



Received on 15 May 2021; received in revised form, 02 July 2021; accepted, 05 July 2021; published 01 March 2022

EARLY TREATMENT WITH PREDNISOLONE AND ACYCLOVIR IN SARS-COV-2 COMPLICATED BELL'S PALSY: A CASE REPORT

J. Anusha, P. Deepak, R. M. Suresh and V. Karthik *

Department of Pharmacology, Hassan Institute of Medical Sciences, Haasan - 573201, Karnataka, India.

Keywords:

Facial paralysis, COVID-19, Viral Infections, neurological symptoms.

Correspondence to Author:

Dr. Karthik V

Department of Pharmacology,
Hassan institute of Medical Sciences,
Haasan - 573201, Karnataka, India

E-mail: joykarthik03@gmail.com

ABSTRACT: Bell's palsy is an idiopathic, unilateral, acute weakness of the face in a pattern consistent with peripheral facial nerve dysfunction and may be partial or complete, occurring with equal frequency on either side of the face. The incidence is about 20 in 100,000 people a year, with about 1 in 60-lifetime risks. Bell's palsy has a peak incidence between the ages of 15 and 40 years. Viral infections are commonly associated with facial nerve pathology, which leads to peripheral facial paralysis. A potential cause of peripheral facial paralysis might be COVID-19 and neurological symptoms could be the first and only manifestation of the disease. Possible mechanisms related to nerve damage in idiopathic facial nerve paralysis include ischemia of vasa nervorum and demyelination induced by an inflammatory process. Direct viral damage or an autoimmune reaction toward the nerve-producing inflammation would be alternative or contributing mechanisms to dysfunction. Acyclovir (aciclovir) is a nucleoside analogue antiviral drug active against some of the herpes virus groups of DNA viruses and RNA viruses. The mechanism of prednisolone may involve modulation of the immune response to the causative agent or direct reduction of edema around the facial nerve within the facial canal. Prednisolone and acyclovir are commonly prescribed separately and in combination, although evidence of their effectiveness is weak. We report a case diagnosed with COVID-19 after presenting with isolated peripheral facial palsy.

INTRODUCTION: Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2) is responsible for the global spread of Coronavirus Disease (COVID-19), which is highly infectious, mainly causing respiratory symptoms¹. However, a few patients may also have neurological symptoms¹.

Hereby, we report a case of COVID-19 infection complicated with Bell's palsy in India. This case report was undertaken to characterize the neurological complication Bell's palsy due to SARS-CoV-2 (COVID-19), which has been reported from COVID WARD- HIMS, Hassan.

Case Presentation: A 38-year-gentleman was admitted to the isolation COVID ward of a tertiary care Centre in Karnataka with high-grade fever, headache and myalgia for the past 2 days and no preceding cough respiratory symptoms. Subsequently, On Day 5 of illness (2nd post-admission day) he developed pain in the mastoid region and loss of sensation on the left side of the

| | |
|---|--|
| QUICK RESPONSE CODE | DOI: 10.13040/IJPSR.0975-8232.13(3).1271-73 |
|  | This article can be accessed online on www.ijpsr.com |
| DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.13(3).1271-73 | |

face, which was associated with difficulty in chewing food on the left side, difficulty in opening the left eyelid and deviation of left angle of the mouth. With No H/o previous co-morbidities, medical or surgical illness and No H/o allergy or on any medication. On vital examination, his HR-89 bpm, BP-130/80 mm Hg, SPO₂-98% & Temp- 100 °C. Physical examination revealed left lower motor neuron type facial nerve palsy. Laboratory results on admission were significant for COVID-19, S. ferritin- 416.72 ng/mls well as increased PT time - 12.8 sec. Platelet count and liver enzymes were within normal values. CT chest revealed ground-glass shadows in both lower lobe of the lung **Fig. 1** and Chest radiography has shown bilateral lower lobe infiltrates **Fig. 2** with nasopharyngeal swab

RT-PCR turned out to be positive for SARS-CoV-2. With the intention of reducing viral replication of SARS-CoV-2, started on T. Acyclovir 500 mg OD for 7 days along with a tapering dose of T. Prednisolone 60 mg TID for 5 days and Close monitoring of Vitals, Supportive medication like Anti Histaminics T. Cetirizine 10 mg H.S), Vitamin supplementation (T. Vit C, T. Zinc) for the treatment of Bell's Palsy. On day 7, his headache and retro-auricular pain improved with mild improvement in his facial weakness. On day 15 patient was discharged with negative RT-PCR for SARS-CoV-2 RNA and reduction of the lung lesions **Fig. 3 & 4**. On follow-up, after two weeks, there was a significant improvement in facial weakness.



