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### Role of Morning versus Evening Chronotype on Insulin Sensitivity and Central Hemodynamics in Adults with Metabolic Syndrome

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Chronotype represents an individual's preferred time of day to perform daily activities. Late chronotypes (i.e. "evening people") tend to have higher risk for obesity, hypertension and type 2 diabetes than morning chronotypes. However, to what extent insulin sensitivity or central hemodynamics relates to chronic disease risk per chronotype remains unclear in people with metabolic syndrome (MetS). **PURPOSE:** To understand whether chronotype has relationships with insulin sensitivity and central hemodynamics in patients with MetS. **METHODS:** Chronotype was defined by self-reported Morning-Eveningness Questionnaire (MEQ) of 39 adults with MetS (median age 54 yr, 36 kg/m<sup>2</sup> BMI, 3 ATP III criteria, 82.1% Female) per ATP III criteria. Population was divided at the 50% to compare morning (n=20) versus evening (n=19) chronotype. The Epworth questionnaire was provided to determine daytime sleepiness. A 120 min euglycemic clamp (40 mU/m<sup>2</sup>/min, 90 mg/dl) was performed to test metabolic insulin sensitivity (glucose infusion rate). Central hemodynamics were characterized (augmentation index (AIx75bpm), augmentation pressure (AP), forward (Pf) and backward (Pb) pulse wave, pulse pressure (PP)) before and after the clamp. VO<sub>2peak</sub> (indirect calorimetry) and body composition (DEXA) were also measured. **RESULTS:** There was no difference in age, BMI, ATP III criteria or daytime sleepiness between groups. Morning chronotype though tended to have higher VO<sub>2peak</sub> (ml/kg/min) (p=0.09) and metabolic insulin sensitivity (p=0.065), as well as lower AIx75 (p=0.09), AP (p=0.054), and Pf (p=0.06) after insulin infusion than evening chronotype. MEQ was significantly linked to fasting glucose (r= -0.32, p=0.04), HDL (r= -0.34, p=0.03) and Pf 120 min (p=0.058, r=-0.32). BMI was also significantly correlated with AP (r= 0.32, p=0.054), PP (r= 0.44, p= 0.007) and Pb (r=0.45, p= 0.006) and Pf (r=0.39, p=0.02) 120 min after insulin infusion. **CONCLUSIONS:** Despite classification of MetS, morning chronotype appears to confer more favorable cardiometabolic health than self-identified "evening people".

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