Management of Bell palsy: our clinical practice guideline

Samia Meherzi [1, 3], Rihab Omri [1,3] , Khbou Amin [1,3], Rabiaa Kaddechi [2,3], Afifa Charfi[1,3]

[1] ***ENT department, hospital of Sidi Bouzid, Sidi Bouzid, Tunisia***
[2]***Emergency department, Sidi Bouzid Hospital, Sidi Bouzid, Tunisia***
[3] ***University of Sousse, Faculty of Medicine of Sousse, Tunisia***

Corresponding author: *MEHERZI Samia*
E-mail: meherzisamia9@gmail.com
ORCID: 0009-0001-9915-9876
Telephone number: 0021697407090
Address: EL Wouroud city, SIDI BOUZID, 9117, Tunisia

Abstract

Bell palsy is a common neurologic disorder defined by an acute mononeuropathy affecting the seventh cranial nerve, presenting with ipsilateral facial weakness. It remains the most common etiology of facial nerve paralysis.

This retrospective study identified 75 cases of Bell's palsy from the medical records of the ENT department of the Regional Hospital of Sidi Bouzid from January 2020 to December 2022.

Our series consisted of 17 children and 58 adults, with an average age of 37 years (range: 3 – 88 years). All patients presented with a unilateral facial asymmetry. According to the House-and-Brackmann grading, the initial assessment found 5 patients with grade I, 16 patients with grade II, 24 patients with grade III, 27 patients with grade IV, and 3 patients with grade V. Treatment was conducted in an outpatient setting in 64 patients. Hospitalization was required for 11 patients. Corticoids were initiated in 64 patients. Antiviral treatment, always in association with corticotherapy, was indicated within 21 patients, with a mean consultation delay of 3 days. All patients were given a vasodilator and vitamin therapy. Rehabilitation facial therapy was initiated in all cases, with a mean delay of 7 days. The objective of this study is to review the therapeutic management guideline of the patients presented with idiopathic facial nerve paralysis in our department compared with the relevant literature.

Keywords: Bell's Palsy; Corticotherapy; Facial Nerve; Physical Therapy

INTRODUCTION

Bell's palsy is a condition that affects the facial nerve, which is mainly controlling the muscles of the facial expression. It is commonly unilateral and acute, with sudden onset involving both the superior and inferior areas of the hemiface [1].

It occurs in 15-30 people per 100,000 in the population each year, with no predilection for sex or ethnicity [2]. It can occur at any age, but the incidence is moderately higher after the age of forty [3]. Its major cause is believed to be an infection occurring in the facial nerve by the herpes simplex virus responsible for swelling and, therefore, a compression in its canal [2].

Therefore, it remains a diagnosis of exclusion

According to studies, the herpes simplex viral genome is identified in the facial nerve endoneurial fluid in 79% of cases.

Bell's palsy is more commonly associated with patients presenting medical history such as obesity, hypertension, diabetes, or upper respiratory conditions (including COVID-19 caused by SARS-CoV-2), immunocompromised patients, and pregnant women [4,5].

A well-conducted ENT and neurological clinical examination is recommended when Bell's palsy is suspected.

When the diagnosis is confirmed, corticosteroid therapy should be implemented early for 10 days as a primary treatment for its potential to reduce swelling and inflammation. Antiviral therapy (Acyclovir or Valacyclovir) should be associated with steroids within 72 hours after the onset of the symptoms, in severe facial paralysis and in Ramsay-Hunt syndrome to eradicate the HSV infection. An isolated antiviral therapy is not usually recommended [5]. An early physical rehabilitation is performed, especially in severe grades of paresis [6].

The course of this disease is spontaneously favorable, with more than 70% complete resolution within 6 months and more than 80% subtotal resolution (House-Brackmann grade I or II) [1]. Recurrence occurs in 7–8% of patients.

This study aims to describe the epidemiologic, clinical, and therapeutic aspects of Bell's palsy in our department with a brief literature review.

METHODS

Our study was a retrospective analysis that collected data from January 2020 to December 2022. All the patients affected by idiopathic facial paralysis who reached the otolaryngology emergency department of the regional hospital of SIDI Bouzid were assessed. Eleven patients were hospitalized in the ENT department of our hospital.