FIG. 1: CT CHEST REVEALED GROUND-GLASS SHADOWS ON DAY-1



FIG. 2: CT CHEST RADIOGRAPHY HAS SHOWED BILATERAL LOWER LOBE INFILTRATES ON DAY-1



FIG. 3: CT CHEST REVEALED CLEARED GROUND-GLASS SHADOWS ON DAY 15



FIG. 4: CHEST RADIOGRAPHY HAS SHOWED CLEAR BILATERAL LOWER ON DAY-15

DISCUSSION: Bell's palsy is the most common cranial nerve paralysis, accounts for 60% - 70% of causes of unilateral facial paralysis². SARS-CoV-2 has a propensity for neuro-invasion because of the high affinity for ACE2 receptors expressed in the nervous system³. Once viral particles gain entry into the neuronal tissue, they interact with ACE2 receptors in neurons to initiate a cycle of intra neural viral replication and budding, which causes neuronal damage.

ACE2 receptor is abundantly expressed in mucosal layer of the nasal cavity, particularly in the ciliated epithelium and goblet cells, where viral replication is maximum, as evidenced by the high viral titers shed from the nose⁴. SARS-CoV-2 affects the olfactory nerve and bulb, which provides a direct pathway to the central nervous system⁵. The absence of skin lesions, ear lesions, and dermatomal pain rule out the diagnosis of varicella-zoster virus and herpes virus infections. HIV major cause of facial palsy was ruled out.

CONCLUSION: The probability of alternative diagnosis was low, considering the pandemic setting. The temporal association (positive RT PCR - 2 days after onset of symptoms) and the mild laboratory changes speculate that COVID-19 may be the potential cause for peripheral facial paralysis with the patient. Peripheral neurological symptoms may thus be the first and the only manifestation of this disease. This case study concludes a possible

association between COVID-19 and Bell's palsy and which may be a potential cause of facial paralysis.

ACKNOWLEDGEMENT: The author would like to thank his guide Dr. Deepak P for his supervision and reviewing the manuscript; also, very grateful to my colleagues Dr. Sahana GN, Dr. Jayashree VN, and Dr. Priyanka Anbazhaganfor for their help in writing the manuscript. This case report did not receive any specific grant from funding agencies in public, commercial, or not-for-profit sectors.

CONFLICTS OF INTEREST: The authors declare there are no conflicts of interest, financial in this case report.

REFERENCES:

1. Figueiredo R, Falcao V and Pinto MJ: Peripheral facial paralysis as presenting symptom of COVID-19 in a pregnant woman. *BMJ Case Reports CP* 2020.
2. Mao L, Jin H and Wang M: Neurologic manifestations of hospitalized patients with coronavirus disease 2019 in wuhan, china. *JAMA Neurol* 2020; 77(6): 683-90.
3. Li YC, Bai WZ and Hashikawa T: The neuroinvasive potential of SARS-CoV2 may play a role in the respiratory failure of COVID-19 patients. *J Med Virol* 2020; 92(6): 552-55.
4. Speth MM, Singer-Cornelius T, Oberle M, Gengler I, Brockmeier SJ and Sedaghat AR: Olfactory dysfunction and sinonasal symptomatology in covid-19: prevalence, severity, timing and associated characteristics. *Otolaryngol Head Neck Surg* 2020; 163(1): 114-20.
5. Lima MA, Silva MTT and Soares CN: Peripheral facial nerve palsy associated with COVID-19. *J Neurovirol* 2020; 26(6): 941-44.

How to cite this article:

Anusha J, Deepak P, Suresh RM and Karthik V: Early treatment with prednisolone and acyclovir in sars-cov-2 complicated bell's palsy: a case report. *Int J Pharm Sci & Res* 2022; 13(3): 1271-73. doi: 10.13040/IJPSR.0975-8232.13(3).1271-73.

All © 2022 are reserved by International Journal of Pharmaceutical Sciences and Research. This Journal licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

This article can be downloaded to **Android OS** based mobile. Scan QR Code using Code/Bar Scanner from your mobile. (Scanners are available on Google Playstore)