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Released: 01/12/2024
Valid until: 01/12/2025
Time needed to complete: 52m

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Epidemiology of Cardiovascular Disease In Narcolepsy

Announcer:
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Dr. Surkin:
Hello, this is Dr. Lee Surkin. I'm a board-certified Cardiologist and Sleep Physician and founder of the American Academy of Cardiovascular Sleep Medicine. In this episode, we're going to be discussing the Epidemiology of Cardiovascular Disease in Narcolepsy.

First, a brief discussion of clinical characteristics of narcolepsy. It is a chronic neurologic sleep disorder that has five predominant symptoms, including excessive daytime sleepiness, cataplexy which is loss of muscle tone in response to a stimulus, typically laughter or potentially anger as well, disrupted nighttime sleep, sleep-related hallucinations, and sleep paralysis. The onset of symptoms in narcolepsy typically occurs in childhood. So, when we think about treating this disorder, which is a lifetime disorder without a known cure, we have to be very careful and cautious of considering that treatment will be for a very, very long period of time. So, we have to choose our treatments wisely with the patient in mind.

One of the hallmark features of narcolepsy is blunted nocturnal dipping. So, what is nocturnal blood pressure dipping? It is defined as at least a 10% decrease in blood pressure during sleep. Blunted dipping is defined as less than 10% of a decrease in blood pressure during sleep. This has been shown in repeated studies to be associated with an increased long-term cardiovascular risk mortality and morbidity independent of blood pressure and other cardiovascular risk factors, as well as heart failure. It is much more common in narcolepsy. In fact, compared to controls, 31% of narcoleptic patients have blunted nocturnal blood pressure dipping, compared to 3% of controls. And this is consistent when controlling for sympathetic activity in different stages of sleep. It is also associated with sleep fragmentation, arousals, and limb movements during sleep.

Multiple studies have shown a strong association between cardiovascular and cardiometabolic comorbidities with narcolepsy, dating back to 2013 and as recently as 2018. What you see here are odds ratios looking at obesity, hypertension, diabetes, and dyslipidemia in narcoleptic patients, showing anywhere from a 30% increase in odds ratio in hypertension to a more than double odds ratio associated with obesity and diabetes.

The BOND study was published in 2017 and looked at patients who had, in their history, narcolepsy, and compared them to controls. And the study evaluated the presence of different cardiovascular disorders in narcolepsy compared to controls. And this slide demonstrates the odds ratio showing very strong associations in stroke, myocardial infarction, coronary revascularization, heart failure, and cardiac arrest in narcolepsy patients compared to control. So, these are patients who already had established cardiovascular disease and narcolepsy.

So, this led to the publishing of a second trial called CV-BOND, which was published earlier this year in 2023 that looked at similar case reports of patients with narcolepsy, but this time the study followed these patients for a period of time to determine what the likelihood

was that they might go on to develop cardiovascular disease. And lo and behold, this slide shows results of the CV-BOND data showing that, in reddish purple, that are patients with narcolepsy compared to controls, there is a significant increased association in narcolepsy patients compared to controls with stroke, atrial fibrillation, cardiovascular disease not including hypertension, major adverse cardiovascular events, heart failure, atrial fibrillation, any stroke, and ischemic stroke.

This is another way of looking at the data, where everything to the right of the vertical line indicates a greater association in narcolepsy patients compared to controls. Again, that includes stroke, edema, heart failure, ischemic stroke, major adverse cardiac events, atrial fibrillation, and any cardiovascular disease.

And the final slide is meant to basically display the same data but also show you that myocardial infarction, listed as MI, which is heart attack, was the only parameter that did not show a statistically significant difference between narcolepsy patients and controls.

Thank you very much for listening to this episode on cardiovascular implications of narcolepsy.

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