The clinical evaluation of the BP was assessed via the House-Brackmann (HB) Facial Grading System. CT scans and/or MRI were performed when the medical history or clinical symptoms suggested the diagnosis of a secondary facial paralysis.

Patients who presented with a central facial palsy or facial palsy with a well-known etiology were eliminated.

RESULTS

Seventy-five patients affected by peripheral facial paralysis were included in this study. The mean age is evaluated at 37 years (ranging between 3 and 88 years). There was a predominance of adults over children: Seventeen of our patients were children, while fifty-eight were adults. There was a slight female predominance, with a sex ratio of about 0.87.

Risk factors for peripheral facial palsy were found within 38.67% of patients, mainly due to metabolic diseases (diabetes, hypertension), hematologic disorders, and pregnancy (Table 1).

The consultation average delay was about 3 days (ranging between one and 7 days). All patients

presented with acute facial asymmetry as a main symptom.

Table 1: *Medical conditions associated with facial palsy in our series*

Medical history	recurrence in our series(%)
Metabolic diseases	
- Diabetes	21.3
- High blood pressure	18.6
- Dyslipidemia	4
Hematological diseases (Biermer's disease, B-thalassemia, splenectomy)	4
Neoplasy	5.3
Pregnancy/ Puerperal period/ Pregnancy-induced hypertension	4
Facial palsy history	2.6
Others: hypothyroidism, epilepsy.	4

The left side incidence of palsy was noted in 60% of cases, whereas the right side was observed in 40% of cases.

In the first physical examination, 60% of patients presented with mild-to-moderate facial palsies (grades I-III), while moderate-to-severe palsies (grades IV–VI) was observed in 40% of cases (Figure 1).

CT scan was assessed for 17.34% of patients and were completed with cerebral Magnetic Resonance Imaging for 4% of patients. Imaging examinations were indicated in the presence of other neurological symptoms (peripheral paresthesia), in case of predominance of the palsy in the inferior territory, a negative Charles-Bell sign, and in the presence of central involvement risk factors.

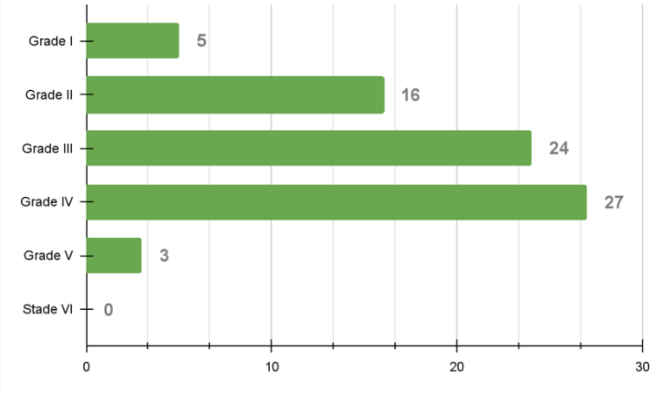

Figure 1: *Distribution of the severity of the facial palsy according to the House-Brackmann facial grading scale at the initial clinical examination.*

Audiometry and impedance audiometry were performed for five patients with the result: loss of stapedial reflex. Most patients were treated on an outpatient basis (85.3%), while 14.7% were treated in a hospital setting. Most patients cared for in hospitals were adults. Hospitalization was indicated in cases of severe initial presentation: House and Brackmann grades III - VI or in the presence of tares with a higher risk of decompensation (Diabetes within 45.45 % of patients) (Table 2).

Table 2*: Detailed hospital setting treatment with molecule, mode of administration, and number of patients treated (total of 11 patients)*

Treatment	Molecule/ Dose	Recurrence in our series%
Corticosteroids only (IV)	Prednisolone or méthylprednisolone 1 mg/kg/d * 7-10 days	27.2
corticosteroids + Antivirals (IV)	Prednisolone or méthylprednisolone 1mg/kg/d * 7-10 days Valaciclovir 1g *2-3/d	81.8
Physical therapy + vitamin therapy		100

81.25% of the patients treated on an outpatient basis received corticosteroids associated with antivirals within 18.75% of the cases who have consulted with severe grades of palsy within 72 hours on the onset of the symptoms (Table 3).

