Prevalence of Migraine in Middle to Old-Aged Residents in Kinmen

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Abstract

Background: There are not many headache surveys focusing on the middle- and old-aged populations. Asians have been considered to have a low prevalence of migraine headache. The study was designed to investigate the prevalence of migraine in middle- to old-aged residents in Kinmen.

Methods: Target population: eligible registered residents 50 to 64 years old (N = 2,179) in two townships of Kinmen Island. All participants completed a headache questionnaire and underwent clinical evaluation and examination by a neurologist. Headache diagnoses were performed according to the International Classification of Headache Disorders, first edition, 1988.

Results: Of the 1,839 persons (84%) participating in and completing the study, 43.2% had at least one headache episode in the previous year. Among the 77 subjects (4.2%) with at least one episode of migraine headache in the previous year, women reported a higher prevalence than men (7.6% vs. 1.3%, \(p < 0.001\)). The prevalence of migraine did not decline with age in this age group.

Conclusions: Our study on middle-to old-aged subjects found migraine as a significant illness in women but not in men. The prevalence showed no marked change during these transitional years toward old age.

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Key words: migraine, prevalence, Taiwan, middle age, old age

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Introduction

Migraine, a disabling headache, can severely impact the victims themselves, their families as well as the society. Two classification criteria, the International Classification of Headache Disorders, 1st (ICHD-1) (1998) and 2nd editions (ICHD-2) (2004) proposed by the International Headache Society (IHS), make it possible to compare migraine prevalence among different populations in these years [1,2]. The surveys conducted in Western countries showed a migraine prevalence of 18% in women and 6% in men [3]. The prevalence declined after age 40, and the trend was more obvious in women than men [3]. There is an unproved belief that Asians have a lower prevalence of migraine headaches. In Taiwan, the prevalence of migraine is 14.4% in women and 4.5% in men [4], only slightly lower than those reported in Western societies.

Migraine prevalence varies dramatically across the life span, peaking in the third and fourth decades of life and declining thereafter [3]. In addition, hormonal change or menopausal transitions are known to be related to migraine attacks in women [5]. It is not known where the trend of decline starts in the Asian population. Compared to the headache surveys on younger populations, community-based epidemiological studies on the middle- to old-aged remain rare. In this study, we performed a survey on migraine prevalence in subjects aged 50 to 64 in Kinmen.

Subject and Methods

Kinmen is an islet of 134 km² located approximately 150 nautical miles west of Taiwan and 22 nautical miles off the southeastern coast of mainland China. There are four townships with similar demographic components. Its original settlers came from southeastern China several hundred years ago. From 1949 to 1992 it was a major military base with restricted contact with the outside world. At least up to the time of our study, the population was quite stable and the rate of immigration or emigration was very low. The population of Kinmen was about 46,000 in 1997 with farmers forming a large proportion of the population. Because a comprehensive health survey had been conducted in Kinmen in 1990, the target population of the present study was based on the data of the 1990 census and included all registered residents in the two townships of Kin-Hu and Kin-Cheng.

The headache survey spanned from July 1, 1997 to June 30, 1998. The number of our target population was 2,179 (1,206 men and 973 women). The door-to-door
survey method was used for case collection. This headache survey was part of a more comprehensive survey on neurologic and psychiatric disorders [6]. Each participant was interviewed and examined by a member of our neurologist team, utilizing a structured headache questionnaire. The team consisted of eight neurologists and one psychiatrist. The questionnaire was validated in a previous study targeting at the elderly [7], which was based on the operational criteria of the ICHD-1 [1]. The participants were asked to provide information about their headaches within the previous year, including: frequency, severity, characteristics, location, duration, accompaniments, physician consultation, and use of pain-killers.

Headache was diagnosed by the neurologists after person-to-person interview and a thorough neurological examination. The diagnosis was based on the ICHD-1 criteria which were compatible with the ICHD-2 except for certain wordings [1,2]. To establish a diagnosis of ICHD-1 migraine, five attacks were needed. Each attack must last 4 to 72 hours and had two of the following four pain characteristics: unilateral location, pulsating quality, moderate-to-severe intensity, and aggravating by routine physical activity. In addition, the attacks had to be associated with at least one of the following: nausea or vomiting or photophobia and phonophobia.

