

Bell's palsy in Mosul

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ABSTRACT

Objective: To study the incidence, sex, age, and seasonal distribution of Bell's palsy in Mosul.

Methods: A prospective study of patients with Bell's palsy from outpatient and private neurological clinic and Neurophysiological Unit in Ibn Sena Teaching Hospital in Mosul conducted between September 2001 to August 2003. The patient's age, sex and time of occurrence of Bell's palsy were recorded.

Result: the total number of the patients was 469, male patients were 207 and females were 262. The higher number of cases was recorded in the cold months, adult affected more than other age groups.

Conclusion: Bell's palsy is the commonest cause of lower motor neuron facial nerve palsy; herpes simplex has been claimed as a cause of the condition.

Keywords: Bell's palsy; facial nerve; facial nerve paralysis.

الخلاصة

هذه الدراسة أجريت للفترة من أيلول ٢٠٠١ الى آب ٢٠٠٣ للمرضى الذين أصيبوا بشلل العصب الوجهي (الفحفي السابع) والذين قاموا بمراجعة العيادات الاستشارية والخاصة لأمراض الجملة العصبية في مستشفى ابن سينا التعليمي في الموصل. وقد وجد ان عدد الذين تم فحصهم ووجدوا انهم يعانون من هذه الحالة المرضية بلغ ٤٦٩ منهم ٢٦٢ من الإناث و٢٠٧ من الذكور، وان أعلى نسبة من الإصابات سجلت في خلال أشهر الشتاء. إلا ان هذا العدد لا يمثل العدد الحقيقي للمرض حيث ان أعدادا كبيرة لاتراجع الأطباء بسبب بعض المعتقدات والتقاليد الخاطئة. كما وجد ان أكثر الأعمار عرضة للإصابة بهذا الشلل هم البالغون وخصوصا ما بين ٢٠-٤٠ سنة. وانها قد تكون نتيجة لإصابة سابقة بفيروس HSV. تنصح هذه الدراسة بمعالجة هذه الحالات مبكرا بعقاقير الكورتيزون ومضادات الفيروسات لتفادي تشوه في الوجه وخاصة في الحالات الشديدة.

Sir Charles Bell first described the anatomy and function of the facial nerve in the 1800s^(1, 2) Bell's initial description of facial palsy related to facial paralysis caused by trauma to the peripheral branches of the facial nerve. However, the terms "Bell's palsy" and "idiopathic facial paralysis" may no longer be considered synonymous^(3, 4).

The onset of Bell's palsy can be frightening for patients, who often fear they have had a stroke or have a tumor and that the distortion of their facial appearance will be permanent.

Bell's palsy is the sudden onset of unilateral lower motor neuron dysfunction of the seventh cranial nerve that results in the paralysis of the facial muscles on the affected side of the face.

Facial weakness is often preceded or accompanied by pain about the ear. Weakness generally comes on abruptly but may progress over several hours or even a day or so. Depending upon the site of the lesion, there may be associated impairment of taste, lacrimation, or hyperacusis. There may be paralysis of all muscles supplied by the

affected nerve (complete palsy) or variable weakness in different muscles (incomplete palsy). Clinical examination reveals no abnormalities beyond the territory of the facial nerve. Most patients recover completely without treatment, but this may take several days in some instances and several months in others. It is generally accepted that there is inflammation and oedema of the nerve in the facial canal but, not surprisingly, there have been few pathological studies. A viral aetiology is suspected⁽⁵⁻⁶⁾. Although Bell's palsy is a well-known and relatively common condition, its epidemiology is unclear.

For this study, we estimated the numbers of patients who develop Bell's palsy and their distribution along the year. In addition, we studied the independent effects of climate, and season on the incidence of the disease.

Patients and methods

Incident cases were defined as those patients whose first Bell's palsy diagnosis occurred during the study period.

Patients were searched to identify visits that resulted in a primary diagnosis of Bell's palsy (International Classification of Diseases, Ninth Revision, Clinical Modification code 351.0) from outpatients and private clinics between September 2001 to August 2004.

The diagnosis of Bell's palsy can usually be made clinically in patients with (i) a typical presentation, (ii) no risk factors or preexisting symptoms for other causes of facial paralysis, (iii) absence of cutaneous lesions of herpes zoster in the external ear canal, and (iv) a normal neurologic examination with the exception of the facial nerve.

