

Guillain Barre Syndrome in Children : Case Report

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Abstract

Background: The incidence of GBS at the age of <15 years is 1.5 cases per 100,000 population and peaks at the age of 70-79 years, reaching 8.6 cases per 100,000 population. The peak of this disease at the age of 15-35 years and 50-75 years. Infants are said to have the lowest risk of developing GBS. Male have 1.5 times greater risk than female

Case: a 7 years old male children was presented with main complaint of weakness at extrimites on both side since March 27th, 2019. Patient felt weakness at lower extremities first and then followed by upper extremities two days later. patient cannot use his hand and leg at all. patient was unable to transfer from lying to sitting independently and unable to slide his buttocks. patient felt numbness on his both arms and leg. patient got dyspepsia one week before weakness. Based on physical and diagnostic examination patient diagnosed with Tetraparesis LMN type due to Guillan Barre Syndrome (GBS). Patient got rehabilitation program consist of NMES, ROM, active breathing, endurance, strengthening, transfer and mobilization exercise, and occupational therapy. Patient got improvement in muscle power of upper and lower extremities after five (5) month rehabilitation medicines. Barthel index improved from 25 to 95 and activity daily living independently.

Conclusion: NMES, ROM, active breathing, endurance, strengthening, transfer and mobilization exercise, and occupational therapy can improve muscle power of upper and lower extremities for GBS of male children in five month rehabilitation program.

Keywords: Guillain Barre Syndrome; children; physical exercise.

Introduction

Guillain Barre Syndrome (GBS) is a demyelinating neuropathy characterized by ascending weakness and reduced/loss of reflexes and can affect cranial nerves. GBS is the most important cause of acute flaccid paralysis (Andary, 2021). The incidence of GBS in the United States is 1.2–3 out of 100,000 population/year and increases with age.

The incidence of GBS at the age of <15 years is 1.5 cases per 100,000 population and peaks at the age of 70-79 years, reaching 8.6 cases per 100,000 population. The peak of this disease at the age of 15-35 years and 50-75 years. Infants are said to have the lowest risk of developing GBS. Men have 1.5 times greater risk than women (Van Doorn and Drenthen, 2014; Andary, 2021).

The cause of GBS itself is still unknown for certain, but there is an opinion that one of the triggers for GBS is a viral or bacterial infection such as *Campylobacter Jejuni* or *Citomegalovirus* (Craig, Richardson and Ayyangar, 2016). GBS begins with motor weakness and takes time to heal. Although GBS is said to be self-limiting disease, some patients experience sequelae. therefore, it is important for physical medicine and rehabilitation specialists to recognize the signs of GBS and determine the appropriate rehabilitation program for individuals affected by GBS.

Case Report

a 7 years old male children was presented with main complaint of weakness at extrimites on both side since March 27th, 2019. Patient felt weakness at lower extremities first and then followed by upper extremities two days later. patient cannot use his hand and leg at all. patient was unable to transfer from lying to sitting independently and unable to slide his buttocks. patient felt numbness on his both arms and leg. patient got dyspepsia one week before weakness.

History of present illness are felt weakness at both of arm, hand, leg, and foot. Weakness at both of legs since 5 days before hospitalized. Weakness more prominent until he cannot move his foot and cannot walk. Weakness of the arm and hand since two days before hospitalized, but he can move his upper extremities a little. He also felt difficulty in swallowing. Patient also experienced difficult of breath. After his breathing difficulties improved, he was hospitalized for 2 days. His condition when discharge (18 April 2019) was stable in respiration but still bed ridden and cannot use both of hand. Difficulty of swallowing was absence. Slurred speech and asymmetrical face was denied, difficulty in urination and defecation was denied, history of cough, fever denied, he only felt dyspepsia one week before weakness.

Prenatal history of Patient is a 2nd child of 2 siblings, her mother was taken antenatal care routinely, aterm, normal delivery 507 labor with 3000 gr weight and 50 cm height. Complete immunization, no history of seizure and lung Tuberculosis.

