT).

Methods

Hypertensive patients with AHT (monotherapy/dual therapy n=1283/652, mean age 59.6±10.7/60.6±10.3 yrs, Body Mass Index (BMI) 34.2±6.5/34.8±7.0 kg/m², Apnea Hypopnea Index (AHI) 46±25/46±24 n/h, proportion female 29%/26%, respectively) started PAP treatment. Office BP at baseline and follow up 2-36 months were assessed. The interaction between AHT drug classes and PAP on BP was quantified and the influence of age, gender, BMI, comorbidities, BP at baseline and study site were evaluated.

Results

Following PAP treatment (5.6±1.6/5.7±1.9 hrs/day), systolic BP was reduced by -3.9±15.5/-2.8±17.7 mmHg in mono/dual AHT, and diastolic BP by -3.0±9.8/-2.7±10.8 mmHg, respectively, all p<0.0001. Systolic and diastolic BP control was improved following PAP treatment (38/35% to 54/46 % and 67/67% to 79/74%, mono/dual AHT respectively). PAP treatment duration predicted a larger BP improvement in the mono therapy group. Intake of RAB alone or in any AHT combination was associated with better BP control. AHT dependent BP improvement was independent of confounders.

Conclusion:

In this pan-European OSA patient cohort, BP control improved following initiation of PAP. Duration of PAP treatment was associated with a more favourable effect on BP. Our study suggests that RAB, alone or in combination with other drug classes, provides a particularly strong reduction of BP and better BP control when combined with PAP in OSA.

Blood pressure control in hypertensive sleep apnea patients of the ESADA cohort

-effects of PAP and antihypertensive medication

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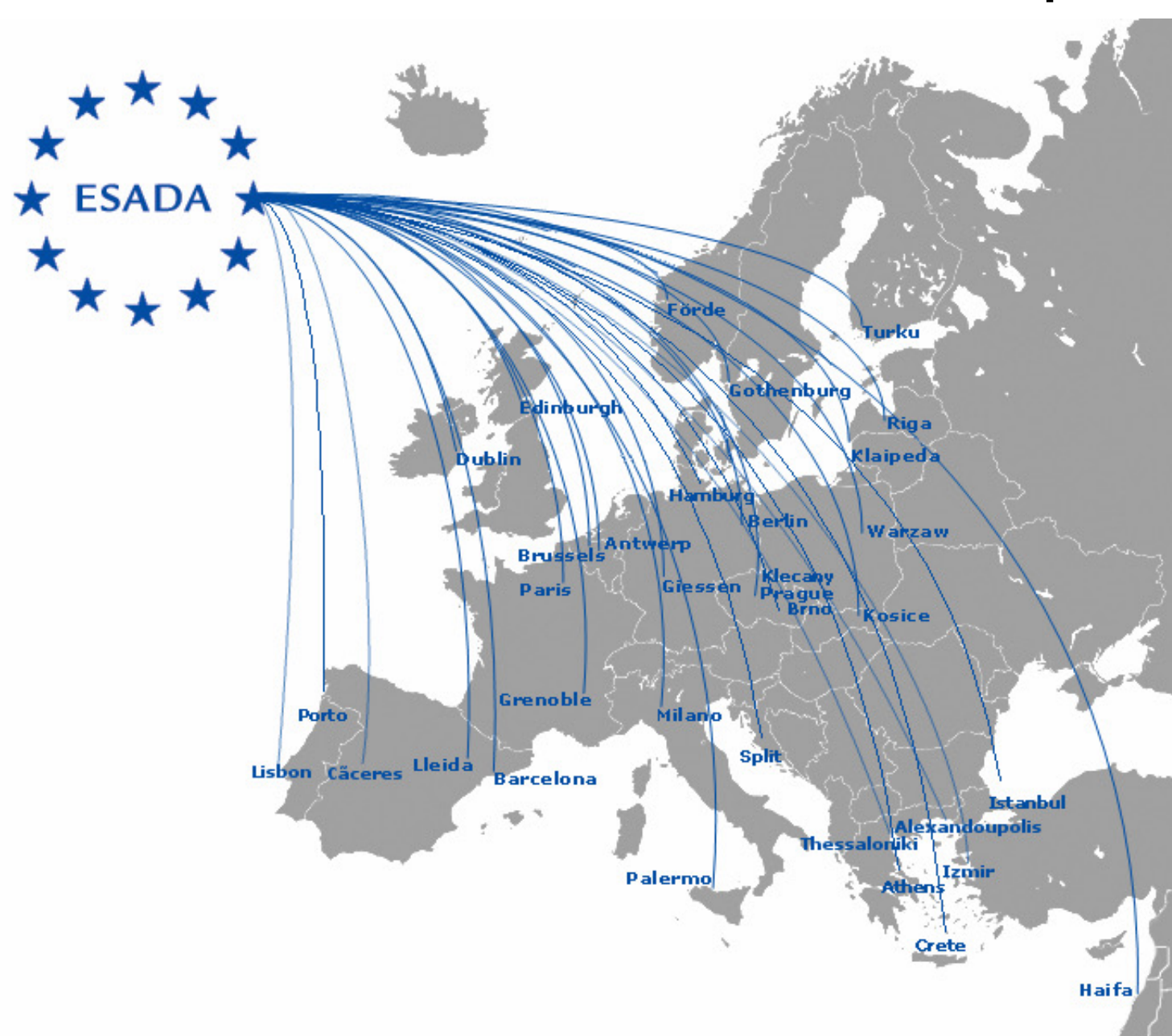
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Background

Obstructive sleep apnea (OSA) and hypertension are common disorders associated with an increased risk of major cardiovascular events (stroke, myocardial infarction, cardiac failure) and patients with both disorders are common as they share several important risk factors and OSA promotes development of hypertension.