The Köppen system, originally developed in

the early 1900s, is a widely recognized and commonly used climate classification system^(7, 8). The system groups land areas into climatic categories based on characteristics (e.g., extremes, ranges, central tendencies) of temperature, rain, and aridity⁽⁹⁾. For our analyses, we used the Köppen classification of "dry climate" as our single indicator of climate, since it could be directly applied to Mosul area and was not highly correlated with other factors under investigation (i.e. season).

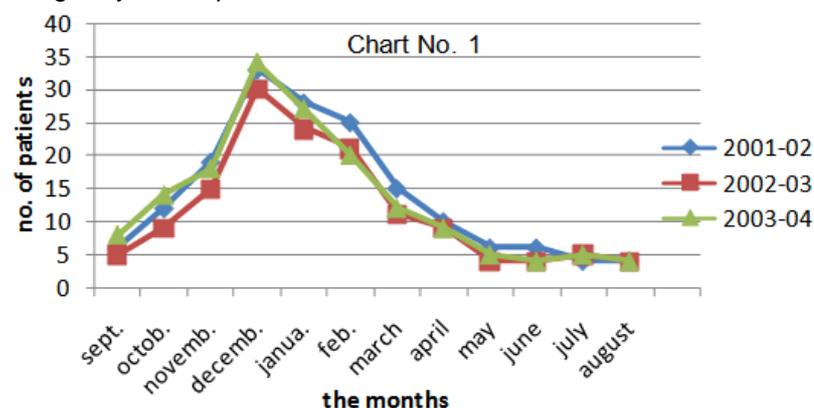
Result

The total number of patients that have been seen from September 2001 to August 2004 and the distribution of patients during the study period including the number of male and female patients and their percentage are shown in the following table:

Year	No. of patients	Males	Females
2001-02	168	77(45.8%)	91(54.2%)
2002-03	141	59(41.8%)	82(58.2%)
2003-04	160	71(44.3%)	89(55.7%)
	469	207(44.1%)	262(55.9%)

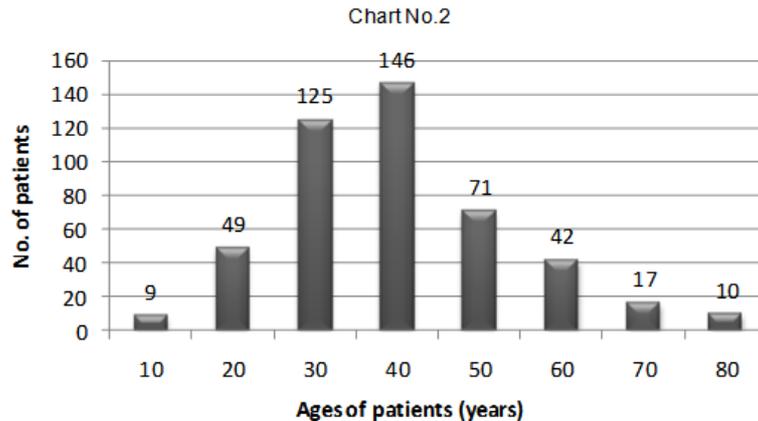
The total number of patients was 469, females were affected more than males.

The following chart (No.1) shows the distribution of patients during the months of the year which shows peak incidence during winter months particularly December followed by January, and there is clear decline of the incidence during hot time especially summer months:



Age distributions of the incidence of Bell's palsy are seen in chart (No. 2), which shows

that peak incidence of the condition is mainly in adult more than young or elderly people.



Discussion

Although Bell's palsy is a well-known and relatively common condition, its epidemiology is unclear. Estimates of the incidence of this disease in the United States range from 13 to 34 cases per 100,000 per year⁽¹⁰⁾; worldwide, estimates range from 11.5 to 40.2 cases per 100,000 per year⁽¹¹⁾. The number of Bell's palsy patients which have been recorded in this study, actually it does not reflect the real number of the condition in our locality as large number of the patients doesn't consult doctors because of some old religious belief. In addition to that nearly a similar number of patients are seen by GP or physicians and not neurologist. Most studies have found comparable rates between males and females⁽¹²⁾. In this study it is clear that females were affected more than males; this is in agreement with a study done in USA where the incidence rate of Bell's palsy was slightly higher for females than for males (crude rate ratio=1.12)⁽¹³⁾. Several studies have suggested that Bell's palsy is more common among young and middle-aged adults⁽⁵⁾, although others have documented rates that increased with age⁽¹²⁾ but in our study adults affected more and incidence decreased in middle age and elderly (chart No. 2). Findings of associations between the risk of developing Bell's palsy and seasonal^(11, 14), geographic⁽⁵⁾, racial/ethnic⁽¹¹⁾, and environmental⁽¹⁵⁾ factors have been inconsistent. In this study the geographical and racial/ ethnic factors were

