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Review article

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A review on bell's palsy: etiology, pathogenesis, and management

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ABSTRACT

Bell's palsy is a rare disease of facial muscle weakness or paralysis. The disorder is due to inflammation that is directed by the body's immune system against the 7th cranial nerve controlling the movement of the face. A specific cause of Bell's palsy is unknown. Finally, it results in inflammatory, demyelinating, ischemic, or compressive processes may impair neural conduction at this site. The main complication was unable to close the eye on the affected side, it is treated with corticosteroids and antivirals.

Keywords: Facial paralysis, Herpes simplex virus (HSV), Facial nerve, Corticosteroids, and Antiviral drugs.

INTRODUCTION

Definition

Bell's palsy is an distant incident of facial muscle weakness or paralysis that begins unexpectedly and exacerbates over three to five days. This condition results from injury to the 7th (facial) cranial nerve, and pain and uneasiness usually occurs on one side of the face or head.

Epidemiology

The incidence of Bell's palsy is 20-30 cases for 100,000 [1] and accounts for 60-70% of all cases of unilateral peripheral facial palsy. [2] Either sex is affected equally and may occur at any age, the median age is 40 years. The incidence is lowest under 10 years of age and highest in people over the age of 70. Left and right sides are affected equally [3]

Etiology

A specific origin of Bell's palsy is unknown; however, the disorder is due to inflammation that is

directed by the body's immune system against the 7th cranial nerve controlling movement of the face. Sign of illness develop due to deficit of blood supply and strain on the 7th cranial nerve as a result of nerve swelling. The Sign of illness seen in Bell's palsy is sometimes associated with the following:

- Diabetes
- High blood pressure
- Trauma
- Toxins
- Lyme disease
- Guillain-Barré syndrome
- Sarcoidosis
- Myasthenia gravis
- Inheritance [7]
- Infection, especially following a viral infection with Herpes simplex virus (a virus that is related to the cause of the common "cold sores" of the mouth)
- Inactivated influenza vaccine was strongly linked to the development of Bell palsy. [4, 5]

- Herpes simplex virus

Pathophysiology

The precise pathophysiology of Bell palsy remains an area of debate. Edema and ischemia result in confining of the facial nerve within the facial canal. The causation of the edema and ischemia has not yet been deep-rooted [8]

The anterior portion of the facial canal, the labyrinthine segment, is the narrowest; the meatal foramen in this segment has a diameter of only about 0.66 mm. This is the area that is thought to be the most common site of compression of the facial nerve in Bell palsy. Given the tight confines of the facial canal, it appear logical that inflammatory, demyelinating, ischemic, or compressive processes may impair neural conduction at this site.

Impairment to the facial nerve in Bell palsy is peripheral to the nerve's nucleus. If the lesion is proximal to the geniculate ganglion, the motor paralysis is associated by gustatory and autonomic abnormalities. Lesions between the geniculate ganglion and the cause of the chorda tympani generate the same effect, except that they spare lacrimation. If the lesion is at the stylomastoid foramen, it may result in facial paralysis only.

Signs and symptoms

- Dislocated movement of the muscles that command facial expressions, such as smiling, squinting, blinking, or closing the eyelid
- Loss of sensation in the face
- Headache
- Tearing
- Drivel
- Loss of the sense of taste on the front two-thirds of the tongue
- Hypersensitivity to sound in the affected ear
- Failure to close the eye on the affected side of the face

Diagnosis

- Rapid plasma reagin and/or venereal disease research laboratory test or fluorescent treponemal antibody absorption test
- HIV screening by enzyme-linked immunosorbent assay and/or Western blot
- Complete blood count
- Erythrocyte sedimentation rate
- Thyroid function
- Serum glucose
- CSF analysis
- Blood glucose
- Hemoglobin A_{1c}
- Antineutrophil cytoplasmic antibody levels
- Salivary flow
- Schirmer blotting test
- Nerve excitability test
- Computed tomography
- Magnetic resonance imaging

