Treatment Patterns and Healthcare Expenditures in Patients with Cluster Headache: Results from China Health Insurance Research Association (CHIRA) Database

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BACKGROUND

- Cluster headache (CH) is an excruciating primary headache disorder, classified with similar conditions known as trigeminal autonomic cephalalgias[1]. An epidemiological investigation in 1986 showed that the prevalence of CH was 6.8 per 100 000 population in mainland China[2], but was likely underestimated.
- In US, the mean CH-related total direct costs were $3,132 per patient per year[3].
- The treatment patterns and healthcare expenditures of CH remains unclear in China, as there have been no clinic-based or large claim database studies.

OBJECTIVES

- To understand the treatment patterns and healthcare expenditures among patients with CH in China.

METHODS

Data source

- This was a retrospective study based on outpatient claims data from China Health Insurance Research Association (CHIRA) database, which was collected from 87 sampling cities and over 19 million insured patients in the calendar years of 2016 and 2017.

Study population

Patients with headache visits in 2016 and 2017

- Inclusion criteria
  - Aged ≥ 18 years old
  - With at least one CH diagnosis (ICD-10 code G44.0 supplemented by physician's Chinese characters description) during 2016 or 2017
- Exclusion criteria
  - With cancer / schizophrenia / stroke
  - Receiving hemodialysis or peritoneal dialysis

Adult CH patients

Measurements

- Baseline characteristics including demographics and comorbidities.
- The proportion of CH patients' prescriptions
  - CH patients prescribed at least one drug on the predefined medication list in that calendar year were analyzed.
- Monthly Visit Frequency
- Direct medical costs per CH visit

Data analysis

- Mean, standard deviation (SD) and median were reported for quantitative data. Count and percentage were reported for qualitative data.
- Data were analyzed using Stata/SE 14.0.

KEY RESULTS

- Of 90,948 people with outpatient claims for headache, 79 (0.087%) patients with 90 visits had CH diagnosis.
- The mean (SD) age was 50.1 (14.4) years old and 43.0% were female.
- The most common comorbidities were anxiety (6.3%) and major depressive disorder (2.5%).
- Hospital visits were more frequent in autumn and winter with the top two most frequently-visited months being September (14.4%) and January (12.2%).
- The majority (55.3%*) of patients' initial visits were from tertiary-level hospitals.
- Among CH patients, 30 (38.0%) patients had at least one prescription for acute medications. The most common prescriptions were NSAIDs (23.3%), triptans (16.7%) and opioids (13.3%). No patients were prescribed oxygen.
- Preventive medications were prescribed at 10.1% of patients, with verapamil or prednisolone prescribed at only 3 patients.
- Traditional Chinese medications were prescribed in 58.9% visits.
- The average cost per visit was USD 44.1± 55.3 (median=27.4).

* The proportion of tertiary-level hospitals was 54.6% if the missing information weren't eliminated.

Baseline Characteristics

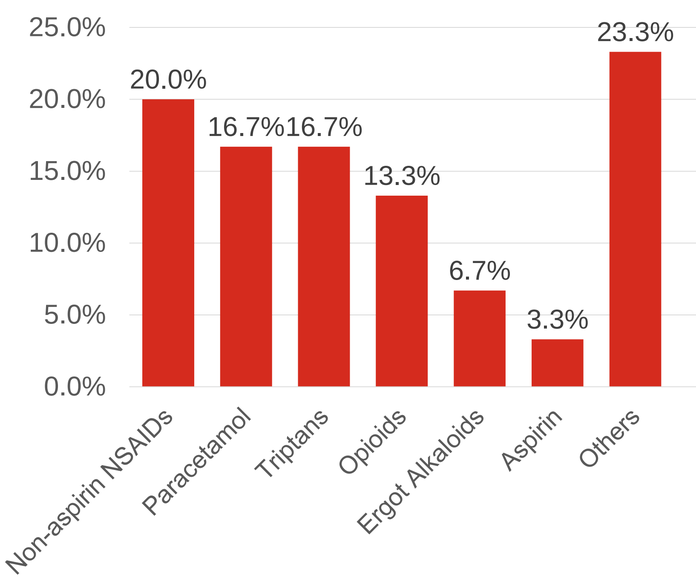
N=79 (patients)