Table 3: *Detailed outpatient-based treatment with molecule, mode of administration, and number of patients treated (total of 64 patients)*

Treatment	**Molecule/ Dose**	**percentage %**
Corticosteroids + vitamin therapy + Physical therapy per os	Prednisolone or méthylprednisolone per os*** 1mg/kg/d * 7-10days	62.5
Corticosteroids + Antivirals + vitamin therapy+ Physical therapy per os	Prednisolone or méthylprednisolone 1mg/kg/d * 7-10days + Valaciclovir 1g *2-3/d ***per os	18.7
Vitamin therapy+physical therapy		100

Antivirals were prescribed for 28% of patients in our series. Those patients consulted in our emergency department within 71 hours after the onset of symptoms.

Physical therapy was initiated within all patients with a mean delay of four days. The final evaluation of patients after 6 months of regular follow-up at the consultation showed full recovery in 67% of cases.

DISCUSSION

Bell's palsy is the most common form of peripheral facial palsy with sudden onset involving both the superior and inferior areas of the hemiface and affecting voluntary, autonomic, and emotional motricity [1].

It can be preceded by some prodromes such as auricular or retroauricular pain, dysgeusia, and/or hyperacusis [6,7]. Diagnosis is by elimination. Clinical examination should be complete with a detailed ENT and neurologic examination.

Audiometry seems compulsory for an ipsilateral conductive component screening. Tympanometry is performed to screen the stapedial reflex, which can be useful for the outcomes and localization of the lesion [8].

Assessing neural involvement is important in the initial management of Bell's palsy to enable the grading of severity and to monitor its progression. The most widely used classification in the initial phase is still House and Brackmann (HB) [9].

Studies did not recommend the necessity of any biological examinations in the management of Bell's palsy. However, glycated hemoglobin (HbA1c fraction) may be useful in case of the presence of diabetes to control its balance and prevent a relevant decompensation under high-dose corticosteroids [1,4].

Imaging examinations are known to be less contributive in Bell's palsy when clinical and audiometric assessments are normal. However, Bell's palsy is a diagnosis of exclusion, and imaging may be requested in the presence of signs that may suggest a differential diagnosis, especially if a central cause of the palsy is suspected [1,10].

MRI remains the gold standard when imaging exams are indicated [10,11].

Therefore, Emergency imaging is not necessary if symptomatology is typical of Bell's palsy but should be indicated if necessary to rule out before confirming the diagnosis of Bell's palsy disease.

Medical treatment for Bell's palsy has been debated as progression may be spontaneously favorable, with more than 70% of complete recovery within 6 months and more than 80% of subtotal recovery (HB grade I or II) [1,5].

According to studies, all the patients that were diagnosed with Bell's palsy (unless in the case of a serious contraindication to steroid therapy) were prescribed a standardized oral pharmacological treatment with prednisone 1 mg/Kg for ten days. Antivirals may be considered for patients with severe paresis with a dose of (Valacyclovir) 1g 3 times/day for ten days within 72h after the onset of the symptoms [1,12]. According to the literature, intravenous therapy proves to be more efficient, especially in severe palsies or in the presence of serious medical history [1].

Physical therapy is applied in Bell's palsy, especially in severe grades, to hasten recovery and limit sequelae. However, facial muscle rehabilitation improves facial function when Bell's palsy fails to resolve, particularly when it is assessed sooner after the onset of the symptoms [3,4].

Acupuncture was reported to be relatively superior to drug treatment in a Chinese meta-analysis, but this finding is dubious due to considerable bias induced by the diversity of techniques. Evidence is lacking for isolated acupuncture [13].

Hyperbaric oxygen therapy can be proposed as complementary treatment as its fundamental concept is to spread oxygen within the tissue, thus reducing facial nerve hypoxia, which enhances recovery [1,5].

Clinical follow-up should be continued for several months to ensure against complications, in particular ophthalmic complications: keratitis, corneal ulcer, and panophthalmia [5].

While approximately 80% of patients may experience full recovery, some patients may present residual deficits such as eyebrow droop, eye closure difficulty, asymmetric smile, trouble eating, or nasal breathing dysfunction [7].