not included as they need multicenter studies involving all Iraq.

In this study crude incidence rates during the colder months of the year (November to March) were consistently higher than the incidence rates during the warmer months of the year (May to September) (chart No.1). This is in agreement with other studies where Bell's palsy rates were relatively high during cold seasons of the year too⁽¹³⁾. While results of other studies have been inconsistent in this regard^(5,11, 16,17); when seasonal variations in Bell's palsy rates were observed, they were generally lower in summer

There are conflicting reports of clustering of cases, suggesting an infective aetiology, and recurring reports implicating herpes viruses^(5, 6), and this may explain the high incidence and clustering of cases reported in this study in winter months.

There is an agreement that most cases of Bell's palsy are caused by reactivations of latent herpes virus type 1 (HSV-1) infections of geniculate ganglia of facial nerves^(11, 12, 18-22). These reactivations lead to inflammation, swelling, compression, and ultimately, dysfunction of affected facial nerves. It is unclear what stimuli most commonly trigger these reactivations.

If most cases of Bell's palsy are indeed caused by reactivated herpes virus infections, then persons with prior HSV-1 infections should be at higher risk of Bell's palsy than others in the same populations. In addition,

persons with Bell's palsy should be demographically similar to those with latent HSV-1 infections when populations are uniformly exposed to competent triggers of HSV-1 reactivation⁽¹³⁾; this needs further evaluations and studies in the future.

One study indicates that two physical stressors, residence in an arid climate and exposure to cold, are independent predictors of Bell's palsy suggest that cold, dry air such as that in arid areas during winter months, may traumatize mucus membranes of the nasopharynx, which may, in turn, induce reactivations of herpes infections⁽¹³⁾. This may explain the increasing incidence of Bells' palsy in cold season in this study particularly if we knew that there is clear decrease in frequency and quantities of rains in the last decade in Mosul area. This needs future assessment as we don't have well documented studies about the incidence and seasonal variations of Bells' palsy in Iraq in the past where rainy seasons were longer and heavier. Results from other studies that examined relations between facial paralysis and climate were inconclusive^(15, 16), although a study reported an incidence rate in a desert climate was substantially higher than rates found in most other studies^(11, 23).

One of the explanations of increased incidence of Bells' palsy in dry cold weather is large variations in day-night temperatures (common in desert environments) and frequent, sudden, and/or prolonged exposures to cold outdoor air (common for worker personnel during winter months) may induce vasomotor changes in facial areas, initiate the development of edematous neuritis by reflex ischemia⁽²⁴⁾, and/or provoke the reactivation of HSV-1 in ganglion cells⁽²⁵⁾.

Reactivation of latent HSV-1 infections may be triggered by certain psychological stress, and this is a well known facts. In this study there is clear evidence that a psychological stress may precede the development of Bells' palsy in a good number of patients.

Seasonal variation of mood due to the effect of changing weather (e.g., seasonal affective disorder)^(26, 27) are well documented.

Furthermore, depression has been associated with increased susceptibility to

infectious illnesses such as the common cold⁽²⁸⁾. It is possible that immunosuppression secondary to mood changes may explain some of the seasonal variation in risk of Bell's palsy⁽¹³⁾.

In conclusion Bell's palsy is one of the common conditions which affect the facial nerve especially in late fall and early winter; early treatment of such condition with steroid and antiviral therapy in addition to physiotherapy will prevent permanent facial disfiguring particularly in those severely affected patients.

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Editorial comment. The value of antiviral agents has recently been much doubted in Bell's palsy (Bracewell RM. The treatment of Bell's palsy. *JR Coll Physicians Edinb* 2008;38:38).