On April 1st, 2019 General examination shows that patient is bed ridden, Glasgow Coma Points: E4M5V6, BP: 110/60 mmHg, Pulse: 116 bpm, Respiration: 24x/min, T: 36,6°C, SpO₂: 98% room air, weight: 18 Kg, height: 120 cm, BMI: 16,67 Kg/m², Barthel index is 25 (severely dependent). Head and neck: not anaemic, no jaundice, and no cyanosis. Heart sound is normal, no murmur and no gallop sound, lung sound is vesicular on both side, no ronchi, no wheezing, abdomen is soft, liver and spleen is unpalpable.

Musculoskeletal status on the table 1, neurological and functional examination on the table 2

Table 1. Musculoskeletal Status

Part of Body	Movement	ROM	MMT
Neck	Flexion	F	1
	Extension	F	1
	Lateral Bending	F/F	1/1
	Rotation	F/F	1/1
Trunk	Flexion	F	Impressed <3
	Extension	F	Impressed <3
	Lateral Bending	F/F	Impressed <3/ Impressed <3
	Rotation	F/F	Impressed <3/ Impressed <3
Shoulder	Flexion	F/F	2/2
	Extension	F/F	2/2
	Abduction	F/F	2/2
	Adduction	F/F	2/2
	External Rotation	F/F	2/2
	Internal Rotation	F/F	2/2
Elbow	Flexion	F/F	2/2
	Extension	F/F	2/2
	Pronation	F/F	2/2
	Supination	F/F	2/2
Wrist	Flexion	F/F	2/2
	Extension	F/F	2/2
Thumb	Flexion MCP	F/F	1/1
	PIP	F/F	1/1
	Extension	F/F	1/1
	Abduction	F/F	1/1
	Adduction	F/F	1/1
	Opposition	F/F	1/1
Fingers	Flexion MCP	F/F	1/1
	PIP	F/F	1/1
	DIP	F/F	1/1
	Extension	F/F	1/1
	Abduction	F/F	1/1
	Adduction	F/F	1/1
Hip	Flexion	F/F	1/1
	Extension	F/F	1/1
	Abduction	F/F	1/1
	Adduction	F/F	1/1
	External Rotation	F/F	1/1
	Internal Rotation	F/F	1/1
Knee	Flexion	F/F	1/1
	Extension	F/F	1/1
Ankle	Dorsiflexion	F/F	1/1
	Plantarflexion	F/F	1/1
	Inversion	F/F	1/1
	Eversion	F/F	1/1
Big Toe	Flexion	F/F	1/1
	Extension	F/F	1/1
Toes	Flexion	F/F	1/1
	Extension	F/F	1/1

Table 2. Neurological and Functional examination Status

No	Examination	Result
A. Neurological Status		
1	Cranial Nerve	Normal Limit
2	Physiological Reflexes	
	BPR KPR	+1/+2 +1/+1
	TPR APR	+1/+2 +1/+1
3	Pathological Reflexes	
	Babinski	- -
	Chaddock	- -
	Hoffman	- -
	Tromner	- -
4	Sensory Deficit	Difficult to evaluate
5	Spasticity	- -
6	Tonus	Decrease
B. Functional Examination		
1	Balance	
	Sitting	
	Static	Unable
	Dynamic	Unable
	Standing	
	Static	Unable
	Dynamic	Unable
2	Pulmonary Function	
	Count Test	9
	Chest Expansion	T2-T4-T6: 2 cm-2 cm-2,5 cm
3	Hand Function	
	Grasp	NF/NF
	Spherical	NF/NF
	Cylindrical	NF/NF
	Lateral tip	NF/NF
	Pinch	NF/NF
	Hook	NF/NF

Chest X Ray on April 3rd, 2019 shows normal cardiac and suspect pneumoniae (Figure 1), EMG on April 16th, 2019 shows clinical neurophysiological showed demyelinating motor polyradiculoneuropathy.

