EPH231

Cardiovascular Burden of Patients With Idiopathic Hypersomnia: Real-World Idiopathic Hypersomnia Total Health Model (CV-RHYTHM)

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Introduction

- Idiopathic hypersomnia is a rare neurologic sleep disorder characterized by excessive daytime sleepiness, sleep inertia, prolonged nighttime sleep, long and unrefreshing naps, and cognitive dysfunction[1]
- Before the calcium, magnesium, potassium, sodium oxybates product (low-sodium oxybate) was approved by the US Food and Drug Administration in August 2021, no medications were indicated to treat idiopathic hypersomnia in the United States[2-7]
- According to the literature, excessive daytime sleepiness in the presence of a sleep disorder such as idiopathic hypersomnia appears to be associated with increased cardiovascular risk[8]

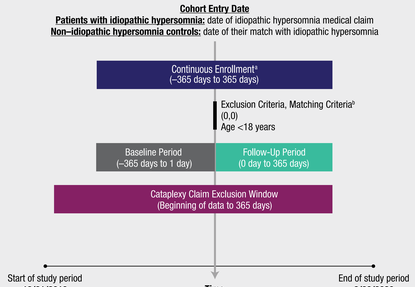
Objective

- To compare the cardiovascular conditions of individuals diagnosed with idiopathic hypersomnia with those of matched non–idiopathic hypersomnia controls

Methods

- This retrospective cohort study analyzed IBM® MarketScan® (now Merative™ MarketScan®) administrative claims from 12/31/2013 to 2/29/2020
- Eligible patients were ≥18 years of age at cohort entry and had continuous medical coverage for 365 days both before and after cohort entry (gaps of ≤30 days allowed)
- Patients with idiopathic hypersomnia entered the cohort upon receipt of their earliest medical claim for idiopathic hypersomnia (ICD-9-CM, 327.11, 327.12; ICD-10-CM, G47.11, G47.12), in any position, and without history of cataplexy[9,10]
- Controls were matched 5:1 with patients with idiopathic hypersomnia based on age, sex, geographic region, insurance type, and cohort entry date
- Unconditional logistic regression was used to compare prevalence estimates of cardiovascular conditions during the 2-year analysis period; covariates used in the model were the same as those used for matching

Figure 1. Study Design



[a]30-day gaps allowed. [b]Each patient with idiopathic hypersomnia was matched with up to 5 non–idiopathic hypersomnia controls based on age, sex, geographic region, insurance type (ie, commercial, Medicare, or Medicaid), and calendar month and year of cohort entry.

Results

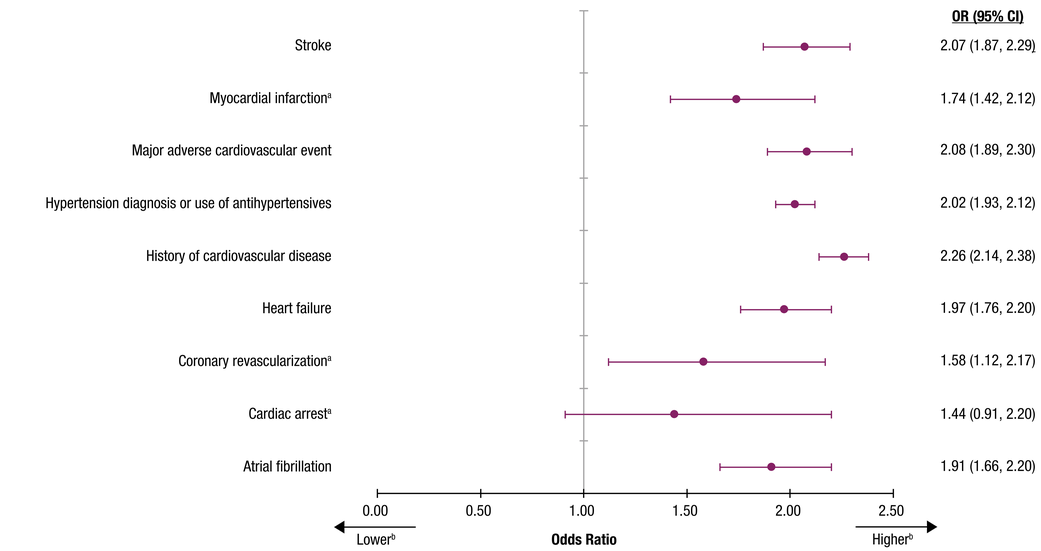
Table 1. Demographics and Cardiovascular Conditions of Patients With Idiopathic Hypersomnia and Matched Non–Idiopathic Hypersomnia Controls

	Patients With Idiopathic Hypersomnia	Non–Idiopathic Hypersomnia Controls
Patients, n	11,412	57,058
Demographics		
Age, years, median (IQR)	45.0 (34.0–55.0)	45.0 (34.0–55.0)
Female, n (%)	7420 (65.0)	37,088 (65.0)
Commercial insurance, n (%)	8557 (75.0)	42,785 (75.0)
Cardiovascular conditions, n (%)		
Atrial fibrillation	294 (2.6)	838 (1.5)
Cardiac arrest	25 (0.2)	90 (0.2)
Coronary revascularization	46 (0.4)	151 (0.3)
Heart failure	483 (4.2)	1363 (2.4)
History of cardiovascular disease	2783 (24.4)	8053 (14.1)
Hypertension diagnosis or use of antihypertensives	5220 (45.7)	18,429 (32.3)
Major adverse cardiovascular event	652 (5.7)	1751 (3.1)
Myocardial infarction	134 (1.2)	400 (0.7)
Stroke	590 (5.2)	1584 (2.8)

IQR, interquartile range.

- Final cohorts included 11,412 patients with idiopathic hypersomnia and 57,058 controls
- Median age was 45 years; 65% of patients were female

Figure 2. Odds of Cardiovascular Conditions Among Patients With Idiopathic Hypersomnia and Matched Non–Idiopathic Hypersomnia Controls



[a]With fewer than 250 total events in at least one population, this outcome was analyzed with a Firth regression model that included year (rather than year and month) of cohort entry. In addition, confidence intervals for these outcomes were generated with the formula for the Firth regression and not with the sandwich estimator—raising the possibility of a variance decrease resulting from not taking data matching into account. [b]Prevalence in idiopathic hypersomnia.
CI, confidence interval; OR, odds ratio.

- Patients with idiopathic hypersomnia had more than twice the odds of history of cardiovascular disease, major adverse cardiovascular event, stroke, and hypertension diagnosis or use of antihypertensives, compared with matched controls
- Compared with controls, patients with idiopathic hypersomnia had 97% higher odds of heart failure, 91% higher odds of atrial fibrillation, 74% higher odds of myocardial infarction, and 58% higher odds of coronary revascularization

Conclusions

- As suggested by these results, patients with idiopathic hypersomnia experience a greater burden of a spectrum of cardiovascular illnesses, including chronic and acute cardiovascular events
- These findings are consistent with those from observational studies of individuals diagnosed with other central hypersomnolence disorders[8,11]
- Clinicians should carefully monitor the cardiovascular health of their patients with idiopathic hypersomnia and consider therapies that effectively treat idiopathic hypersomnia symptoms while avoiding further cardiovascular risk

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