Abstract Title: Prevalence of Obstructive Sleep Apnea in Collegiate Football Players at Colorado State University

Background

More than 54 million Americans between the ages of 30-69 have obstructive sleep apnea (OSA). OSA increases the risk for several cardiometabolic diseases, and risk factors include high body mass index (BMI), large neck size, narrowed airway, and male sex. Indeed, results from previous studies demonstrate higher prevalence of OSA in professional football players (50% vs. 25% in the general population), as they present with many risk factors for OSA. These risk factors are also present in collegiate football players, though few studies have examined the prevalence of OSA in this population. We therefore tested the hypothesis that collegiate football players have a higher prevalence of OSA as compared to the general population.

Methods

Participants were recruited from the Colorado State University (CSU) football team in the fall of 2019. Following informed consent, anatomical evaluations were conducted to assess neck circumference and unique upper airway features. Participants also completed in-depth health history and sleep questionnaires, including the STOPBANG and Epworth Sleepiness Scale. Participants were then provided a WatchPat 300 device for in-home estimations of apnea hypopnea index (AHI), blood oxygen saturation, and body position for 3 consecutive nights. WatchPat data were scored and evaluated by 2 board certified sleep physicians.

Results

Fifty-eight young, healthy men completed the study (BMI: 29.2 ± 4.0 kg/m^2; neck circumference: 42.4 ± 3.1 cm; data are mean±SD). Based on WatchPat 300 data analyses, 35% (n=18) of study participants had clinically defined mild to moderate OSA (mild: 5-15 AHI; moderate: 16-30 AHI). However, the STOPBANG only had a 43% positive predictive value with a positive likelihood ratio of 1.41. Further, the specificity of STOPBANG for detecting OSA in this population was 41%. Participants with mild to moderate OSA had greater BMI (30.8 ± 4.6 vs. 28.3 ± 3.5; p=0.06) but not neck circumference (42.2 ± 3.2 vs. 42.8 ± 2.9 cm; p=0.54) as compared to participants with no OSA and there were no significant associations between AHI and BMI or neck circumference.

Conclusion

Collegiate football players present with OSA at a higher rate than the general population. Given the strong link between disrupted sleep and cardiometabolic impairments, it is important to determine a more specific marker of OSA in this population when in-depth assessments are not available.