



Original Article

Prevalence of Recurrent Bell's Palsy

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ABSTRACT

Recurrent Bell's palsy is experiencing more than 1 episode of Bell's palsy after recovering from the first one. Prevalence of Recurrent Bell's Palsy ranges from 2.6-15.2% although it is a rare occurrence. The study under observation was conducted to find out the prevalence of Recurrent Bell's Palsy in patients. **Objective:** To assess the prevalence of recurrent Bell's palsy. **Methods:** A convenience sampling method was used to perform an observational cross-sectional analytical survey based on inclusion and exclusion criteria. Data were collected by using questionnaire after informed consent and was analyzed using SPSS version 26.0. **Results:** It was concluded that mean age of Recurrent Bell's palsy patients was 40.8 years. Male and female both genders were involved. Most common Bell's palsy-related predisposing factors were hypertension, Diabetes, old age, and Pregnancy respectively. More cases were reported in winter season than summers in recurrent Bell's palsy patients. **Conclusions:** The prevalence of RBP is 4.2% and most commonly associated risk factors are Hypertension, Diabetes, Positive family history and Pregnancy.

INTRODUCTION

Facial is VII Cranial nerve and serves motor, sensory and parasympathetic function through direct fibers and along with its connection with other Cranial nerves and parasympathetic nervous system. The motor function of facial nerve includes voluntary and mimetic muscle action of the face, it serves sensory supply to the tongue's anterior two-thirds and helps in lacrimation and salivation through its parasympathetic supply [1]. The facial nerve receives its axons via superior solitary nucleus, superior salivary nucleus, nucleus intermedius (sensory and parasympathetic) and motor efferent fibers from the facial nucleus, which receives input signals via the opposite

motor cortex sparing the forehead as it receives its input from both parts of cortex. Facial nerve starts at Pontomedullary junction and passes through intracranial, infratemporal and extra temporal course along its length [2]. Among the terminal branches, there are temporal, zygomatic, buccal, marginal mandibular, and cervical [3]. All of these branches serve motor function to the muscles of facial expressions including functional eye movements, opening and closing of mouth and subjective nasal potency while inspiration [4]. Upper and lower motor neuron lesions, including neoplastic hypo function of the facial nerve, traumatic damage, hereditary abnormalities, and

idiopathic facial nerve palsy, also identified as Bell's palsy, are all possible causes of facial nerve palsy [5]. Out of all the causes of lower motor neuron lesions of facial nerve Bell's palsy is the furthest common reason of sudden idiopathic weakness and paralysis on one side of the face. It is the most common peripheral mononeuropathy. Hallmark symptom of Bell's palsy is sudden hemi facial paralysis that peaks within 48 to 72 hours after onset [6]. Other indications of Bell's palsy comprise; numbness on one side of the face, epiphora (excessive tearing), uncertain pain, dysgeusia (taste disorder), hyperacusis (increased sensitivity to sound). Bell's Palsy rarely manifests bilaterally, it occurs only in 1% cases. There are lower motor neuron lesions of facial nerve that presents similar to that of Bell's palsy and make the diagnosis as well as treatment difficult, a detailed history and examination can help rule out those conditions. Bell's palsy still is idiopathic, as the specific pathogenic mechanism is not understood; studies conclude many different causes of Bell's palsy and associated risk factors including ischemic, infective immunologic and genetic causes such as Herpes Simplex Virus reactivation, Familial Bell's Palsy [7]. There are certain risk factors that are found in patients and tends to rise the chances of getting Bell's Palsy; these include Diabetes, Hypertension, Pregnancy and other immunocompromised states, Upper respiratory tract Infection, Intranasal vaccine delivery because of using E. coli adjuvant [8, 9]. Family history of Bell's palsy including approximately 10% of the cases [10]. The incidence of Bell's palsy is 8-52.8/100000 per annum. It is more common among young females and the incidence increases among males above the age of 40 [11]. More cases are seen in winter season while fewer are noticed in summers [12]. Bell's palsy usually has a good prognosis many patients recover within 2 weeks to 6 months. Favorable recovery depends upon many factors including lower severity grades that can be easily found by scales like House Brackmann an HB grade <II is found to give favorable recovery [13], age <40, Good EMG results, controlled Diabetes and Hypertension [14]. Recurrent Bell's palsy is experiencing more than 1 episode of Bell's palsy after recovering from the first one. It accounts for 2.6 to 15.2 percent of all instances of Primary Bell's Palsy [15]. The Recurrent attack can affect the Ipsilateral or contra lateral side of face [16]. Many writers believe that there are no substantial changes in outcomes depending on which side of the Palsy is present, while some researchers discovered that patients with ipsilateral Bell's palsy have a worse prognosis than those with contralateral Bell's palsy [17]. The affected patient may present with the symptoms of Bell's palsy similar to the primary episode or they can present more/less-severe symptoms. Patients may present with prodromal