Patients with incomplete eye closure should be given eye protection with lubricating eye drops, especially at night, to prevent corneal damage [4].

Long-term complications can include residual facial weakness, facial synkinesis, facial contracture, and facial spasm [8,9,14].

The benefit of surgery for Bell's palsy remains controversial at present. Demonstrating the benefits of decompression may be challenging due to various factors influencing the relevant outcome, such as patient selection, the timing of surgery, and the chosen method and approach. However, although efficacy cannot be proved, we consider that surgery should be proposed as an alternative treatment. Consensus appears to exist regarding the specific part of the nerve that would

be decompressed, guided by radiological and surgical findings [4,10].

CONCLUSION

While spontaneous recovery is common among Bell's palsy patients, improvement in facial weakness can significantly impact their quality of life. It is crucial to accurately confirm the diagnosis and to prevent overlooking other treatable conditions. Optimal recovery opportunities can be achieved by selecting appropriate treatment options for relevant eligible patients. Therefore, the recovery may be complete or partial, and it can affect a patient's long-term quality of life, adding to depression and psychological distress.

REFERENCES

1. *Fieux M, Franco-Vidal V, Devic P, Bricaire F, Charpiot A, Darrouzet V, et al. French Society of ENT (SFORL) guidelines. Management of acute Bell's palsy. Eur Ann Otorhinolaryngol Head Neck Dis. 2020 ;137(6):483–8.*
2. *Ly N, Powers BR, Chaiet SR. Adherence to Clinical Practice Guidelines for Treatment of Bell's Palsy. 2022;121(4).*
3. *Albers JR, Tamang S. Common Questions About Bell Palsy. 2014;89(3).*
4. *Patel DK, Levin KH. Bell palsy: Clinical examination and management. Cleve Clin J Med. 2015 ;82:419–26.*
5. *Danesh A, Ouanounou A. Bell's Palsy: Etiology, Management and Dental Implications. J Can Dent Assoc. 2022;88:m8.*
6. *De Seta D, Mancini P, Minni A, Prosperini L, De Seta E, Attanasio G, et al. Bell's Palsy: Symptoms Preceding and Accompanying the Facial Paresis. Sci World J. 2014;2014:1–6.*
7. *Heckmann JG, Urban PP, Pitz S, Guntinas-Lichius O, Gágyor I. The Diagnosis and Treatment of Idiopathic Facial Paresis (Bell's Palsy). Dtsch Ärztebl Int [Internet]. 2019 ; Available from: https://www.aerzteblatt.de/10.3238/arztebl.2019.0692*
8. *Gagyor I, Madhok VB, Daly F, Sullivan F. Antiviral treatment for Bell's palsy (idiopathic facial paralysis). Cochrane Neuromuscular Group, editor. Cochrane Database Syst Rev. 2019;2019(9).*
9. *Madhok VB, Gagyor I, Daly F, Somasundara D, Sullivan M, Gammie F, et al. Corticosteroids for Bell's palsy (idiopathic facial paralysis). Cochrane Neuromuscular Group, editor. Cochrane Database Syst Rev. 2016;2016(7).*
10. *De Almeida JR, Guyatt GH, Sud S, Dorion J, Hill MD, Kolber MR, et al. Management of Bell palsy: clinical practice guideline. Can Med Assoc J. 2014;186(12):917–22.*
11. *Aysel A, Müderris T, Yılmaz F, Tokat T, Aliyeva A, Şimşek ÖÖ, et al. Pediatric bell's palsy: prognostic factors and treatment outcomes. Turk J Pediatr. 2020;62(6):1021.*
12. *Gagyor I, Madhok V, Sullivan F. A young woman with acute one-sided facial paralysis. Can Med Assoc J. 2016;188(17–18): E531–2.*
13. *Zhang R, Wu T, Wang R, Wang D, Liu Q. Compare the efficacy of acupuncture with drugs in the treatment of Bell's palsy: A systematic review and meta-analysis of RCTs. Medicine (Baltimore). 2019;98(19):e15566.*
14. *Berg T, Jonsson L. Are patients with Bell's palsy receiving the right treatment? Tidsskrift for Den norske legeforening. 2015*