



CODEN [USA]: IAJPBB

ISSN : 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**

SJIF Impact Factor: 7.187

Available online at: <http://www.iajps.com>

Research Article

**POST COVID-19 DELTA STRAIN COMPLICATION
GUILLAIN- BARRE SYNDROME (GBS)**Noor-ul-Ain^{1*}, Iqra Abbas², Laiba Arooj³^{1*}Department of Pharmacy, The University of Faisalabad, Pakistan²Department of Pharmacy, The University of Faisalabad, Pakistan³Department of Pharmacy, The University of Faisalabad, Pakistan**Article Received:** September 2021 **Accepted:** September 2021 **Published:** October 2021**Abstract:**

Post COVID-19 complications are a topic of discussion these days. And these complications are making this pandemic more stressful with the variable strains of SARS-COV2. Since the cases of delta strains are increasing day by day. A rare complication of this pandemic is Guillain Barre Syndrome. This is a case report of a young female of 35 years old who got admitted in hospital 10 days after infection with delta strain of SARS-COV2 and she developed acute motor and sensory axonal type of neuropathy. Likewise, some other bacterial as well as viral infections can leads to post infection dysregulation of the immune system like the molecular impersonation can cause damage of PNS (peripheral nervous system) that is might be due to COVID-19 disease. The condition can lead to dysfunctioning related to motor conduction that cannot be figure out easily in non-neurological sceneries and in those patients who need ventilator. This patient was firstly treated with 5 sessions of plasmaphoresis and after this there was no effect of plasmaphoresis and then she was shifted to the ventilator and three days after she was expired.

Keywords: Axonal, neuropathy, pandemic, infection, plasmaphoresis**Corresponding author:****Noor-ul-Ain,**Department of Pharmacy,
The University of Faisalabad, Pakistan

Contact: +923367744654,

Email: ananoorkhan105@gmail.com

Please cite this article in press Noor-ul-Ain., *Formulation And Evaluation Of Transdermal Therapeutic System For Delivering Nano Sized Rosuvastatin.*, Indo Am. J. P. Sci, 2021; 08(10).

INTRODUCTION:

Family of coronavirus Coronaviridae has affected this world in a number of times and it leads the world to the worst pandemics like SARS-COV1 and MERS-COV currently world is under another threat of pandemic which was also originated from coronavirus family and this time it caused the pandemic named SARS-COV2 which causes the disease called COVID-19 (coronavirus disease 2019)¹. There are different strains of this coronavirus like Alpha, Beta, gamma and now the worst considered is delta strain which is also a cumbersome because it causes a number of post-COVID19 complications which is more hectic for the patients and for the healthcare providers. One of these complications is GBS (Guillain- Barre Syndrome) which is more complicated with COVID19 symptoms. Several reports of the neurological appearances in post- COVID-19 patients are present, alongwith demonstrations capricious after headache which is mild to the severe appearances like polyneuropathy, seizure, as well as stroke and encephalopathy. Lately, cases of GBS (Guillain–Barre syndrome) have been defined as an impediment of COVID-19².

CASE PRESENTATION:

Here is a case presentation of 35 years old female who presented in Emergency department of Allied hospital Faisalabad, and she had COVID19 symptoms from last 10 days and she was confirmed for COVID-19 diagnosis based on PCR (polymerase

chain reaction) and HR-CT (high resolution computed tomography) which shows 80 percent of lung involvement now her condition was much worse with symptoms like SOB(shortness of breath), high grade fever, anosmia, generalized aches, malaise, numbness and she got treatment of COVID-19 as Azithromycin 500mg BD(twice a day), Dexamethasone 0.5mg (4 tablets thrice a day), Moxifloxacin 400mg OD(once a day), Ebastine 10mg BD, Ivermectine 6mg OD, Omeprazole 40mg and Paracetamol. But her condition was getting worse with the numbness and bilateral lower limb weakness and pain legs. And then she confirmed a case of post-COVID19 GBS by the test reports of Electromyography and nerve conduction study. The Limb scrutiny exposed abridged tendency along with proportioned feebleness of 4 out of 5 on the MRC (Medical Research Council) PGS (Power Grading Scale) in both upper as well as lower limbs. Later on she had reduced reflexes of triceps as well as inattentive bicep, along with the supinator, ankle and knee reflexes consensually. The Pinprick impression was diminished in the right midfoot as well as ankle on left foot, along with lessened quivering sagacity towards the hips jointly. But her Cranial nerves were integral. Subsequently 24 hours, her lower limb supremacy had abridged to 3 out of 5 proximally besides 2 out of 5 distally. In addition to all limb responses were inattentive. The inclusive imprint was of a reformist flabby symmetrical sensory as well as motor neuropathy.

