

SEASONAL INCIDENCE OF BELL'S PALSY IN AL-JOUF REGION

Shahid Jamil¹, Khalid Hassan Khan², Shahnaz Nadir¹, Hamud A. Alsaad³

¹Department of Medicine, Khyber Medical College, Peshawar - Pakistan

²Khyber College of Dentistry, Peshawar - Pakistan

³Department of Medicine, Central Hospital, Al-Jouf, KSA

ABSTRACT

Objectives: To evaluate the influence of different seasons on the occurrence of Bell's palsy.

Material and Methods: This prospective study was conducted in the Central Hospital of the northern area, Al-Jouf, Kingdom of Saudi Arabia. The facial appearance of Bell's palsy patients was assessed in four standard poses: at rest, with a smile, with raised eyebrows, and with eyes tightly closed. Four hundred and three cases (males 211, females 192) of Bell's palsy between 10 to 60 years of age between January 2011 to December 2012 were included in the study. Patient distribution patterns by season and age groups were recorded. The collected data were analyzed with standard statistical methods using SPSS version 15.0.

Results: There were 52.4% males and 47.6 females. 23.3% were aged 10-20 years, 23.6% were aged 21-30 years, and 20.9% between 31-40 years, 15.1% between 41-50 years and 17.1% were above 51 years of age. Bell's palsy was more (27.8%) during the autumn season followed by winter season (26.3%) in the two sexes, whereas both summer (23.1%) and spring seasons (22.8%) had nearly the same pattern.

Conclusion: Changes in the seasons have some effect on the incidence of Bell's Palsy however a larger sample size recruited from multicenter would be helpful in further clarifying the fact that whether all these differences are purely due to environmental, climatic and seasonal factors or due to racial susceptibility.

Key Words: Bell's palsy, seasonal variation, Al-Jouf region.

INTRODUCTION

Bell's palsy is paralysis or weakness of muscles of one side of the face. Its annual incidence is approximately 20 per 100, 000¹. Men and women are equally affected and there is no predilection for either side of the face². In 1972, McCormick first suggested that the causative factor of Bell's palsy is the reactivation of Herpes Simplex Virus (HSV) in the ganglion cells³. Less common causes of seventh nerve palsy are Lyme disease, ear infection, HIV infection and brain tumors. A two year old female child was reported to have facial palsy after hepatitis B vaccine⁴.

The most distressing symptom of Bell's palsy is unilateral facial weakness. Denervation of the orbicularis oculi muscle results in inability of the patient to close the eye lids effectively, while denervation of the risorius muscle results in the limited retraction of the angle of mouth. Less common symptoms include decreased production of tears, altered taste, and numbness or pain around the ear on the affected side⁵. In some cases, the loss of

feeling in and around the mouth leads to some risk for oral complications therefore, consultation with a dentist may be sought⁶.

Treatment of Bell's palsy remains controversial and variable. About 70 to 80% of untreated patients recover without significant long term facial weakness. Treatment of the disease includes steroids alone or in combination with antiviral agents. Steroids have been used to treat Bell's palsy and have been shown to significantly improve outcomes compared with Placebo⁷. Physiotherapy is recommended for those who do not make a full recovery from the Bell's palsy even after nine months of treatment⁸.

Diabetes and pregnancy are amongst the risk factors. But the influence of age is more on the onset of Bell's palsy⁹. The commonest age is 40 but the disease can occur at any age. A study estimated the rates, trends, and demographic correlates of risk of Bell's palsy¹⁰. The same study also showed that both climate and season were independent predictors of risk of Bell's palsy¹⁰. The findings also highlighted that latitude was not a statistically significant predictor when demographic, climate, and seasonal effects were taken into account. In the present study, we evaluated only the influence of different seasons on the incidence of this disease.

MATERIAL AND METHODS

This prospective study was conducted in the

Address for Correspondence:

Dr. Shahid Jamil

Associate Professor,

Department of Medicine,

Khyber Medical College, Peshawar - Pakistan

Email: ?????????????????????

Central Hospital of the Northern area, Al-Jouf, Kingdom of Saudi Arabia. The climate of the area has low humidity in almost all the four seasons of the year. Final approval from the hospital administration/ethical review committee was obtained after they were briefed about the objectives of the study. Patients who belonged to other regions were excluded from the study. The day of onset of the disease was recorded according to patient's history.

