Original Article

Hemifacial Spasm in Singapore: Clinical Characteristics and Patients' Perceptions

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Abstract

Introduction: The aim of this study was to determine the clinical characteristics and patients' perception of hemifacial spasm (HFS) in Singapore. Materials and Methods: A clinical survey of 137 consecutive patients with HFS seen in our Botulinum Toxin Clinic over a 15-month period was undertaken. Results: Forty-six men and 91 women were interviewed. Their mean age at onset of HFS was 48 years. The median disease duration was 60 months (range, 2 to 360 months). Left-sided spasm was common in 51.8% of patients, and the orbicularis oculi was the first muscle to be affected in 86.1% of them. The majority (65%) had the spasm aggravated by stress and anxiety. In fact, 32 patients perceived stress and anxiety as a possible aetiology of HFS. Stroke was a main concern in 17 patients and 7 patients thought the spasm was a sign of demonic possession or a bad omen. The spasm embarrassed 75.2% of the patients, rendered 65% of them depressed, affected the vision in 60.6% of them and compromised their work performance in 35.8%. Overall, treatment was delayed by a median interval of 6 months from onset of symptoms (range, 0 to 132). More than half (53.3%) tried traditional therapies (acupuncture or herbal medicine), while only 48.2% had botulinum toxin as the initial treatment. All patients eventually received botulinum toxin injections and more than 90% showed improvement at 1 month post-treatment. Conclusions: The clinical characteristics and patients' perception of HFS in Singapore were presented. HFS affects patients both psychosocially and functionally. Effective treatment with botulinum toxin exists and should be provided early to the patients.

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Introduction

Hemifacial spasm (HFS) is a movement disorder characterised by intermittent involuntary contractions of the facial muscles. It begins with contractions of the orbicularis oculi, gradually spreading to involve the rest of the ipsilateral facial muscles. Bilateral HFS is rare.[1] The contractions in these patients were asymmetrical and asynchronous, thus differentiating them from other disorders of facial movement, such as blepharospasm and orofacial dystonia.

An epidemiological study in Minnesota documented a prevalence rate of HFS to be 7.4 per 100,000 in men and 14.5 per 100,000 in women, mostly among those aged from 40 to 79 years old.[2] The actual prevalence of HFS in Singapore is not known, but anecdotal experience suggests that it occurs more frequently in Orientals than in Caucasians.[3-5] The reason for this is not known. One possible explanation is the smaller bony cranium among Asians, which results in crowding of cranial nerves and vascular structures.[6] HFS is believed to occur as a result of compression of the facial nerve at its point of exit from the pons by nearby structures, usually an ectatic vessel, some vascular anomalies or other pathological lesions.[7] In a local study by Tan et al,[8] 22 out of 25 patients with HFS were found to have an abnormal vessel in close proximity to the facial nerve.

Microvascular decompression of the facial nerve is an accepted treatment for HFS.[9] It is more effective than most medical therapies, such as carbamazepine,[10] clonazepam,[11] orphenadrine[12] and baclofen.[13] However, its potential

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surgical risks may deter patients from seeking this treatment. The surgical risks include impaired hearing in 10% to 15%, facial weakness in 6% and less than 1% mortality.[14]

In recent years, botulinum toxin injection is offered as an alternative treatment to surgery for patients with HFS.[15] It is already well-established as an effective treatment with mild and transient side effects.[3,16-21] However, there is little information on patients' perception of this condition. Most patients are not aware that HFS is a medical condition with effective treatment available. Ironically, they associate botulinum toxin injection more with its cosmetic uses than with its primary role in neurological conditions. Thus, we conducted this survey to determine the clinical characteristics and patients' perception of HFS.

Materials and Methods

The National Neuroscience Institute is one of the major centres in Singapore that provide tertiary care to patients with neurological disorders. We conducted a clinical survey of 137 consecutive patients with HFS who attended the Botulinum Toxin Clinic over a 15-month period. The diagnosis of HFS was made by a neurologist and verified by a movement disorder specialist. All patients had idiopathic HFS and none had an identifiable primary cause, such as a previous Bell's palsy or trauma. The patients were examined and interviewed by neurologists using a standardised questionnaire. Information on clinical characteristics and patients' perception of the disorder were recorded. For clinical characteristics, we studied the patient demographics, disease presentation, aggravating factors and treatment modalities. For patients' perception of the disorder, the patients were asked to document their perceived aetiologies of HFS and the extent to which the spasm had embarrassed them, made them depressed, affected their vision and compromised their work performance. All patients eventually had botulinum toxin injections. At 1-month post-treatment, they were re-evaluated on the impact of HFS on their psychosocial and functional well-being.

Results

A total of 137 patients (46 men and 91 women) were interviewed. Their mean age at onset of HFS was 48 years (range, 15 to 82 years), with no significant differences in age distribution between the two genders. The patients had a median disease duration of 60 months (range, 2 to 360 months). There were 96% Chinese, 2% Malays, 1% Indians, and 1% of other ethnic groups. This racial composition was significantly different from the nation's ethnic composition, which is 77% Chinese, 14% Malays, 8% Indians and 1% other ethnic groups. Malays and Indians were significantly under-represented in our series.

