

The Differential Diagnosis of Unilateral Peripheral Facial Nerve Palsy Using Transcranial Magnetic Stimulation

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Introduction

Unilateral Peripheral Facial Nerve Palsy (UPFNP) is a condition characterized by the loss of facial muscle movement on one side of the face. It can result from a variety of causes, including infection, inflammation, trauma, or neoplastic involvement. UPFNP can be a challenging condition to diagnose and manage due to the complex nature of its etiology. In recent years, Transcranial Magnetic Stimulation (TMS) has emerged as a promising diagnostic tool for the differential diagnosis of UPFNP. This article will review the current state of knowledge on the differential diagnosis of UPFNP using TMS.

Description

The clinical presentation of UPFNP can vary depending on the underlying cause. Patients with UPFNP typically present with acute onset of unilateral facial weakness, with or without associated sensory changes, such as numbness or tingling. Other common symptoms include drooping of the mouth, difficulty closing the eye on the affected side, and drooping of the forehead. In some cases, patients may also experience hyperacusis, loss of taste, and decreased salivation. The severity of symptoms can range from mild to severe, and the prognosis can vary depending on the underlying cause [1,2].

The differential diagnosis of UPFNP includes a wide range of conditions, including infectious, inflammatory, traumatic, and neoplastic causes. Some of the most common causes of UPFNP include Bell's palsy: Bell's palsy is the most common cause of UPFNP, accounting for approximately 60-70% of cases. It is believed to be caused by a viral infection of the facial nerve. Ramsay Hunt syndrome: Ramsay Hunt syndrome is caused by the herpes zoster virus and is characterized by facial paralysis, ear pain, and vesicular eruptions in the ear canal. Lyme disease: Lyme disease is a tick-borne illness caused by the bacterium [3,4].

Guillain-Barre syndrome: Guillain-Barre syndrome is an autoimmune disorder characterized by progressive weakness and paralysis. It can sometimes affect the facial nerve.

Trauma: Trauma to the head or face can cause UPFNP due to direct injury to the facial nerve.

Neoplasms: Tumors in the parotid gland or along the course of the facial nerve can cause UPFNP.

Idiopathic: In some cases, the cause of UPFNP is unknown, and the condition is referred to as idiopathic. TMS is a non-invasive technique that

uses a magnetic field to stimulate neurons in the brain. It has been used for many years in the diagnosis and treatment of various neurological disorders, including stroke, multiple sclerosis, and Parkinson's disease. In recent years, TMS has emerged as a promising diagnostic tool for the differential diagnosis of UPFNP [5].

Conclusion

TMS can be used to assess the function of the facial nerve by measuring the motor-evoked potentials (MEPs) in the facial muscles. MEPs are electrical signals that are generated when a magnetic pulse is delivered to the motor cortex of the brain. These signals travel down the facial nerve to the facial muscles, causing them to contract. By measuring the amplitude and latency of the MEPs, TMS can provide valuable information about the integrity of the facial nerve and its connections. Several studies have demonstrated the usefulness of TMS in the differential diagnosis.

Acknowledgement

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Conflict of Interest

None.

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