

The Use of Steroids in the Treatment of Bell's Palsy in Children, a Retrospective Analysis

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Abstract

Objectives: We analyzed the data of using steroid therapy in treating Bell's palsy in pediatrics patients in Bahrain Defense Force hospital, and the aim was to measure and analyze their clinical course, management, and final outcome.

Materials and Methods: A retrospective study was conducted in the Ear, Nose and Throat outpatient clinic between January 2015 and December 2018. A total of 116 patient records have been reviewed, out of which cases who presented with Bell's palsy above the age of 18 and diagnosed with facial palsy secondary to other causes such as temporal bone fractures and acute otitis media were excluded from the study.

Results: The study showed that out of the 65 patients that were included in the study, 55 patients received steroids while only 10 were managed with observation and supportive measures. In the steroid group about 49 (96.1%) patients symptoms resolved with only 2 (3.9%) still having residual facial weakness. All 10 (100%) patients achieved complete resolution of symptoms in the conservative group.

Conclusions: Using steroids to treat Bell's palsy in pediatrics patient does not seem to impact the resolution of the disease or accelerate resolution.

Keywords: Bell's Palsy; Pediatrics; Patients

Introduction

Bell's palsy is the most common disorder in which a patient develops unilateral facial paralysis or weakness [1], although it is self-limiting it can be associated with various complications such as incomplete resolution, ocular injuries, and temporary oral incompetence [2]. Its onset is usually rapid, and patients experience symptoms usually in less than 72 hours. It can occur in any age group, but it is commonly seen in between the age 15 - 45 years. The cause has been attributed to Herpes simplex virus, but its exact pathogenesis still remains unclear [3]. Many treatments option are available but the most important would be the use of steroids, other treatment options could include antivirals [4], surgical decompression [5], and acupuncture.

Bell's palsy is seen less frequently in extreme ages. It was reported that in children less than the age of 10 it has an incidence rate of about 2.7 per 100 000 annually and 10.1 per 100 000 children annually for those above the age of 10 [6]. The alarming sign is unilateral facial palsy because it could indicate a wide list of differentials of infectious, traumatic and malignant causes [7]. Bell's palsy in children is usually treated with steroids but there yet remains to be sufficient evidence from clinical trials that encourage the use of steroids in children with Bell's palsy [8,9]. Children are said to have a better prognosis of untreated Bell's palsy than adults [10], so the use of steroids could be redundant, however current guidelines state "given the presumed similar disease process of

Bell's palsy in adults and children, as well as the generally favorable benefit-harm ratio of steroid therapy, oral steroids may be considered in pediatric patients with a large role for caregiver involvement in the decision-making process".

We aim to conduct a retrospective study in the Bahrain Defense Force hospital of all pediatric patients diagnosed with Bell's palsy and to measure and analyze their clinical course, management, and final outcome.

Materials and Methods

A retrospective analysis of pediatric patients who presented with facial palsy to the Bahrain Defense Force hospital Ear, Nose, and Throat outpatient clinic from January 2015 to December 2018. Our aim was to measure and analyze their clinical course, management, and final outcome.

All patients below the age of 18 years who been diagnosed with Bell's palsy patients were included in the study. Patients above the age of 18 and diagnosed with facial palsy secondary to other causes such as temporal bone fractures and acute otitis media were excluded from the study.

A total number of 65 patient data has been reviewed. Patients were further subdivided into two categories, those who received steroid therapy and those who did not receive steroid therapy and

how long it took for their symptoms to improve. 32 of the patients were female and 33 were male. The House-Brackmann (HB) grade on presentation, the season of presentation, the affected side, and how long it took for the symptoms to resolve were also reviewed.

All data has been collected using Alcare system and analyzed using SPSS software. The descriptive data were expressed as frequencies and percentages, continuous data were expressed as mean and SD. A chi-square test or Fisher's exact test was used for the comparison between discrete variables.

Results

The total number of patients that visited the Ear, Nose and Throat outpatient clinics with symptoms of facial palsy were 116 between January 1st, 2015 to December 31st, 2018. Out of these 116 patients, 65 patients met our inclusion criteria. The 51 that did not were excluded due to the fact they had other aetiologies for their facial palsy such as acute otitis media, temporal bone fractures, and iatrogenic facial palsy. Acute otitis media was noted to be the 2nd most common cause of facial palsy in the BDF Ear, Nose and Throat outpatient clinics.

Of 65 patients that were included in the study, 55 patients received steroids while only 10 were managed with observation and supportive measures (Figure 1). In both groups, no patient presented with a facial palsy graded great than HB 4.

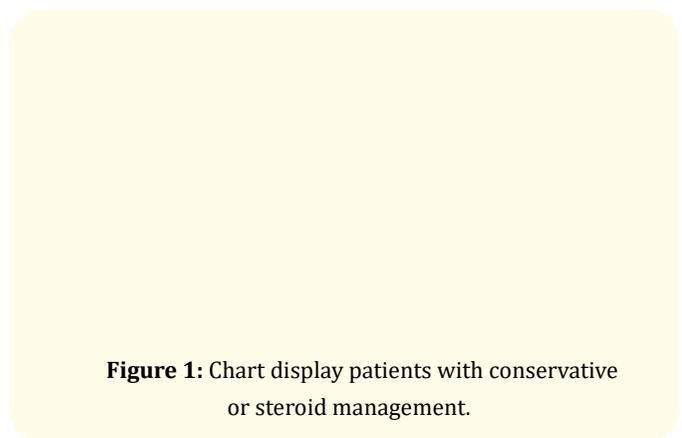


Figure 1: Chart display patients with conservative or steroid management.