Slightly more than half (51.8%) of 137 patients presented with left-sided HFS at initial presentation. Only 1 patient had bilateral facial involvement. The spasm first affected the orbicularis oculi in 118 (86.1%) patients. In 16 (11.7%) patients, the lower facial muscles were involved first. Two patients felt the upper and lower facial muscles started to twitch at the same time, while 1 patient was unsure of the initial site of involvement. Among those who had initial eyelid involvement, the lower eyelid was affected in 64 patients, the upper eyelid in 43 patients and both upper and lower eyelids in 11 patients.

Stress and anxiety were the major precipitating factors in 89 (65%) patients. Talking aggravated the spasm in 48 (35%) patients and eating affected the spasm in 25 (18.2%) patients. Both men and women had their spasms aggravated by these factors in almost equal proportions.

The patients were asked to document their perceived aetiologies of HFS. Twenty-five (18.2%) patients were unable to provide an answer. The rest were able to give at least 1 reason they thought was the likely cause of HFS (Table 1). The patients' perception of HFS could be divided into 3 main categories. One group believed it to be a physiological process, another group considered it a supernatural phenomenon and the last group attributed it to other pathologies. Of the 14 patients who gave "Others" as reasons, many blamed it on concurrent illnesses or injuries and ingestion of wrong food or medicine; 2 patients thought it was due to "wind".

HFS embarrassed 103 (75.2%) patients. In fact, 89 (65%) patients felt depressed because of the spasm. Vision was affected in 83 (60.6%) patients. Work performance was compromised in 49 (35.8%) patients. Table 2 shows the impact of HFS on men and women. Women felt more

Table 1. Patients' Perception of Hemifacial Spasm (n = 137)

Perceived aetiologies	No. (%)*	Median time to treatment in months (range)
Physiological process		
Stress and anxiety	32 (23.4)	6.0 (0-120)
Lack of sleep	10 (7.3)	3.0 (0.25-48)
Normal ageing	6 (4.4)	24.0 (1-48)
Supernatural phenomena		
Demonic possession/bad omen	7 (5.1)	3.0 (0.25-18)
Other pathologies		
Stroke	17 (12.4)	2.5 (0-132)
Eye problem	14 (10.2)	9.0 (1-48)
Vascular compression	12 (8.8)	18.0 (0-78)
Dental problem	3 (2.2)	48.0 (3-60)
Others†	14 (10.2)	12.0 (0.25-72)
Uncertain	25 (18.2)	9.0 (1-48)

* Three individuals gave more than 1 reason.

† These include concurrent illnesses or injuries, ingestion of wrong food or medicine and "wind".

Table 2. Impact of Hemifacial Spasm on Patients

Impact of hemifacial spasm	Percentage affected	
	Men (n = 46)	Women (n = 91)
Embarrassment		
Never	26%	24%
Sometimes	46%	36%
Very Often	28%	40%
Depression		
Never	43%	31%
Sometimes	41%	37%
Very Often	15%	32%
Vision impairment		
Never	46%	36%
Sometimes	48%	44%
Very Often	7%	20%
Interference with work performance		
Never	61%	66%
Sometimes	30%	25%
Very Often	9%	9%

embarrassed, more depressed and had their vision affected more often than men. Work performance was similarly affected in both genders.

Table 1 shows the median interval from onset of symptoms to initial treatment. On average, the patients waited for a median interval of 6 months (range, 0 to 132 months) from onset of symptoms before seeking medical advice. Patients who presented earliest to the clinic (median interval, 2.5 to 3 months) perceived HFS as a manifestation of stroke or thought that it was due to lack of sleep or some supernatural phenomena. Those who presented in the intermediate range (median interval, 6 to 9 months) thought their condition was due to stress and anxiety or some eye problem. The group of patients who presented latest to the clinic (median interval, 24 to 48 months) were those who thought it was a normal ageing process or due to some dental problem.

Botulinum toxin injections, as the initial treatment, were used by 66 (48.2%) patients. The treatment was delayed by a median interval of 9 months (range, 0 to 120 months). The remaining patients tried various therapies before turning to the Botulinum Toxin Clinic. Carbamazepine was prescribed in 14 (10.2%) patients, benzodiazepines (other than clonazepam) in 12 (8.8%) patients, clonazepam in 3 (2.2%) patients and phenytoin in 2 (1.5%) patients. Health supplements and vitamins were prescribed in 33 (24.1%) patients; another 15 (10.9%) patients were unsure of their medication. Traditional methods of treatment were popular among 73 (53.3%) patients, half of whom had acupuncture, 10 used traditional herbs and 27 tried both acupuncture and traditional herbs. Among the 7 patients who considered HFS as supernatural phenomena, all except 1 sought traditional treatment.