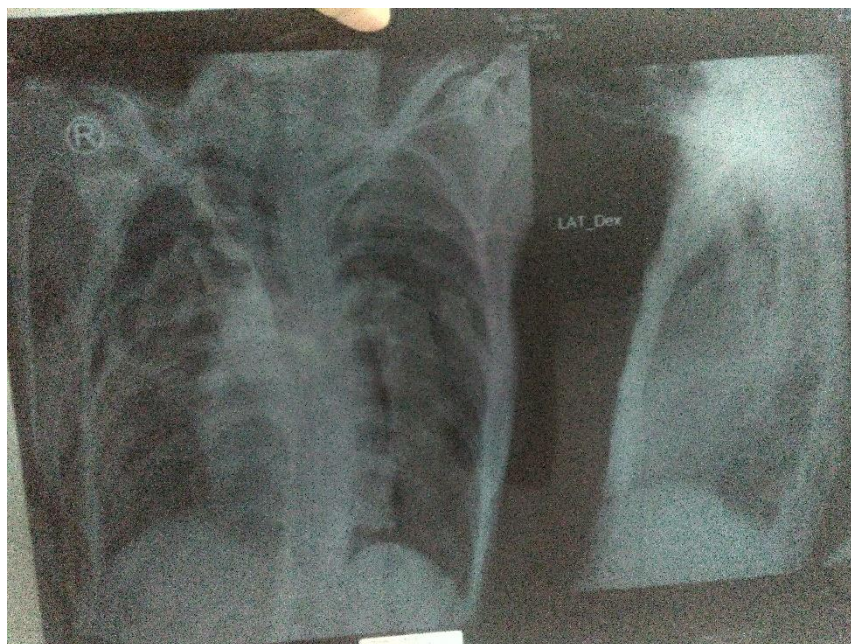


Figure 1. Chest X-ray AP position (April 3rd , 2019), suspect pneumoniae, normal cardiac.

Based on physical and diagnostic examination patient diagnosed with Tetraparesis LMN type due to Guillan Barre Syndrome (GBS). Functional diagnosis are 1) Impairment: Tetraparesis; 2) Disability: Barthel index was 25 (severely dependent: bathing, dressing, grooming, toilet use, transfer, mobility, stairs); 3) Handicap: patient could not go to school and could not handle normal daily activity.

ICF Classification on the table 3, and figure 2.

Table 3. ICF Classification

No	Classification
A. Body Function	
1. b1522	His mother worried that her son's condition will last forever
2. b4350	Immune response
3. b730	Muscle power function
4. b7500	Stretch motor reflex
5. b7603	Supportive functions of arm or leg
B. Body Structure	
s198	Structure of the nervous system, other specified
s730	Structure of upper extremity
s750	Structure of lower extremity
C. Activity and Participation Limitating	
1. d230	Carrying out daily routine
2. d420	Transferring oneself
3. d430-d449	Carrying, moving and handling objects
4. d450-d469	Walking and moving
5. d530	Toileting
6. d540	Dressing
7. d820	School education
8. d920	Recreation and leisure
D. Environmental Factors	
1. E580	Health services and system

