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Title: Effect of 3-month CPAP treatment on blood pressure and serum aldosterone concentration in patients with resistant hypertension

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Body: Introduction: The role of the renin-angiotensin-aldosterone system (RAAS) on the association obstructive sleep apnea (OSA) and resistant hypertension (RH) is unclear. Aim: To analyze the effect of CPAP on 24-h blood pressure monitoring (ABPM) and on serum aldosterone in RH patients. Methods: 102 patients with an OSA15 and office-RH were randomized to CPAP (n=50) or to conventional treatment (n=52) for 3 months. 24-h ABPM and serum aldosterone were measured. 78 patients completed the follow-up (36 CPAP, 42 conventional treatment). Results: 66.7% were male, aged 58.27±9.3yrs and AHI 50.1±21.6, without significant differences between both groups. Serum aldosterone and AHI correlated significantly in patients with ABPM-confirmed RH (r= 0.25, p=0.02). CPAP achieved a significant decrease in serum aldosterone and 24-h BP decreased especially in those with ABPM-confirmed RH.

Effects of 3-month treatment on 24-h BP and serum aldosterone in patients with ABPM-confirmed resistant hypertension, randomized to conventional treatment or to CPAP

mmHg	Baseline	Conventional treatment	p	Baseline	CPAP	p
Daytime SBP	142.6±12.39	141.92±15.88	0.76	143.16±12.12	137.8±13.3	0.03
Daytime DBP	83.57±12.46	83.92±14.2	0.75	83.41±10.26	80.08±9.93	0.02
Nighttime SBP	132.5±17	133.57±19.82	0.75	130.5±15.6	124.45±12.41	0.08
Nighttime DBP	77.35±15.02	77.2±18.1	0.94	74.2±9.3	69.1±7.7	0.007
24-h SBP	139.57±12.4	141.93±15.88	0.3	140.08±10.95	137.8±13.3	0.31
24-h DBP	81.4±12.65	81.6±14.97	0.84	80.8±9.35	76.41±9.07	0.002

Serum aldosterone (ng/dL)	25.24±11.27	24.45±10.23	0.6	25.28±9.23	21.76±9.32	0.01
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Conclusion: The association between OSA and RH could be mediated at least in part by an effect on the RAAS.