All patients eventually received botulinum toxin injections, but only 126 patients were available for evaluation at 1 month post-treatment. If we consider missing data as treatment failure, using intention-to-treat analysis, 125 (91.2%) patients experienced some improvement following botulinum toxin injections. In fact, 74.4% of patients experienced more than 60% improvement in the spasm. Of the 89 patients who felt depressed initially, 79 (88.8%) were less so after the injections. Similarly, 83 (80.6%) of 103 patients who were embarrassed initially felt less so after the botulinum toxin treatment. Of these, in terms of functional improvement, 73.5% documented improvement in their vision because of less eye closure. All 49 patients who had their work performance affected initially felt they worked better after the botulinum toxin injections.

Discussion

To date, this is one of the largest series of HFS patients published in Singapore.[3,8,16,17] Although not a population-based study, we infer from our series that HFS is relatively common in Singapore. In 15 months, we saw a total of 137 patients with the condition. In contrast, it took Wang and Jankovic[22] 17 years to collate 158 cases in Texas, and Horn and Wuu[23] 3 years to see 65 patients in Chicago. When the racial composition in our series was compared to that of Singapore, we observed an over-representation of Chinese. This difference could be spurious, reflecting a difference in the utilisation of healthcare services amongst the different ethnic groups, or it could be real, arising as a result of a racially determined risk factor for HFS that is as yet unknown. Future population-based studies are needed to confirm this observation. Apart from the difference in racial composition of our series, the other clinical characteristics, such as age group distribution, gender distribution, site and side of involvement, were comparable to those of other series.[4,7,8,20,22]

Studies on botulinum toxin as an effective treatment for HFS are available both locally[3,16,17] and overseas.[5,19,21] However, there is little literature on patients' perception of the illness. Information on the psychological aspect of the condition is also scarce.[24] We document, for the first time, patients' perception of HFS in Singapore. Broadly, the patients can be grouped into 3 main categories. One group of patients thought HFS was a normal physiological process, occurring as a result of stress and anxiety, lack of sleep or normal ageing process. Another group believed in supernatural phenomena, attributing HFS to demonic possession or a sign of bad omen. The last group blamed the spasm on other pathologies, such as stroke, eye problem,

dental condition, concurrent illness and ingestion of wrong food or medicine. The patients' perception of their condition clearly affected their behaviour. Those who thought the spasm was a manifestation of a serious condition, such as stroke, sought treatment early (a median interval of 2.5 months from onset of symptoms). They also presented early for treatment if the spasm affected their psychosocial well-being; those who felt the spasm to be a symptom of stress and anxiety or sleep deprivation, turned up for treatment within a median interval of 3 to 6 months. On the other hand, those who considered HFS to be a normal ageing process waited for a median interval of 2 years before seeking medical advice. The number of patients who attributed the spasm to ageing or supernatural phenomena in our series were small, possibly because these patients were less likely to seek medical treatment. In light of this, it is believed that a sizable number of patients remain undiagnosed in the community. Public education on the condition is, thus, important. Physicians can also help by recognising the disorder early through opportunistic screening and refer patients to the appropriate department for treatment.

HFS is frequently aggravated by fatigue, stress, anxiety or self-consciousness.[7] Sixty-five per cent of our patients had the spasm aggravated by stress and anxiety. Although the reason for this is not known, we postulate that stress and anxiety result in sympathetic over-drive that enhances facial nerve irritation. Besides stress and anxiety, our patients also reported worsening of the spasm during talking and eating. A possible explanation could be that patients are more self-conscious during activities that involve interaction with other people, thus resulting in anxiety-related aggravation of the spasm. Eating affects the spasm to a lesser extent than talking, probably because a different set of muscles (mastication) is used, with less facial muscle involvement.

HFS is not only cosmetically disfiguring, but it also affects patients psychosocially and functionally. In our series, both men and women were embarrassed and depressed by it, with women being more severely affected. Besides these psychosocial effects, HFS also affects vision as a result of spasms of the orbicularis oculi muscles that cause intermittent eye closure. Work performance was reported to be compromised in about one-third of patients, possibly because of 1 or more of the above factors.

In our series, only 48.2% of patients had botulinum toxin as the initial treatment. Even then, treatment was delayed by a median interval of 9 months from onset of symptoms. The remaining patients tried various therapies before attending the Botulinum Toxin Clinic. Traditional treatments were popular; so were self-medication with vitamins and health supplements. These were obviously not effective as all patients eventually had botulinum toxin injections.

As with most studies,[3,5,16,17,19,21] botulinum toxin was effective in controlling the spasm. More than 90% of patients felt improvement following botulinum toxin injections. They were less embarrassed, less depressed and could see better with less eye closure. They regained their confidence and all felt improvement in their work performance.

Conclusions

HFS is common among Orientals. It is not only of cosmetic concerns, but also affects individuals both psychosocially and functionally. Misconceptions over the aetiology of HFS are plenty, and contribute to the delay in seeking treatment. There is a need to educate the public on this condition, to clarify their misconceptions and to bring to their attention that botulinum toxin is an effective treatment for HFS. Physicians can play a part by recognising this condition early and referring affected individuals for appropriate investigations and treatment.

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