Variables	N	%
Age Categories		
18-29	4	5.1%
30-39	19	24.1%
40-49	16	20.3%
50-59	17	21.5%
≥60	23	29.1%
Female	34	43.0%
Insurance Type		
UEBMI	60	76.0%
URBMI	19	24.0%
Comorbidities		
Anxiety	5	6.3%
MDD	2	2.5%
Tremor	1	1.3%
Hospital Level		
Tertiary Hospital	42	55.3%
Secondary Hospital	8	10.5%
Primary Hospital	26	34.2%
Top 3 department		
Neurology	8	27.6%
Internal Medicine	4	13.8%
ER	4	13.8%

1. MDD: Major Depressive Disorder; UEBMI: Urban Employee Basic Medical Insurance; URBMI: Urban Residents Basic Medical Insurance; ER: Emergency Room
2. Hospital level: The hospital level of the patients first visit with CH diagnosis in the calendar years of 2016/2017 in CHIRA database
3. The proportion of hospital level and department were calculated after eliminating the missing information

Acute Medication Prescription

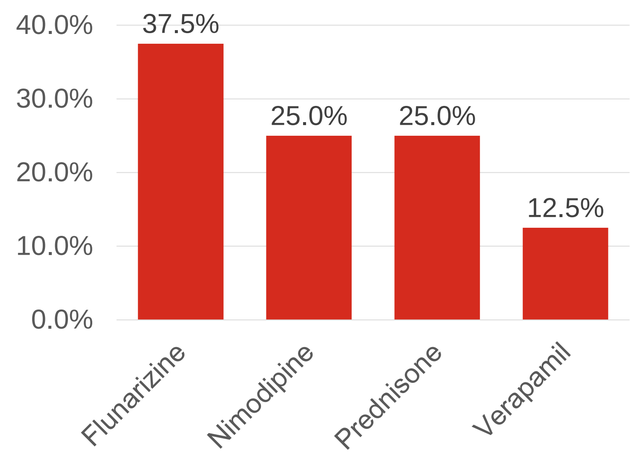
N=30 (patients)



Others: Barbiturates, Tizanidine, Lidocaine, Carbamazepine, Rotundine

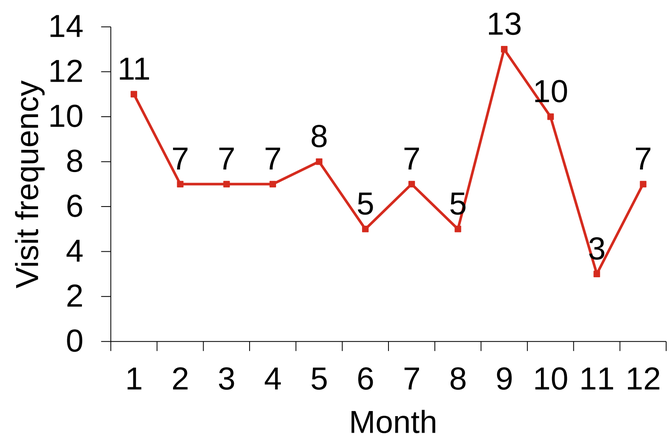
Preventive Medication Prescription

N=8 (patients)



Monthly CH Visit Frequency

N=90 (visits)



Average Cost Per Cluster Headache Visit

N=90 (visits)

Variables	Mean	SD	Median
Total Costs (USD)	44.1	55.3	27.4
Medication Costs	29.4	50.2	13.1
Costs of western medicine	6.8	50.3	7.5
Costs of Chinese traditional medicine	22.5	49.1	2.7
Diagnosis and Non-medication Costs	14.8	33.7	0.9

CONCLUSIONS

- The proportion of cluster headache in headache patients is extremely low.
- Cluster headache is probably undertreated in China, both in acute and preventive aspects.
- Chinese traditional medications were generally prescribed in clinical practices.
- Given the burden of the disease, improving availability of effective therapies might be an urgent need.

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