

Brief Communication

Epidemiology of Bell's palsy in Isfahan, Iran

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Bell's palsy is one of the most common neurological disorders affecting the cranial nerves. Worldwide estimates range from 11.5-40.2 case per 100,000 per year.¹ Some studies have shown some seasonal effect on Bell's palsy, which increased in autumn and winter, but geographic, racial, ethnic, and environmental factors have been inconsistent.¹ There are rare reports regarding epidemiology of Bell's palsy in the Middle East and Iran. In this study, we investigate epidemiologic factors in patients with Bell's palsy.

This is a retrospective, descriptive analytic study using the census methodology and existing data. Medical records of 425 patients who suffered from idiopathic facial nerve paralysis and referred to Esabne-Maryam General Hospital and the Family Medical Center in Isfahan from 2001 to 2005 were reviewed. This study was approved by the ethical committee of the Medical University of Isfahan. A check list was prepared including age, gender, affected side, season of onset, history, or presence of any other systemic disease, recurrence of palsy, duration of palsy, severity of palsy, degree of nerve involvement and existence of spasm. The severity of palsy was evaluated based on House-Brackmann classification, which categorizes the patients into 6 groups: normal function (grade I), mild dysfunction (grade II), moderate dysfunction (grade III), moderately severe (grade IV), severe dysfunction (grade V), and total paralysis (grade VI). We considered grades II-V as partial paralysis, and grade VI as complete paralysis.² Based on the time of first referral of patients after onset of palsy, all of the cases were categorized into 4 groups including first 24 hours, first week, second week, and after 2 weeks. From these 425 files, 18 cases were excluded because the etiology of Bell's palsy was known including trauma and congenital facial nerve paralysis. Finally, all existing data of 407 cases with unknown origin were collected and were analyzed using t-student and chi square tests.

A total number of 407 records related to patients with episodes of Bell's palsy were studied. Out of 407 patients, 193 (47.4%) were men while 214 (52.65%) were women. The maximum incidence rate was in the third and fourth decades of life (age group of 21-30 and 31-40 years). There was a significant difference between age of female and males (34.82 ± 16.1 , 38.08 ± 16.4 , $p=0.04$). From 193 female patients, 66.3% were in the fertility period (15-44 years) and 33.7 were in the post menopausal period. The seasonal incidence of

disease was 32.4% in autumn, 31.4% in winter, 25% in summer, and 11.1% in spring. Regarding the side of involvement, 54% of the cases suffered from Bell's palsy on the left side of the face, and 46% on the right side. The frequency distribution of patients based on partial and complete palsy were 402 (98.8%) and 5 (1.2%). According to the results, the relation between severity of palsy and age groups is significant ($p=0.000$), and the age group of 61-70 years shows the most percentage of severe involvement (Table 1). We also found a significant relation between severity of palsy and gender ($p=0.01$). The study also showed that 37 patients (9.1%) had recurrence of paralysis of the facial nerve, and in all of them it was ipsilateral. The recurrence of Bell's palsy in females was significantly more than males ($p=0.026$). The recurrence rate was most common in the severe type of palsy ($p=0.002$). Out of 407 patients with Bell's palsy, only 6 cases (1.5%) had other systemic disease in their history; diabetes mellitus (0.7%), acute leukemia (0.25%), history of coronary bypass (0.25%). Pregnancy was found in 0.2% of cases. Considering the time of first referral of patients after the onset of palsy, 33 cases (8.1%) were in the first 24 hours, 345 cases (84.4%) were in the first week, 8 cases (2%) were in the second week, and 21 cases (5.2%) were after the second week. In 12 patients (2.9%), hemifacial spasm was observed. There is a significant relation between spasm and duration of the disease ($p=0.000$), it means the possibility of spasm is greater in patients who were referred later [first 24 hours (0%), first week (1.4%), second week (23.8%), after 2 weeks (25%)]. Spasm in female patients is significantly more than males ($p=0.002$).

This study investigated the specific epidemiology of Bell's palsy in Isfahan, Iran during 2001-2005. According to age groups of disease, our study showed

Table 1 - Frequency percentage of severity of nerve involvement according to age groups.

Age groups	Severity of nerve involvement	
	Grade I, II, III	Grade IV, V, VI
1-10	44.4	55.6
11-20	50.7	49.3
21-30	63.0	37.0
31-40	60.2	39.8
41-50	40.0	60.0
51-60	15.4	84.6
61-70	2.1	97.9
71-80	35.3	66.7

$p=0.02$ for all

similar results with other studies, which is an increase in incidence by age of 21-30 and 31-40 (third and fourth decades of life).⁴ We also found a high frequency of disease in colder months; this is similar to other studies.^{3,4} This statement could support the infectious cause of Bell's palsy because of increase in viral infection in colder months of the year. In our results, the incidence of paralysis on the left side of the face was more than the right side, similar to a study of Valença et al.³ The recurrence rate of facial nerve palsy (9.1%) was similar to other studies, which is almost similar to studies in western countries.⁵ Another importance of this study, which was not conducted in other studies, was considering the severity of nerve involvement; these results showed that, most of the patients suffered from the severe type of Bell's palsy. Our results indicate that 98.8% of patients had partial paralysis and only 1.2% had complete facial nerve paralysis, which is in contrast to larger series.⁴ The explanation of the extraordinary high percentage of incomplete paresis could be the late admission of more than 2 weeks in this study. According to our results, 3% of cases showed hemifacial spasm after Bell's palsy, however, this number in the study of Valença et al³ was considerably more (12.8%). Finally, in this study the time of admission of patients after onset of palsy was observed. The most common time of referral of the patients to the hospital was in the first week of their illness (84.8%). The major limitations of this study were the retrospective nature, and short period designed. Also, the number of patients was too small

for a valid statistical significant conclusion. Therefore, a prospective study with a larger time period, and larger sample size is needed to confirm this data.

In conclusion, our data were similar to other studies, however, there was a positive relation between severity of nerve involvement with higher age and male gender, and, the recurrence rate was higher in females.

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