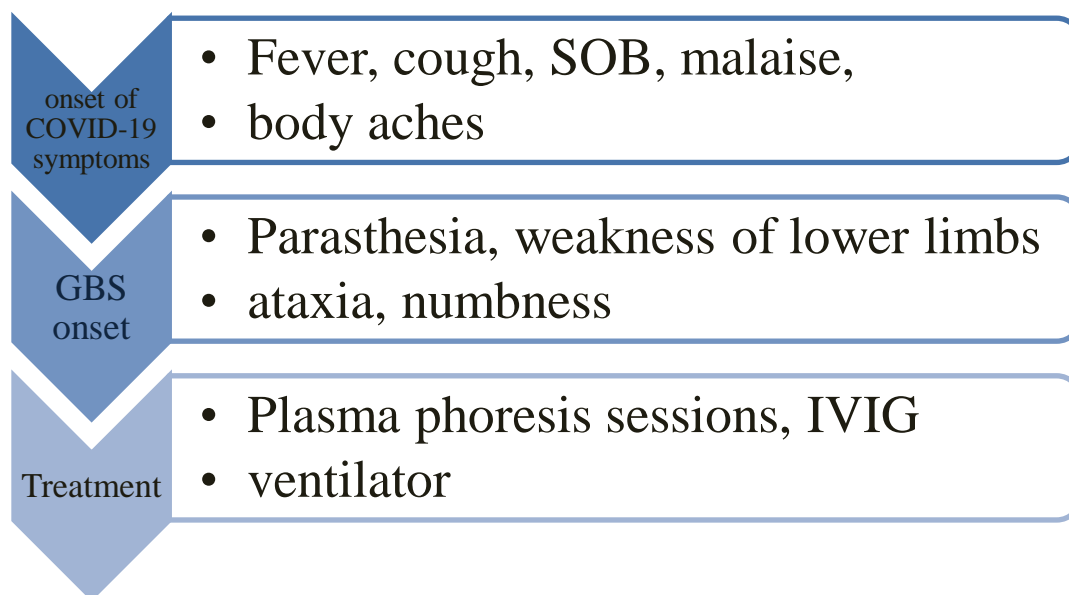


Fig 1; COVID-19 onset and GBS onset and treatment

Investigations:

The LP (lumbar puncture) exposed high protein level in CSF (cerebrospinal fluid) which was 0.48g/L along with standard glucose as well as cell counts. There was no any organisms were present on gram staining.

NCS (Nerve conduction studies) were also conceded post-admission with the portable system of Dantec Keypoint Focus along with the solitary continuous current providing and acting as a stimulator. Stimulus was implemented with the stimulator which was bipolar commissioning as 0.1 millisecond interval aligned pulsations as well as inconstant strength of up to 100 miliampere. Aimed at recording of the MCS (motor conduction studies) Table 1, external conductors Ambu neuroline 70001-SC/12 were positioned rendering with those of the muscle belly-tendon normal standards. Minced superficial conductors Ambu neuroline 71415-M1 was employed amid the stimulating in addition to recording point. Likewise, action potentials of sensory nerves were attained with the surface electrodes subsequently distal stimulus which is orthodromic technique. Preliminary dormancy,

interval as well as vile to highest amplitude were premeditated for action potentials of sensory nerves as well as action potentials of compound muscles. F-wave expectancies, when existent, were unrushed after the beginning of compound motor action potential. NCS (Nerve conduction studies) exposed abridged transference Swiftness as well as protracted distal motor dormancies in motor as well as sensory nerves in the upper as well as lower limbs with supplementary discernible decelerating in lower limbs. The Motor action potentials displayed obvious spreading in the morphology which was supplementary noticeable in tibial besides communal peroneal nerves. F-waves were not attained from the communal peroneal, tibial as well as right median nerves, in addition to had continued dormancy in right ulnar nerve. SNC(Sensory nerve conduction) studies disclosed abridged speeds in mutually superficial peroneal as well as right sural nerves, in addition to were contained by standard restrictions for left sural, ulnar as well as radial superficial nerves. These consequences accomplish the electrodiagnostic standards for the acute inflammatory demyelinating polyneuropathy also termed as GBS.