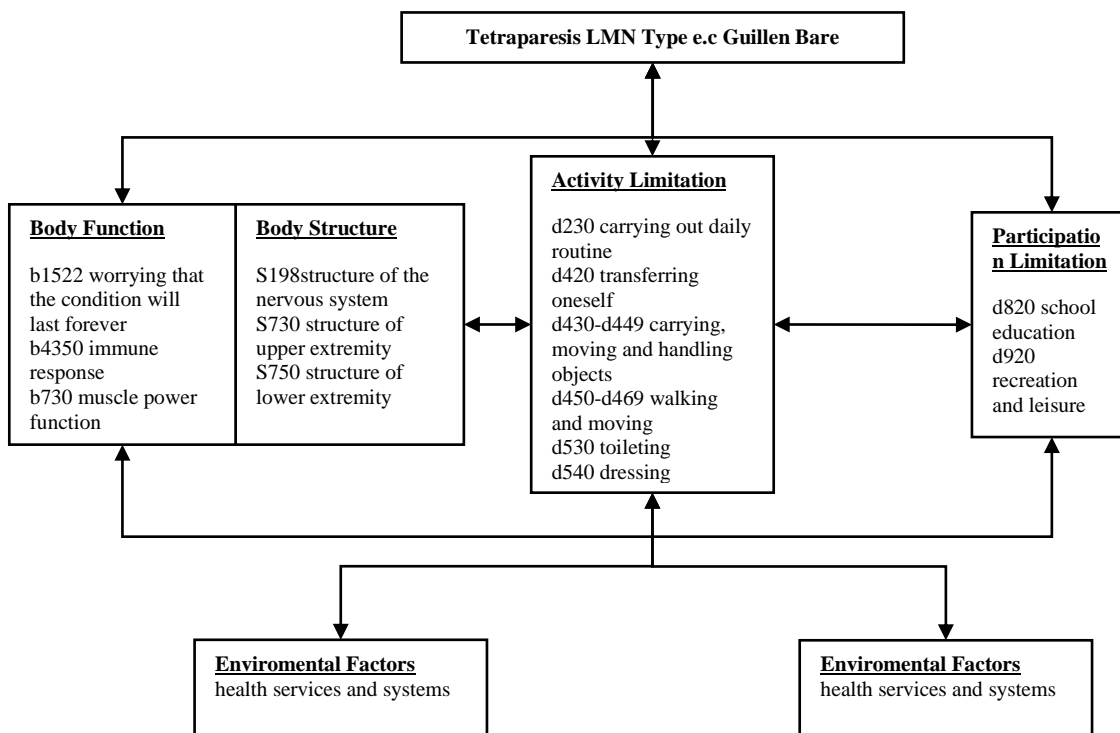


Figure 2. ICF Guillain-Barre Syndrome

Patient medical problem are Tetraparesis LMN Type ec GBS, rehabilitation medicine are R1: dependent ambulation with wheelchair; R2: severely dependent (Barthel Index 25); R7: weakness of upper and lower extremities bilaterally and transfers lying to sitting disturbance. There is no problem in R3 until R6.

Goal of treatment are: 1) short term: Sitting independently and increase the muscle strength; 2) long term: independently ambulation and improvement of quality of life.