The facial appearance of Bell's palsy patients was assessed in four standard poses: at rest, with a smile, with raised eyebrows, and with eyes tightly closed. All the cases were also investigated through auditory tests, and electro-physiologic tests. Underlying infection was ruled out on the basis of laboratory evaluation, including complete blood count, C-reactive protein, and serological testing for viral disease (including hepatitis A, B, C, herpes simplex, HIV, Epstein-Barr, and cytomegalovirus).

Four hundred and three cases (males 211, females 192) of Bell's palsy within age range between 10 to 60 years were included between January 2011 and December 2012. The information and data of these patients was collected in a specially designed proforma. Patient distribution patterns by season and age groups were recorded. During their first visit to the hospital, they were seen in Medical, Eye, ENT, Physiotherapy, Neurosurgery and Dental OPDs for the treatment of same disease. Their satisfaction regarding treatment from the different specialties was recorded. The collected data were analyzed using SPSS version 15.0.

RESULTS

There were 211 (52.4%) males and 192 (47.6%) females. Table 1 describes that the incidence of Bell's palsy during various seasons of the year. Disease was more (27.79%) during the autumn season followed by winter season (26.3%) in the two sexes, whereas both summer and spring seasons had nearly the same pattern, (23.1%) and (22.8%), respectively. The incidence was found to be low in the females (8.93%) as compared to the males (13.89%) during the spring season. While in other seasons both the genders had no significant difference. Table-2 shows the incidence of the disease in various age groups.

DISCUSSION

Bell's palsy is the sudden onset of unilateral dysfunction that results in the paralysis of the facial muscles. Its incidence varies in different parts of the world¹¹. The greatest occurrence has been observed in Japanese, Israelis and the Mexican population, while

Table-1: Season wise distribution. n=403

Season of the year	Males 211 (52.35%)	Females 192 (47.6%)
Winter	53(13.15%)	53(13.15%)
Spring	56(13.89%)	36(8.93%)
Summer	48(11.91%)	45(11.16%)
Autumn	54(13.39%)	58(14.39%)
Total	212(52.35%)	192(47.64%)

Table-2: Age wise distribution. n=403

Age (years)	Males	Females	Total
10-20	49 (12.15%)	45 (11.16%)	94 (23.3%)
21-30	51 (12.65%)	44 (10.19%)	95(23.6%)
31-40	40 (9.92%)	44 (10.91%)	84(20.9%)
41-50	33 (8.18%)	28(6.94%)	61(15.5%)
51-60	41(10.17%)	28 (6.94%)	69(17.1%)
Total	211(52.35%)	192 (47.6 %)	403 (100%)

the smallest in the Swedish people¹¹. A study documented its distribution with the changes in the weather conditions¹².

The aim of our study was to determine whether the Bell's palsy patient's visiting our hospital exhibit any seasonal variation patterns. For this purpose, we reviewed all cases that attended our hospital during the period from January 2011 to December 2012. We concluded that the season with the greatest number of Bell's palsy was autumn, whereas spring had the lowest incidence. Some researchers have demonstrated that the peak incidence of Bell's palsy is in spring and rare in winter¹². Sponges et al. reported a decline during the summer, in contrast to peak during the autumn and winter¹¹. Another study showed no change in the pattern of the same disease with season¹³.

We on further reviewing our data found that the peak incidence of the disease was in the age group 10-30 years. According to available literature search, peak age of the disease was between 15-45 years¹⁴. A study showed that the occurrence of Bell's palsy was high in people over 60 years of age having history of diabetes and hypertension¹⁵. We noted a difference in the incidence between the males (13.89%) and the females (8.93%) during the spring season. While a previous study showed that males and females were equally affected, although the incidence in the females was higher during pregnancy⁹.

A special form of physiotherapy called Facial Retracing improves muscle mobility, even when therapy is initiated years after the onset of Bell's palsy. With this therapy patients get early relief as compared to drug therapy. A multi-centre study comprising of large population may take into account all these factors and seasonal changes to support these findings.

CONCLUSION

Changes in the seasons have some effect on the incidence of Bell's Palsy however a larger sample size recruited from multicenter would be helpful in further clarifying the fact that whether all these differences are purely due to environmental, climatic and seasonal factors or due to racial susceptibility.

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