

Title: Sleep Characteristics, Obesity, Arterial Stiffness and Central Pressures in a Young Middle-Eastern Population

Category: Prevention

Abstract

Background: The study aimed to examine the association between both subjective and objective measures of sleep duration and quality, and aortic stiffness and central pressures in a healthy young Middle Eastern(ME) population.

Methods: Three hundred and twenty apparently healthy subjects (mean age 20.7 ± 3 years, 52% females) were enrolled in this cross-sectional study. After recording sociodemographic and clinical data, anthropometric measurements performed included weight, height, waist and hip, total body fat , visceral fat and muscle mass. Blood pressure(BP) and arterial stiffness (AS) were measured using the SphygmoCor and Mobilograph as pulse wave velocity (PWV), central BP and augmentation index(AIx) after supine rest. Sleep duration and quality were assessed by 7-day wrist actigraphy and the Epworth Sleep Scale(ESS). Arterial stiffness of participants with "normal" sleep duration (6-8 hours) were compared with those of "short" (<6 hours) and "long" sleep duration (>8 hours), adjusting for age, gender, BMI and blood pressure(BP).

Results: There was a significant linear trend of increasing waist circumference, visceral fat, PWV and AIx across short, normal and long sleep duration (P for trend = .001) with the opposite trend observed with muscle mass. In a multivariate model with age, gender, BMI and BP as co-variables, sleep duration was independently associated with stiff arteries.

Conclusion: Longer sleep time is associated with obesity and stiff arteries in a healthy young ME population. Whether this vascular stiffening effect is due to the sedentary nature of sleep, or weight gain or indeed a factor inherent to sleep itself cannot be answered by this study.