Rehabilitation medicines on the table 4

Table 4. Rehabilitation medicines

Rehabilitation Medicine	Explanation
R1 Ambulation: dependent ambulation with wheelchair	
PDx	-
PTx	Continue medication from neurology pediatric department: Metilcobalamin 3 x 150 mg Modality: NMES at shoulder abductor D/S, elbow flexor D/S, wrist extensor D/S, finger fleksor D/S vicible muscle contraction, 20 min everyday NMES hip extensor and flexor D/S, knee extensor D/S, ankle dorsiflexor D/S, big toe extensor D/S, visible muscle contraction, 20 minutes/everyday. Thera exc.: <ul style="list-style-type: none"> • PROM exercise of upper extremities D/S • PROM exercise of lower extremities D/S • Weight shifting exercise • Breathing exercise with blowing trumpet and tissue • Axial loading exercise helped by therapist
PMx	Clinical sign, ROM, MMT
PEx	Health education/Home Exercise Program <ul style="list-style-type: none"> • Explain the patient's condition • Continue exercise at home • Continue NMES at home once/day, @20 minutes. • Explain precaution of exercise (fatigue)
R2 ADL: severely dependent	
PDx	-
PTx	Assisted by his family
PMx	ADL (barthel index)
PEx	Health education/Home Exercise Program <ul style="list-style-type: none"> • Explain the patient's condition • Practice doing ADL as much as possible
R3 Communication: no problem	
R4 Psychological: no problem	
PDx	-
PTx	-
PMx	Psychologic condition
PEx	Health education
R5 Social Economy: no problem	
R6 Vocational: He couldn't go to school and play with his friend as usual	
PDx	-
PTx	Give psychological support and give the idea to play something with sitting position and study at home
PMx	Psychologic condition
PEx	Health education <ul style="list-style-type: none"> • Explain to the patient and her family about his condition • Give psychological support (from family, clinician, environment) • Doing mediation with his teacher by explain his health condition to teacher, and help to postpone final examination until he can write.
R7 Others:	
	<ul style="list-style-type: none"> • weakness of upper and lower extremities D/S • transfer lying to sitting disturbances • decrease of count test and chest expansion
PDx	-
PTx	Continue medication from neurology pediatric department: Metilcobalamin 3 x 150 mg Modalities: NMES at shoulder abductor D/S, elbow flexor D/S, wrist extensor D/S, finger fleksor D/S vicible muscle contraction, 20 min/everyday NMES hip extensor and flexor D/S, knee extensor D/S, ankle dorsiflexor D/S, big toe extensor D/S, visible muscle contraction, 20 minutes/everyday. Thera exc.: <ul style="list-style-type: none"> • PROM exercise of upper extremities D/S • PROM exercise of lower extremities D/S • Weight shifting exercise • Breathing exercise with blowing trumpet and tissue • Axial loading exercise helped by therapist
PMx	Clinical sign and symptoms and MMT
PEx	Health education/Home Exercise Program <ul style="list-style-type: none"> • Explain the patient's condition • Continue exercise at home • Eating with small portions but often and rich in nutrition • Explain precaution of exercise (fatigue)