symptoms that if treated early can give favorable recovery outcomes [18]. Retrospective study carried out on 185 patients with age between 4 and 70 years. 12% (22 out of 185) patients had recurrent bell's paralysis with 1 to 6 episodes. 15 out of 22 were women showed that females are more likely to develop other episodes. Somewhere around one episode happened on the contralateral side in patients who experienced multiple episodes. Study shows that Bell's palsy recurred within first two years suggest that follow up of Bell's palsy patients should be done for at least 2 years from onset [19]. Dong et al., conducted a study in which 27 studies out of 222 studies, analyzed 1041 patient's from 13 countries. Mean percentage was 0.8% to 19.4% of those who encountered reappearance of Bell's palsy. In previously affected persons with Bell's palsy, the average rate of recurring Bell's palsy was 6.5%. Just 60% of individuals fully recovered, with a worse recovery rate in patients with recurrent Bell's palsy [20]. Jeong et al., carried out an investigation on the risk factors for Bell's palsy in December 2021. The purpose of this research was to investigate the association between risk factors like age, gender, and family income and metabolic illnesses like hypertension, diabetes, and dyslipidemia using data from Korea's national health insurance service national sample cohort. This study included patients with Bell's palsy who visited an outpatient clinic twice or more and received steroid medication under the international classification of diseases diagnostic codes for Bell's palsy between 2006 and 2015. Univariate and multivariate cox proportional hazards regression models were used. 2708 patients were observed over this time. Male sex, advanced age, staying outside of the capital or urban areas, diabetes, and high blood pressure were all discovered to be major risk factors for Bell's palsy. This could aid in the analysis of a link using a population-based database during the course of a long-term patient follow-up [21].

There is limited data available regarding repeated Bell's palsy especially in Pakistan. The incidence of recurring Bell's palsy varies between 2.6 and 15.2% of all Bell's palsy cases. The current study aimed to determine the prevalence of Recurrent Bell's Palsy among Bell's palsy patients.

METHODS

It was a descriptive cross sectional analytical study conducted from December 2021 to June 2022. Data were collected from Physiotherapy department of different hospitals in Gujrat, Lahore, Kharian, Mandi bahhaudin, Gujranwala, Sargodha and Rawalpindi. Specific hospitals including Combined military hospital (CMH Kharian), Mubarak hospital, THQ Wazirabad, Life Care Hospital Gujranwala Cantt., Al-Ansar Hospital Gujranwala, Al-rai Hospital Gujranwala, General Hospital Lahore, Jinnah

Hospital Lahore, Alghani Hospital Mandibahaudin, Naz&Physio Clinic Lahore. Data were collected using convenient sampling technique. Patients with Bell's palsy both male and female were included in the study. Patients with UMN lesion, traumatic nerve injury open wounds and neoplastic disease were excluded from the study. Permission for conducting this study was taken from research committee of Sargodha Medical College. One hundred and forty (140) patients were interviewed in the study. In which only six (6) patients fulfilled the inclusion criteria of recurrent Bell's palsy (RBP). The data were collected from different cities of Punjab. Questionnaire distributed and filled by patients efficiently after taking informed consent. Questionnaire consists of questions to collect multiple sets of information; it also includes questions that differentiate Bell's palsy (BP) from other facial syndromes e.g. Audiovestibular syndromes, Melkersson-Rosenthal syndrome, Ramsey hunt syndrome and Heerfordt syndrome. For other comorbidities, e.g. Hypertension, Pregnancy, and Diabetes are also figured out through questions. Incorrect response pattern was analyzed. The types of question were used in research study based on, information required and nature of the study. Data were analyzed by using SPSS version 26.0.

RESULTS

Mean age of RBP patients calculated manually is 40.8 years. Prevalence of RBP is 4.2%. as shown in blue colour in figure 1. Red color in the chart represents negative cases. According to our data, the cause of paralysis was Idiopathic. The data concluded the predominance of Bell's palsy in winter season. 83.33% of cases were reported in winter. Out of 6 patients of RBP 50% had 1 episode, 16.7% had 2 episodes and 33.3% had 3 episodes of recurrent attack. According to our data of RBP patients, 66.67% and 33.3% had recurrent attack on ipsilateral and contralateral side respectively. Out of 6 patients of RBP, 33.33% patient present less severe symptoms. 33.3% patient having more severe symptoms and 33.3% having same symptoms severity as first attack.

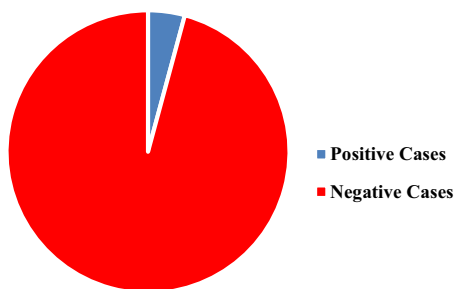


Figure 1: Prevalence of Bell's palsy

According to data calculated out of 6 patients, diagnosed with RBP 33.3% patients were males as shown in blue color

and 66.7% patients were females represented by blue color in figure 2 i.e. 2 patients were male and 4 patients were females.