Table 1 Motor function examination

Limbs	24 hours post-admission		3 days post-admission	
	Left	Right	Left	Right
Lower limbs				
Hip flexion	4	4	3	3
Hip extension	4	4	3	3
Knee flexion	3	3	2	2
Knee extension	3	3	2	2
Plantarflexion	3	3	2	2
Dorsiflexion	2	2	1	1
Great toe dorsiflexion	2	2	1	1
Upper limb				
Elbow flexion	4	4	3	3
Elbow extension	4	4	4	4
Wrist flexion	3	3	2	2
Wrist extension	2	2	2	2
Finger flexion	3	3	3	3
Finger extension	3	3	2	2
Shoulder abduction	4	4	4	4
Thumb abduction	3-	3-	2	2

Treatment:

Patient remained admitted in the medical unit and she was treated symptomatically and along with consecutive five sessions of plasmaphoresis was done on her and intravenous immunoglobulin (IVIG) was started and later after two days her condition got worse and she was shifted to ICU (intensive care unit) on ventilator and she died three days after shifting to the ventilator.

DISCUSSION:

Guillain- Barre Syndrome is a disease which is antibody intervened and in this the nerves like peripheral nerves that can be hypothetically life intimidating. The exertion in identifying Guillain-Barre Syndrome dishonesties in the heterogeneity of ailment, unambiguously deviations in demonstration as well as effectiveness of indication beginning³. There are different subtypes of Guillain- Barre Syndrome that have been recognized comprising AIDP (acute inflammatory demyelinating polyradiculoneuropathy), AMAN (acute motor axonal neuropathy) as well as AMSAN (acute motor sensory axonal neuropathy). Sickness development can be swift with numerous patients mounting respiratory collapse necessitating the mechanical ventilation^{3,4}. Subsequently management as well as steadiness, patients might necessitate to be in the plateau phase beforehand some noteworthy development is attained as well as stereotypically indications can preceding up to several months' beforehand patients' reoccurrence to the baseline. Management is accessible to Guillain- Barre Syndrome patients with IVIG or the plasma exchange therapy. Characteristically, management is earmarked aimed at those patients that cannot ambulate individualistically, have reformist signs, bulbar feebleness, in addition to those with respiratory concession⁵. Management with IVIG is unsurpassed if obtainable contained by 2 weeks of signs beginning, as well as aimed at plasma alteration is unsurpassed if obtainable contained by 5 weeks of indication commencement. Here we discuss the case report of a patient who had COVID-19 and later she developed GBS the exact mechanism of this onset is unknown but the possible mechanism as the target of SARS-COV2 is ACE2 receptors which are also found on lungs, brain and neurons and

through this receptor SARS-COV2 can also affect brain and neurons and leads to some fatal diseases like GBS⁶.

Ethical issue:

Informed consent was obtained from patient attendant.

Conflict of interest:

There is no conflict of interest.

Acknowledgment:

None.

REFERENCES:

1. Stuby J, Roth R, Strecker N, Teubner J, Rudiger A. Post-COVID-19 bifacial weakness and paraesthesia: a case report. *Swiss Medical Weekly*. 2021 Sep 21(37).
2. Waheed W, Carey ME, Tandan SR, Tandan R. Post COVID-19 vaccine small fiber neuropathy. *Muscle & nerve*. 2021 Jul;64(1):E1.
3. Zito A, Alfonsi E, Franciotta D, Todisco M, Gastaldi M, Ramusino MC, Ceroni M, Costa A. COVID-19 and Guillain-Barré syndrome: a case report and review of literature. *Frontiers in neurology*. 2020;11.
4. Baghbanian SM, Namazi F. Post COVID-19 longitudinally extensive transverse myelitis (LETM)—a case report. *Acta Neurologica Belgica*. 2020 Sep 18:1-2.
5. Sud R, Verma J, Goswami S, Aggarwal N, Gurtoo A. Post-COVID-19 guillain-barre syndrome: A distinct neurological entity. *Indian Journal of Medical Specialities*. 2021 Jan 1;12(1):31.
6. Bonifacio GB, Patel D, Cook S, Purcaru E, Couzins M, Domjan J, Ryan S, Alareed A, Tuohy O, Slaght S, Furby J. Bilateral facial weakness with paraesthesia variant of Guillain-Barré syndrome following Vaxzevria COVID-19 vaccine. *Journal of Neurology, Neurosurgery & Psychiatry*. 2021 Jul 13.