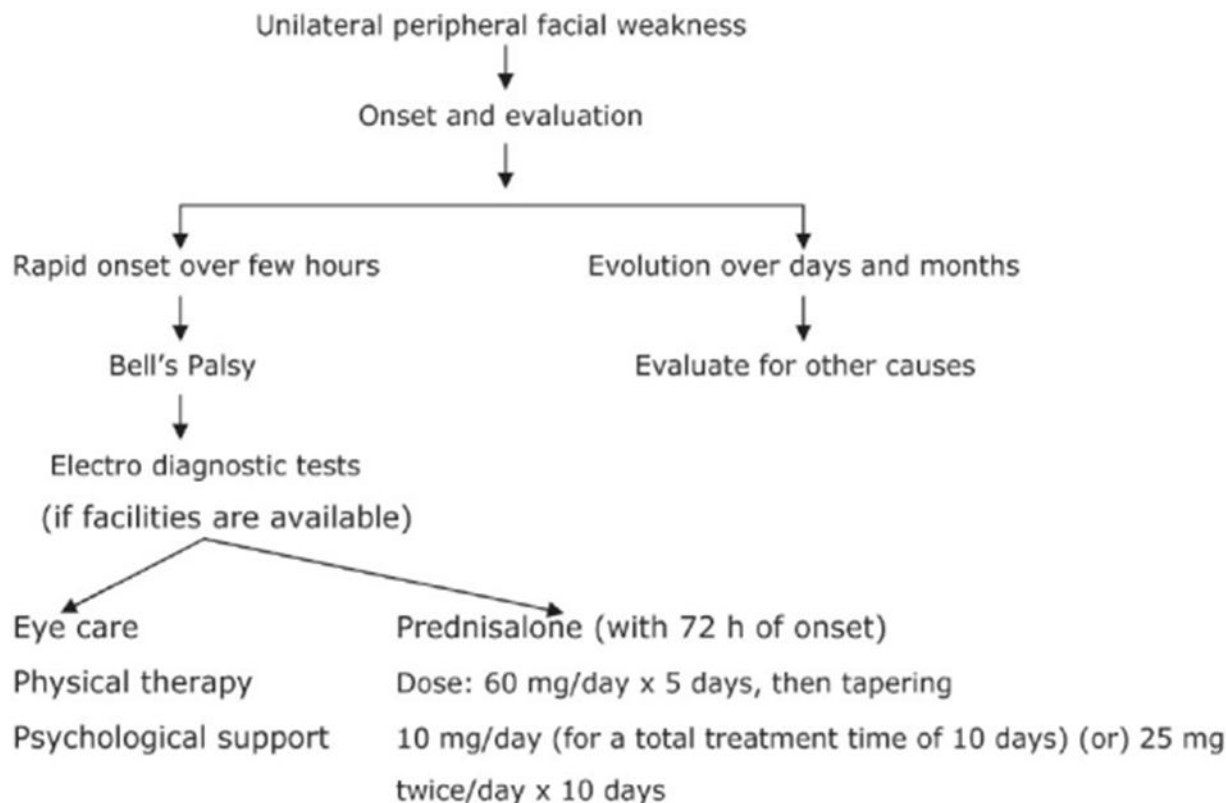
Complications

Patients with Bell's palsy may be unable to close the eye on the affected side, which can lead to irritation and corneal ulceration. Persistent eyelid defect may require tarsorrhaphy or implantation of gold weights in the upper lid. Facial asymmetry and muscular contractures may need cosmetic surgical procedures or botulinum toxin (Botox) injections [9, 10]

Besides ocular problems, complications of Bell's palsy include: [11]

- Motor synkinesis
- Crocodile tears
- Incomplete recovery
- Contracture of facial muscles
- Loss of taste sensation
- Difficulty with dysarthria on account of facial muscle weakness

Management



Pharmacological

Corticosteroids

Oral corticosteroids have traditionally been prescribed to reduce facial nerve inflammation in patients with Bell's palsy. There is no best regimen, but in adults 50–60 mg prednisolone daily for 10 days has been frequently used. [12, 13] Prednisolone has been used at a dose of 1 mg/kg/day up to a maximum of 80 mg. Doses of more than 120 mg/day have been used cautiously in patients with diabetes. [14] Prednisolone should be used with care in immunosuppression and sepsis. It may lead to:

- Induction or diminishes peptic ulcer disease
- Hyperglycaemia especially in diabetics
- Malignant hypertension
- Hepatic and renal dysfunction.

Antiviral drugs

The antiviral drugs used are acyclovir (400 mg five times daily for five days) or valaciclovir (1000 mg/day for five days). [15] Antiviral drugs may cause:

- Nausea and vomiting
- Abdominal pain

- Diarrhoea
- dizziness, convulsions (more common with higher doses)
- Very rarely, hepatitis and jaundice.

Others

Methylcellulose eye drops, eyeglasses or goggles, and/or provisional patching may help to support the naked eye of people with Bell's palsy. In severe cases, tarsorrhaphy may protect the eye from permanent damage. In rare cases, the peripheral facial nerve can be surgically connected with the spinal accessory or hypoglossal nerves to allow some eventual return of muscle function.

Nonpharmacologic treatment

- Physical therapy,
- Surgery,
- Transcutaneous electrical nerve stimulation (TENS), and acupuncture.

Physical therapy includes facial exercises and massage may be an option. [16]

Decompression surgery was an option to relieve stress on the facial nerve, but permanent postoperative hearing loss has been reported. [16, 17]

Eye Care

Patients should be advised to use eye lubricants such as artificial tears hourly and eye ointments at night because of the feasibility of eye irritation from the facial paralysis. In addition, patients may need to wear full-protection goggles or an eye patch to assure against foreign objects. [17] These preventative measures should be carry forward until the facial paralysis is resolved.

CONCLUSION

The aetiology is still unclear, Eye protection remains crucial in preventing long-term eye complications. Drug treatment is controversial, It is, however, important to discuss the harms and benefits with patients, given the potential adverse effects of prednisolone and antiviral drugs.

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