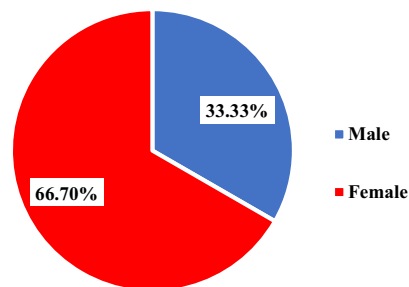


Figure 2: Gender Involved in RBP Patients

According to our studies, out of 6 patients of RBP 33.3% and 66.67% of patient had duration gap of 2-6 months and 1-2 years respectively from first episode as shown in blue and red color respectively in figure 3.

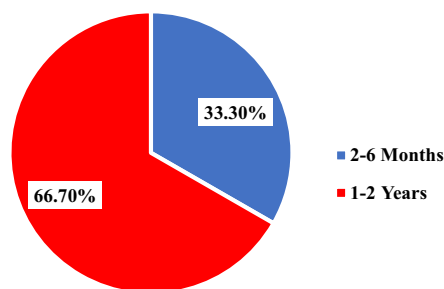


Figure 3: Duration Gap of Recurrent Attack in RBP Patients

Duration Gap of Recurrent Attack in RBP Patients Graph depicted 33.3% patient were old age, 16.6% were diabetic, 16.6% were hypertensive and 33.3% were pregnant females.

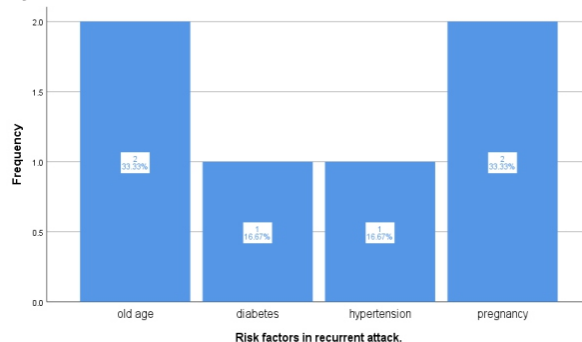


Figure 4: Risk Factors in Recurrent Attack

DISCUSSION

As our study is about prevalence of recurrent current Bell's palsy, we collected data of 140 patients of Bell's palsy. Sample size was obtained by the Danial formula. There were 6 patients of recurrent Bell's palsy out of 140 patients with the prevalence of 4.2%. Previous studies also reported prevalence of recurrent Bell's palsy as in research

undertaken by Swami *et al.*, recurrent episodes were found in 4-7% of all instances of Bell's palsy [17]. Mancini and his colleagues also performed a retrospective study on 341 patients with BP. He analyzed 289 patients out of 24 were experiencing recurrent Bell's palsy with the prevalence of 2.6-15.2% of total cases. In our study 6 patients were of RBP with mean age of 40.8%. Out of which 2 were males and 4 were females. In our study ratio of female's patients with recurrent attacks was more than male, as was concluded by Cirpaci and Goanta [19]. Cohen *et al.*, analyzed 185 patients of BP out of which 22 had recurrent attacks. 15 were female patients out of these 22. In our study 2 females out of 4 with RBP also had pregnancy so pregnancy might have association with RBP. According to this study, pregnant women are 3.3 times more affected than non-pregnant women, and women of reproductive age are two to four times more affected than men of the same age. The majority of Bell's palsies occur during the third trimester. Usually, recovery is good but recurrence tendency indicates poor prognosis [22]. Our research resulted that 3 patients were experiencing 1 intermittent episode, 2 patients with 3 recurring episodes and 1 patient with 2 persistent episodes of BP. Pitts and his colleagues did another investigation with 140 patients. It was discovered that RBP, regardless of which side is affected, did not imply a poor prognosis for recovery. Also observed that probability of recurrent Bell's palsy higher in younger patients and with total episodes of attack. Causes that puts the patients to recurrence of Bell's palsy are relatively unknown condition although association with hypertension, diabetes and pregnancy has been reported [23]. 83.33% patients of RBP were reported in winter season according to our data. So seasonal variation also affects recurrent attacks of Bell's palsy as analyzed by Negrete Diadem and his colleagues that more cases were reported in winter than summer [24]. According to our studies 95.7% patients were having only 1st attack of Bell's palsy and remaining 2.8% and 1.4% of recurrent attack had duration gap of 1-2 years and 2-6 months from the first episodes respectively this was also justified by the Sabarigirish *et al.*, that average recurrence period is over a year [25].

CONCLUSIONS

The prevalence of Recurrent Bell's Palsy is estimated to be 4.2%. The associated risk factors found were Hypertension, Diabetes, Positive Family History, and Pregnancy and there were patients without any risk factor identified. In our study, female gender was predominant.

Authors Contribution

Conceptualization: MMA

Methodology: IN, SB

Formal analysis: KH

Writing-review and editing: ZA, FB, AK

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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