Symptomatic headaches were diagnosed when headaches were clearly causally associated with central nervous system disorders. Cervicogenic headaches and headaches caused by temporo-mandibular joints or sinus diseases were not included. In addition, only patients with “headaches” were considered as prevalent cases, that is, we did not include the diagnosis of “migraine aura without headache.”

**Statistical & Analysis**

One-year prevalence of migraine was presented as the number of cases per 100 persons. Age-specific rates was calculated in the three age groups: 50-54, 55-59, and 60-64. Chi-square for linear-by-linear analysis was used to measure the age effects on headache prevalence. P value less than 0.05 was considered as statistically significant.

**Results**

A total of 1,839 persons (men 1,000, women 839) were successfully contacted, giving an overall response rate of 84%. The response rate was 83% (1,000/1,206) in men and 86% (839/973) in women. Table 1 showed the demographics and past history of the study population.
Table 1  Demographics and past history of the study population

<table>
<thead>
<tr>
<th></th>
<th>n = 1839</th>
</tr>
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<tbody>
<tr>
<td>Age(mean ± SD) (years)</td>
<td>57.0 ± 4.2 (50-64)</td>
</tr>
<tr>
<td>Female (%)</td>
<td>839 (45.6%)</td>
</tr>
<tr>
<td>Education (years)</td>
<td>3.2 ± 4.1 (0-18)</td>
</tr>
<tr>
<td>Hypertension (%)</td>
<td>478 (26.0%)</td>
</tr>
<tr>
<td>Diabetes (%)</td>
<td>153 (8.3%)</td>
</tr>
<tr>
<td>Current smoker (%)</td>
<td>467 (25.4%)</td>
</tr>
</tbody>
</table>

Table 2  Sex and age-specific one-year prevalence of migraine participants aged 50 to 64 (%)

<table>
<thead>
<tr>
<th></th>
<th>Females</th>
<th>Males</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-54 years old</td>
<td>6.1</td>
<td>1.0</td>
<td>3.7</td>
</tr>
<tr>
<td>55-59 years old</td>
<td>9.7</td>
<td>1.1</td>
<td>4.7</td>
</tr>
<tr>
<td>60-64 years old</td>
<td>7.2</td>
<td>1.9</td>
<td>4.4</td>
</tr>
<tr>
<td>Total</td>
<td>7.6</td>
<td>1.3</td>
<td>4.2</td>
</tr>
</tbody>
</table>

Overall, 795 (43.2%) of our participants had at least one headache episode in the previous year. The rate in women (51%) was significantly higher than that (36%) in men. The headache frequency was categorized as average days of headache per month, that is, 0, >0-1, 2-7, 8-14, ≥15 days. The frequency of subjects who had ≥15 headache days per month was 2.9% in men and 5.8% in women. Moreover, women experienced significantly more headache days than men.

The age- and sex-specific rates of migraine are illustrated in Table 2. A total of 77 subjects (64 women and 13 men) reported at least one episode of migraine headache in the previous year (1-year prevalence: 4.2%). The middle- to old-aged men had a very low migraine prevalence around 1.0%. The migraine prevalence were around 6-9% in the women of the same age group. Of the 77 patients with ICHD-1 migraine, 67 (87%) were diagnosed as migraine without aura (ICHD-1 code 1.1), while 11 (13%) were diagnosed as migraine with aura (ICHD-1 code 1.2). The subjects with probable migraine (i.e. migrainous disorder, ICHD-1 1.6) were not counted as our migraine cases in this report.

Among the 77 subjects with ICHD-1 migraine, 32 (41.6%) had headache less than one day per month, 18 (23.4%) had headache 1-3 days per month, 16 (20.8%) had headache 4-6 days per month, 4 (5.2%) had headache 7-15 days per month, and 3 (3.9%) had headaches more than 15 days per month.

We used linear-by-linear analysis to test for a significant increase or decrease in headache prevalence among all three age-groups. The trend was significant neither in men nor in women in the three groups (50-54, 55-59, and 60-64 years old) of middle- to old-aged subjects.

Similar to age, difference in education level showed no influence on the prevalence of migraine if sex was controlled (p>0.05).
Discussion

Among the 1,839 participants aged 50 to 64, 36% of men and 51% of women had at least one headache episode in the previous year. One-year prevalence of migraine was 1.3% in men and 7.6% in women. Both age and education appeared to product no significant influence on the prevalence of migraine in subjects of all three age groups.