Positive airway pressure (PAP) treatment of OSA reduces blood pressure, but only to a modest degree. It remains unknown if this effect is modified by antihypertensive drug class used for hypertension treatment in hypertensive OSA patients.

We used the European Sleep Apnea Database (ESADA) cohort to investigate if the combination of PAP treatment with a certain antihypertensive treatment drug class or combination was associated with larger reduction of office BPs and more favorable blood pressure control. We hypothesized that RAB alone or in combination was associated with better blood pressure control.

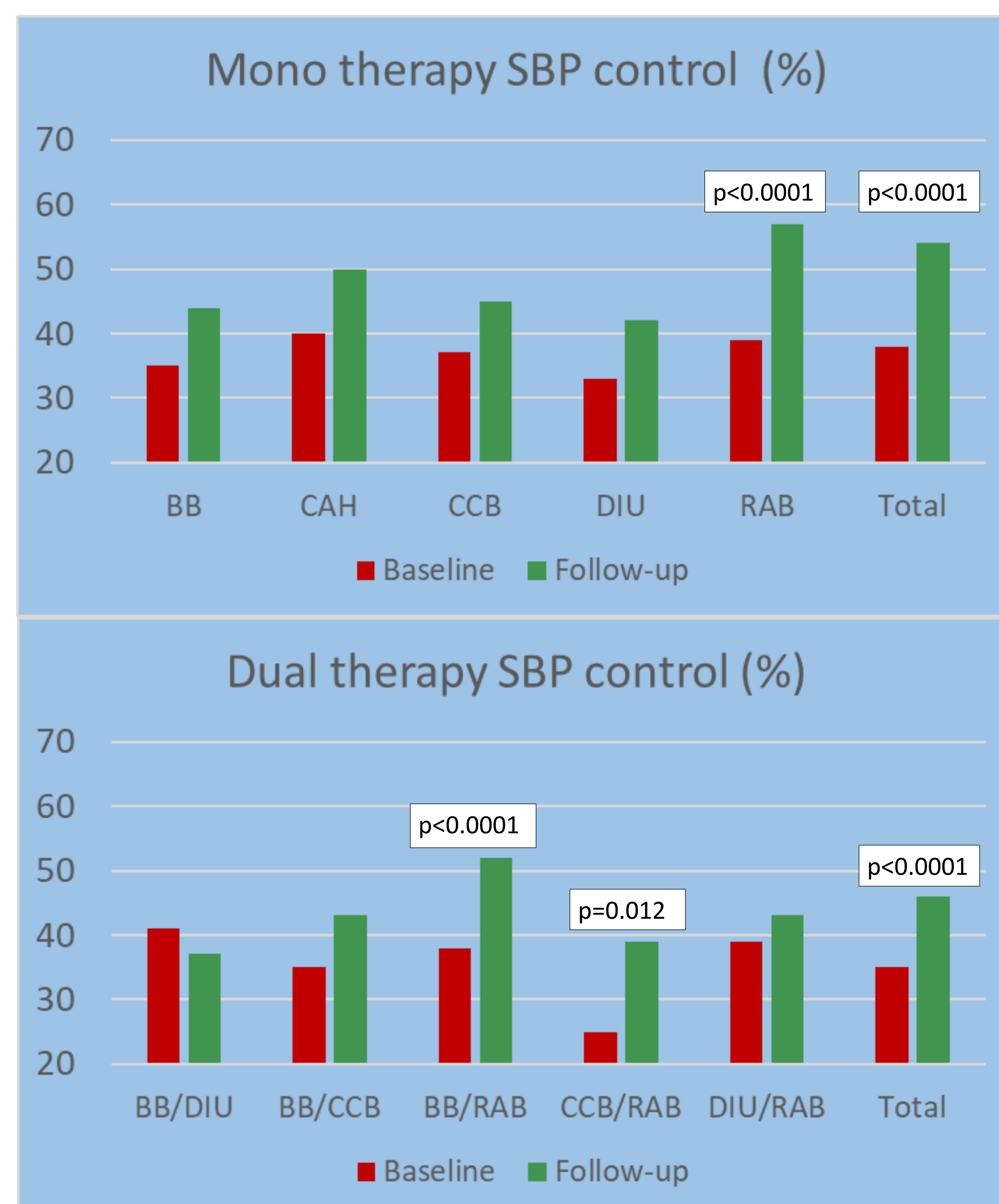


Purpose

We analysed longitudinal blood pressure data from hypertensive obstructive sleep apnea (OSA) patients from the European Sleep Apnea Database (ESADA) cohort. The study investigated the interaction between positive airway pressure (PAP) induced blood pressure (BP) change and antihypertensive treatment (AHT).

Method

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BB – Beta Blocker, CAH – Central Acting Antihypertensive, CCB – Calcium Channel Blocker, DIU – Diuretics, RAB – Renin-Angiotensin Blocker, SBP-Systolic Blood Pressure.

Results

Following PAP treatment (5.6±1.6/5.7±1.9 hrs/day), systolic BP was reduced by -3.9±15.5/-2.8±17.7 mmHg in mono/dual AHT, and diastolic BP by -3.0±9.8/-2.7±10.8 mmHg, respectively, all p<0.0001. Systolic and diastolic BP control was improved following PAP treatment (38/35% to 54/46 % and 67/67% to 79/74%, mono/dual AHT respectively). PAP treatment duration predicted a larger BP improvement in the mono therapy group. Intake of RAB alone or in any AHT combination was associated with better BP control. AHT dependent BP improvement was independent of confounders.

Take home message

- BPs and BP control improve after PAP treatment in OSA.
- The improvement is modified by antihypertensive drugs used and improves over time.
- PAP compliant patients treated with RAB alone or in combination with another AHT drug had better BP control.

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