

Early-Onset Insomnia among Patients with Hemifacial Spasm in South Korea: A Nationwide Cohort Study



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Introduction

- Hemifacial spasm (HFS) is a motor disorder characterized by unilateral facial muscle contraction.
- The symptoms usually start in the orbicularis oculi muscle and are often aggravated in severity and frequency, spreading downward to the ipsilateral facial muscle.
- The most common cause of HFS is the facial nerve`s compression in its root exit zone by an arterial or venous loop.
- HFS is not a life-threatening condition → patients with chronic facial twitching may experience social embarrassment and significant suffering in social interaction → may lead to psychiatric comorbidities, including depression, anxiety, and social phobia
- This study proposed to investigate the nationwide data on mental illness among patients with HFS within 90 days before and after diagnosis, using claims data from the Health Insurance Review and Assessment Service (HIRA) in south Korea.

Material and Methods

-Study Population and Design

- This study assembled information from the National Health Insurance Service (NHIS) insurance claims database from January 2010 to December 2020.
- In this retrospective study, we defined the HFS group as subjects aged between 20 and 79 years with newly diagnosed HFS (ICD-10: G513) between January 2011 and December 2019 and set the date of diagnosis of HFS as the index date.
- The mental illnesses were defined using the ICD-10 codes (Table 1).
- To clarify the correlation between HFS and mental illness, we enrolled participants who had visited a psychiatric outpatient clinic more than twice or had been admitted to a psychiatric department more than once with a diagnosis of psychiatric disease for 90 days before and after the index date.

Table 1. Working definitions derived from the insurance claims.

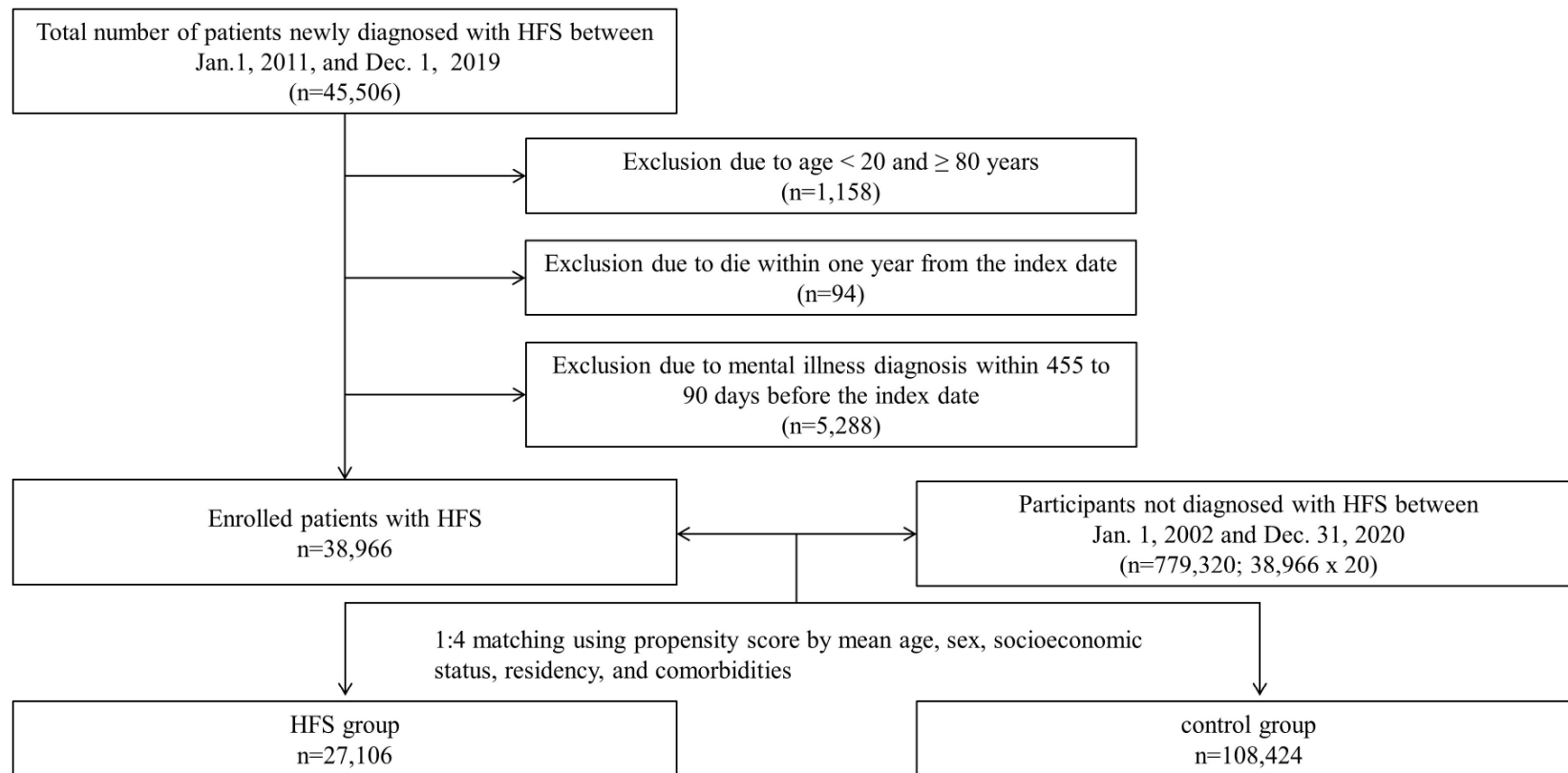
Psychiatric Disease	Working Definitions Based on ICD-10 *
Psychotic disorder	F20.X-F29.X
Depressive disorder	F32.X, F33.X, F34.X
Bipolar disorder	F30.X, F31.X
Anxiety-related and Stress-related disorder	F40.1, F41.X, F43.X
Alcohol or drug abuse	F10.X-F16.X, F18.X, F19.X
Eating disorder	F50.X
Insomnia	F51.0, G47.0

