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Title: Predictors of nocturnal hypertension in obstructive sleep apnea patients with metabolic syndrome

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Body: Background: Patients with obstructive sleep apnea (OSA) are more likely to have nocturnal blood pressure (NBP) abnormalities than. Thus the study of clinical factors affecting NBP is of practical value. Aim: To define the role of glucometabolic, sleep study parameters and biomarkers (resistin, free fatty acids – FFA and isoprostanes) in determining OSA patients with nocturnal hypertension. Materials and methods: 87 patients with newly diagnosed OSA and metabolic syndrome (MetS) participated in the study. OSA was verified by a polysomnography. MetS was diagnosed according to IDF, 2005. All patients were treated for hypertension. An ambulatory 24-hour BP monitoring was done to discern (NH) - nocturnal hypertensives (NBP >120/70mmHg) from (NN) - nocturnal normotensives. Anthropological, glucometabolic and sleep study characteristics were also assessed. Resistin and FFA plasma levels were measured. Urinary isoprostanes were measured determined by high resolution mass spectrometry. Results: According to ABPM 78% of the patients had controlled hypertension; 22% had refractory hypertension; 57% were with NH. Refractory hypertension was encountered only in NH patients. NH did not differ significantly from NN regarding the anthropometric measurements. From sleep study parameters only the duration of sleep with SaO₂<90% was longer in NH – 61,29±31,97 vs 37,61±32,64, p=0.002 in NN. Glucometabolic markers could not differentiate NH from NN except for HbA_{1c} 6,4±1,02 vs 5,9 ±0,66, p=0,024. Resistin, FFA and isoprostanes were similar. Conclusions: HbA_{1c} and the average duration of sleep with SatO₂<90% could be of clinical value in the detection of nocturnal hypertension in patients with OSA and MetS.