Table 5. Progress note of treatment

Date	Subjective	Objective	Assessment	Planning																																																						
May 22 nd 2019	1. Both hand become stronger 2. Can turn his body to the right/left 3. Can sit around 30 minutes	General status : <ul style="list-style-type: none"> GCS 456, wheelchair dependent BP : 110/70 mmHg, HR : 116 x/mnt, RR : 24 x/mnt, SpO2 : 98% Physical examination: Th : C : S1-2 single, mur2 -, gallop - P : Rh -/- Wh -/- Chest exp : T2/T4/T6 2/2/2,5 cm Count test : 16 Musculoskeletal status : <table border="1"> <thead> <tr> <th></th> <th>ROM</th> <th>MMT</th> </tr> </thead> <tbody> <tr> <td>Head/ Neck</td> <td>F</td> <td>4</td> </tr> <tr> <td>Trunk</td> <td>F</td> <td>Impressed >3</td> </tr> <tr> <td>Upper extr</td> <td></td> <td></td> </tr> <tr> <td>- Shoulder</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>- Elbow flexion</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>- Elbow extension</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>- Pronation</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>- Supination</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>- Wrist</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>- Finger</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>- Thumb</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>Lower Extr</td> <td></td> <td></td> </tr> <tr> <td>- Hip</td> <td>F/F</td> <td>2/2</td> </tr> <tr> <td>- Knee</td> <td>F/F</td> <td>2/2</td> </tr> <tr> <td>- Ankle</td> <td>F/F</td> <td>2/2</td> </tr> <tr> <td>- Toes</td> <td>F/F</td> <td>2/2</td> </tr> <tr> <td>- Big Toes</td> <td>F/F</td> <td>2/2</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Neurological status - cranial nerve : Normal - Physiological reflexes : <ul style="list-style-type: none"> BPR : ++/+++ KPR : ++/+++ TPR : ++/+++ APR : ++/+++ - Pathological reflexes: - Barthel index (BI) : 50 Feeding : 10 Bowel : 10 Grooming : 5 Bladder : 10 Bathing : 0 Transfer : 5 Dressing : 5 Mobility : 0 Toileting : 5 Stairs : 0 <ul style="list-style-type: none"> Hand Function: weak functional bilateral 		ROM	MMT	Head/ Neck	F	4	Trunk	F	Impressed >3	Upper extr			- Shoulder	F/F	3/3	- Elbow flexion	F/F	3/3	- Elbow extension	F/F	3/3	- Pronation	F/F	3/3	- Supination	F/F	3/3	- Wrist	F/F	3/3	- Finger	F/F	3/3	- Thumb	F/F	3/3	Lower Extr			- Hip	F/F	2/2	- Knee	F/F	2/2	- Ankle	F/F	2/2	- Toes	F/F	2/2	- Big Toes	F/F	2/2	Tetraparesis ec Guillain Barre Syndrome	Continue medication from neurology pediatric department: Metilcobalamin 3 x 150 mg Modality: NMES at shoulder abductor D/S, elbow flexor D/S, wrist extensor D/S, finger fleksor D/S vicible muscle contraction, 20 min/everyday NMES hip extensor and flexor D/S, knee extensor D/S, ankle dorsiflexor D/S, big toe extensor D/S, visible muscle contraction, 20 minutes/everyday. Thera exc.: <ul style="list-style-type: none"> AAROM exercise of lower extremities D/S Breathing exercise with blowing whistle Axial loading exercise helped by therapist Endurance exercise: F: 3x/week I: Heart rate rest + 20 T: 5 minutes warm up, 20 minutes conditioning, 5 minutes cooling down T : arm crank <ul style="list-style-type: none"> Bridging exercise OT: AROM exercise AGA D/S Isotonic strengthening AGA D/S Hand function exercise for ADL (especially writing) PMx : <ul style="list-style-type: none"> Clinical signs & symptoms, vital sign ROM, MMT, count test, chest expansion, hand function, barthel index PEx : <ul style="list-style-type: none"> Avoid fatigue during exercise Control to PMR outpatient clinic routinely Home based NMES everyday Prevent hanging foot when sitting on wheelchair PDx : PTx : Rehabilitation program : <ul style="list-style-type: none"> Modality: NMES 50 Hz on muscle belly hip extensors,hip flexor D/S, ankle dorsiflexors,knee flexor, knee extensor D/S ankle plantar flexors D/S everyday, intensity visible muscle contraction, Faradic type, 20 minutes. Therapy Exercise (as patient's tolerance) <ul style="list-style-type: none"> AROM exercise AGA D/S