* International Classification of Diseases, 10th edition.

Material and Methods

-Study Population and Design

- 27,106 patients were finally enrolled in this study as the HFS group, and a total of 108,424 participants were selected as the control group.

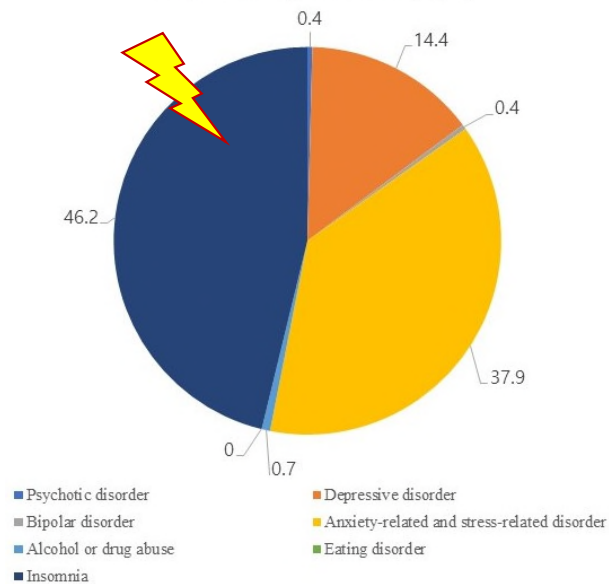


Results

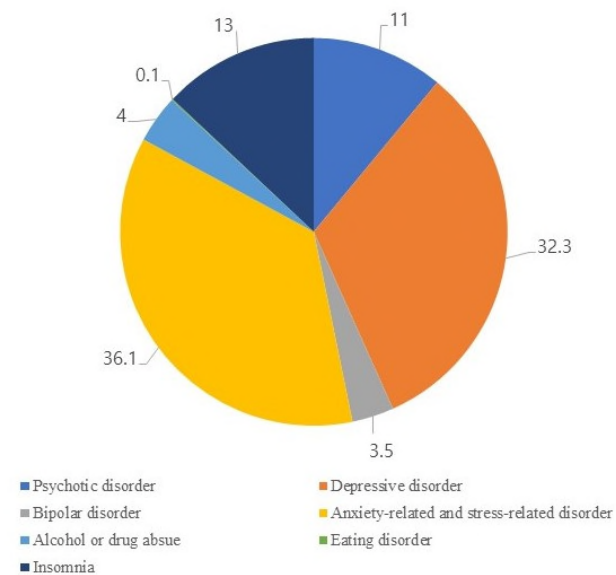
-Mental illness risk in the HFS group vs. the control group

Mental Illnesses	Control Group	HFS Group	p-Value
	(n = 70,000)	(n = 2305)	
Psychotic disorder	771 (11.0%)	9 (0.4%)	<0.001
Depressive disorder	2259 (32.3%)	332 (14.4%)	<0.001
Bipolar disorder	244 (3.5%)	10 (0.4%)	<0.001
Anxiety-related and stress-related disorder	2527 (36.1%)	873 (37.9%)	0.682
Alcohol or drug abuse	280 (4.0%)	16 (0.7%)	<0.001
Eating disorder	10 (0.1%)	1 (0.0%)	0.366
Insomnia	909 (13.0%)	1064 (46.2%)	<0.001

Hemifacial Spasm Group (%)