Differences in methodology and diagnostic criteria have hindered close comparison of findings from different headache surveys. Few studies were originally designed to survey headaches in this age group. Previous prevalence surveys examined headaches primarily among young-aged adults, making data unavailable for cross-cultural comparisons. Several large-scale community-based headache prevalence studies have been done in China [8,9]. Cheng et al [8] and Zhao et al [9] reported a very low migraine prevalence in the PRC. The figures in the middle- to old-aged groups were less than 1%. Our figures were much higher than those from China. However, both of the studies from China [8,9] used the old Ad Hoc criteria for migraine. Only subjects with migraine with aura were included.

The prevalence of migraine according to ICHD-1 criteria was 9.1% in Taiwan from a community survey conducted in the greater Taipei area [4]. The prevalence was the highest in the group of subjects aged 25 to 39. In addition, the prevalence of migraine in those aged 50 to 64 read 9.0% (5.3% in men vs. 12.2% in women), which was higher in comparison with the current study. It is hard to make comparisons because the study method and socioeconomic background of the participants were quite different between these two studies.

We compared the 1-year prevalence of migraine in the middle- to old-aged population in our study to those from previous community-based studies. Our figures were lower than those conducted in most Western countries, where the prevalence ranged from 3 to 5% in men and 8 to 12% in women [10,11]. This discrepancy might be due to a variety of factors, including diverse cultural, genetic or environmental backgrounds, and differences in methodology or diagnostic criteria. The extent to which racial diversity may contribute to the discrepancy is an issue of interest. In a meta-analysis, Stewart et al [12] found age, sex and case definition explained almost 70% of the variation of the prevalence in different populations, but the racial diversity issue was not studied in his model.

Virtually all migraine surveys from the general population have demonstrated a decline of migraine in the middle-aged or
elderly populations. However, our study observed no such trend of decline in either women or men in the age group of 50 to 64 years old. We did not know exactly the reason. In addition, our study showed that active migraineurs was very rare in middle- to old-aged men, around 1%. It was estimated that women of this age reported a prevalence over 6 times higher that men. This high ratio between women and men has been shown in two studies from China (3 to 5 times) [8,9]. In contrast, the ratios were around 2 in the elderly in Western studies [3,10].

Several points should be addressed in our methodology. (1) Recall bias [13]: Memory of pain would be affected by the present state of pain. (2) Sampling bias. Our response rate (84%) is appropriate for a field study. This headache survey was part of a more comprehensive survey of neurologic and psychiatric disorders, and there was no announcement that headache data was being collected; therefore, it is unlikely that sample selection was influenced by participants with more headaches. (3) Door-to-door survey by physicians. Our methods of case collection and case-ascertainment were complete. The interview included both a structured questionnaire and clinical evaluation by a neurologist, which would yield a thorough and accurate headache diagnosis [14]. Our questionnaire was designed for the operational criteria of the ICHD-1 [1].

In conclusion, using comprehensive methodology based on the ICHD-1 criteria, we reported a high migraine prevalence in middle- to old-aged subjects in Kinmen. However, the figures were still lower than those from studies conducted in Western countries. The difference in time of survey, social or cultural background, and degree of prosperity should be taken into consideration, in addition to the difference in methodology.

References


金門地區中老年偏頭痛盛行率

摘 要

背景：中老年人社區頭痛調查很少，亞洲人被認為頭痛較不常見。本研究目的為研究金門地區中老年人的偏頭痛盛行率。

方法：目標族群：金門地區金湖與金城兩鄉鎮年紀 50 歲到 64 歲所有人口，共 2,179 人。參加者將完成頭痛問卷，並接受神經科醫師臨床評估與神經學檢查。偏頭痛診斷是以國際頭痛學會 1988 年頒訂的診斷準則為準。

結果：共有 1,839 居民（84%）完成本研究。其中，有 43.2% 受訪者在過去一年曾有一次以上的頭痛。七十七位受訪者（4.2%）有一次以上的偏頭痛發作，其中女性比男性的比例高（7.6% vs. 1.3%, p < 0.001）。若以五歲為一年齡組，則偏頭痛並不因年齡增加而下降。

結論：本研究發現中至老年時期，偏頭痛僅在女性是重要疾病。在過渡到老年的這段時間，偏頭痛盛行率並未顯著變化。

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關鍵詞：偏頭痛、盛行率、台灣、中年、老年