The steroids group had 28 male patients and 27 female patients with a ratio close to 1:1. The conservatively managed group had 5 male patients and 5 female patients with the same ratio of 1:1.

Of the 55 Patient in the steroids group, 36 (65.5%) had a facial paralysis to the right while 19 (34.5%) presented with left-sided palsy. In the conservative group, 5 (50%) patients presented with right-sided facial and the other 5 (50%) present with left-sided facial palsy.

The age of groups was distributed as above the age of 10 and below the age of 10 the with the steroid group showing 22 patients (40%) were below 10 years, while 33 patients (60%) were above

the age of 10. The conservative group showed 7 patients (70%) were below the age of 10 while 3 patients (30%) were above the age of 10.

The HB grade of 2 was considered to be mild while 3 to 4 was classified to be moderate. In the steroids group, about 15(28.8%) presented with mild facial palsy while 37 (71.2) presented with a moderate degree of facial palsy. In the conservative group, all 10 patients presented with a mild degree of facial palsy (Figure 2).

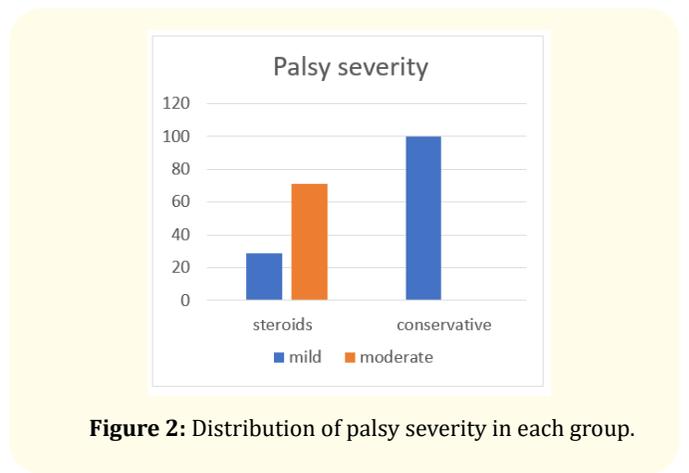


Figure 2: Distribution of palsy severity in each group.

In the steroids group, about 49 (96.1%) patients symptoms resolved while only 2 (3.9%) still had residual facial weakness. All 10 (100%) patients achieved complete resolution of symptoms in the conservative group. Time to resolution in the steroids group was 19.52 days (1.84) while 13.86 (2.34) in the conservative group. P value was calculated to be 0.239.

A total of 65 samples were included in this study. The average age of sample was 2.50 years (SD = 0.92) and an average of 18.75 days (SD = 11.73) for resolution. The descriptive data were expressed as frequencies and percentages, continuous data were expressed as mean and SD.

A chi-square test or Fisher's exact was test used for the comparison between discrete variables. A p value <0.05 considered as statistical significant.

Discussion and Conclusion

Bells palsy in children is usually a diagnosis of exclusion, with other causes of facial palsy such as acute otitis media, temporal bone fracture and iatrogenic causes needing to be ruled out [8]. In our study, it was noted that Bell's palsy was the most common cause of facial palsy in the pediatric population with 65 patients out of 116 (56%) who presented to the Ear, Nose and Throat clinic.

It has been suggested that the pathophysiology usually involves the reactivation of herpes simplex virus within the geniculate ganglion which leads to inflammation and entrapment with facial nerve at the meatal foramen [11]. The use of steroids is said to de-

crease the inflammation and thus improving facial palsy in people with Bell's palsy. However, steroids are known to having potential adverse side effects such as hypertension, glaucoma, fluid and electrolyte disturbances, and gastrointestinal disturbances [8].

Studies have shown that if left untreated in children; Bell's palsy has a higher rate of resolution than adults and yet despite the lack of evidence from clinical trials, physicians are still inclined to give steroids to children with suspected Bell's palsy [10].

There was no statistically significant difference in the resolution or time to resolution between the steroids group and conservative group thus giving steroids would not have a role in resolution or accelerating time to resolution. Similar findings were found in Univar E., *et al.* in which 21 children were treated with steroids and the other 21 were managed conservatively. All patients recovered within 3 months with no significant differences found in both groups [12]. Chen and Wong, a retrospective cohort study with a similar structure to our own, concluded similar findings with 22/23 in the treated group achieving complete resolution while 9/9 In the treated group achieve complete resolution [13].

Two systemic reviews, Salman., *et al.* and Pitaro., *et al.* review, concluded there is lack of evidence FOR OR AGAINST using steroids [14].

Each child in the treatment group received prednisolone syrup, however there was no standard dosage. Dosage ranged from 0.5 mg/kg per day to 2 mg/kg/day and given at different durations that lasted between 3 to 14 days. This did not allow us to compare and correlate the dosage that was given and time to resolution.

Time for resolution of symptoms was calculated between the day the patient was seen in the outpatient department and when that patient came back for a follow up with his symptoms resolved.

Only 10 patients were included in the conservatively managed group and of the 10 patients, none of them presented with a facial palsy greater than 2, meaning all the patient in the conservative group had only a mild degree of facial palsy.

In conclusion, our study of the use of steroids in pediatric patients with Bell's palsy does not seem to impact the resolution of the disease or accelerate resolution. Base on our evidence we cannot recommend or reject the use of steroids in children with Bell's palsy. Further studies are required in order to evaluate the efficacy of steroids in children with Bell's palsy.

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