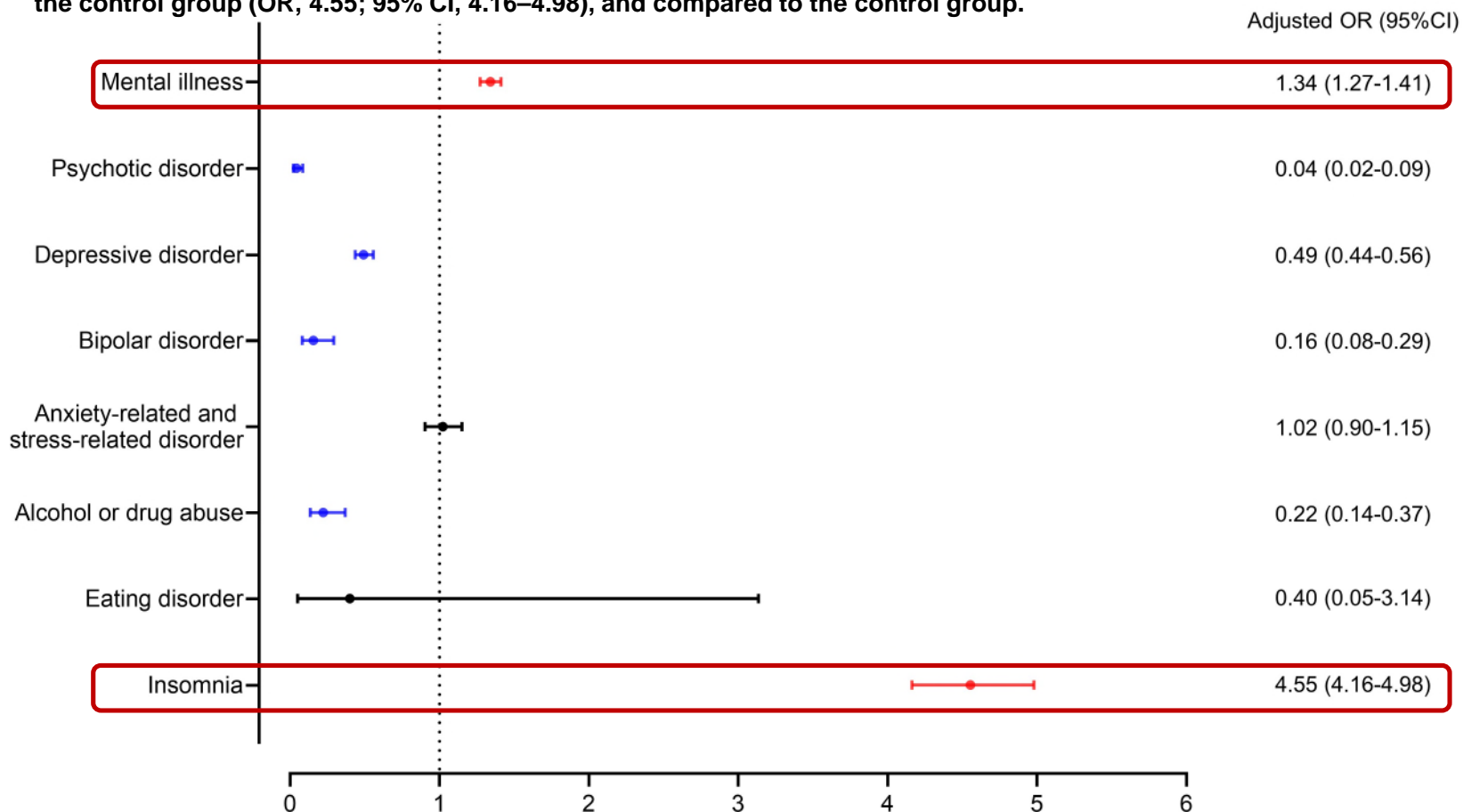
Control Group (%)



Results

-Mental illness risk in the HFS group vs. the control group

- The patients with HFS had a significantly higher risk for mental illnesses than control patients (OR, 1.34; 95% CI, 1.27–1.41). Among the mental illnesses, insomnia was observed in 1064 patients of the HFS group, compared with 909 participants of the control group (OR, 4.55; 95% CI, 4.16–4.98), and compared to the control group.



Discussion and conclusion

- **Insomnia is a patient-reported problem characterized by difficulties initiating sleep or waking up from sleep during the night or earlier in the morning than one would like, with difficulty resuming sleep.**
- **Insomnia can also be induced by a hyperarousal state experienced during the entire day.**
- **Perlis et al. proposed the neurocognitive theory of insomnia → The theory is based on the behavioral perspective that insomnia occurs acutely associated with predisposing and precipitating factors such as psychosocial stressors.**
- **Although considered insignificant by some patients, HFS can lead to catastrophic stressful conditions and a poor quality of life due to social embarrassment for the suffering individual → It means that patients with HFS are hyperarousal due to worry about facial twitching, which may lead to insomnia in the early stage.**
- **We, therefore, suggest that not only facial symptoms persist during sleep, but hyperarousal states by facial spasms during the day also contribute to the development of insomnia.**
- **The most noteworthy limitation of this study is that it could not guarantee the adequacy of the diagnosis and does not reflect the severity of the disease.**
- **This study shows that patients diagnosed with HFS were significantly more likely to develop insomnia than a sociodemographic- and comorbidity-matched control group during a relatively short-term period.**