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June 12 th , 2019	1. Hands felt stronger 2. Hand function improved 3. Can move her buttock	General Status <ul style="list-style-type: none"> GCS 456, wheelchair independent BP : 110/90 mmHg, HR : 88 x/mnt, RR : 22 x/mnt, SpO2 : 99% Physical Examination Th : C : S1-2 single, mur2 -, gallop - P : Rh -/- Wh -/- Chest exp : T2/T4/T6 3/3/3 cm Count test : 22 Musculoskeletal status : <table border="1"> <thead> <tr> <th></th> <th>ROM</th> <th>MMT</th> </tr> </thead> <tbody> <tr> <td>Head/ Neck</td> <td>F</td> <td>5</td> </tr> <tr> <td>Trunk</td> <td>F</td> <td>Impressed >3</td> </tr> <tr> <td>Upper extr</td> <td></td> <td></td> </tr> </tbody> </table>		ROM	MMT	Head/ Neck	F	5	Trunk	F	Impressed >3	Upper extr			Tetraparesis ec Guillain Barre Syndrome	PDx : PTx : Rehabilitation program : <ul style="list-style-type: none"> Modality: NMES 50 Hz on muscle belly hip extensors,hip flexor D/S, ankle dorsiflexors,knee flexor, knee extensor D/S ankle plantar flexors D/S everyday, intensity visible muscle contraction, Faradic type, 20 minutes. Therapy Exercise (as patient's tolerance) <ul style="list-style-type: none"> AROM exercise AGA D/S 																																										
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July, 16 th 2019	Patient can stand by hold walker/ wall	General Status • GCS 456, dependent wheelchair • BP : 110/70 mmHg, HR : 110 x/mnt, RR : 20 x/mnt, SpO2 : 98% ,temp ax 36.5 degree celcius Physical examination Th : C : S1-2 single, mur2 -, gallop - P : Rh -/- Wh -/- Chest exp : T2/T4/T6 3/3/3 cm Count test : 24 Musculoskeletal status : <table border="1"> <thead> <tr> <th></th> <th>ROM</th> <th>MMT</th> </tr> </thead> <tbody> <tr> <td>Head/ Neck</td> <td>F</td> <td>5</td> </tr> <tr> <td>Trunk</td> <td>F</td> <td>5</td> </tr> <tr> <td>Upper extr</td> <td></td> <td></td> </tr> <tr> <td>- Shoulder</td> <td>F/F</td> <td>4/4</td> </tr> <tr> <td>- Elbow</td> <td>F/F</td> <td>4/4</td> </tr> <tr> <td>- Wrist</td> <td>F/F</td> <td>4/4</td> </tr> <tr> <td>- Finger</td> <td>F/F</td> <td>4/4</td> </tr> <tr> <td>- Thumb</td> <td>F/F</td> <td>4/4</td> </tr> <tr> <td>Lower extr</td> <td></td> <td></td> </tr> <tr> <td>- Hip</td> <td></td> <td></td> </tr> <tr> <td>Flexion</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>Extension</td> <td>F/F</td> <td>2/2</td> </tr> <tr> <td>Abduction</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>Adduction</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>Int. Rot</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>Ext. Rot</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>- Knee</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>- Ankle</td> <td>F/F</td> <td>2/2</td> </tr> <tr> <td>- Toes</td> <td>F/F</td> <td>3/3</td> </tr> <tr> <td>- Big Toes</td> <td>F/F</td> <td>3/3</td> </tr> </tbody> </table> • Neurological status : Cranial nerves : normal Physiological reflexes :		ROM	MMT	Head/ Neck	F	5	Trunk	F	5	Upper extr			- Shoulder	F/F	4/4	- Elbow	F/F	4/4	- Wrist	F/F	4/4	- Finger	F/F	4/4	- Thumb	F/F	4/4	Lower extr			- Hip			Flexion	F/F	3/3	Extension	F/F	2/2	Abduction	F/F	3/3	Adduction	F/F	3/3	Int. Rot	F/F	3/3	Ext. Rot	F/F	3/3	- Knee	F/F	3/3	- Ankle	F/F	2/2	- Toes	F/F	3/3	- Big Toes	F/F	3/3	Tetraparese (improved) ec. Guillain Barre Syndrome (3 months) PDX : PTX : <u>Rehabilitation program</u> : ▪ Modality: NMES 50 Hz on muscle belly hip extensor D/S, ankle plantarflexor D/S everyday, 20 minnutes. <hr/> ▪ Therapy exercise: (do as patients tolerate) • AROM exercise upper extremity D/S • AROM exercise lower extremity D/S • Active breathing excrcise (deep breathing) • Isotonic Strengthening exercise upper extremity D/S • Sitting to standing exercise (by holding walker) • Endurance exercise : F: 3x/week I: Heart rate rest + 20 T: 10 minutes warm up, 30 minutes conditioning, 10 minutes cooling down T : arm crank PMx : ▪ Clinical signs & symptoms, vital sign ▪ ROM, MMT, barthel index ▪ Precaution fatigue
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Date	Subjective	Objective	Assessment	Planning																																																														
		BPR : +2/+2 KPR : +2/+2 TPR : +2/+2 APR : +2/+2 Pathological reflexes: - • Hand Function: Functional Bilateral • Standing balance static: poor • Standing balance dynamic: poor BI : 75 Feeding : 10 Bowel : 10 Grooming : 10 Bladder : 10 Bathing : 5 Transfer : 5 Dressing : 10 Mobility : 5 Toileting : 10 Stairs : 0		PEx : ▪ Explain about patient condition rehabilitation program to the patient and his family ▪ Practice exercise minimum 2x/day ▪ Avoid fatigue during exercise ▪ Control to PMR outpatient clinic routinely ▪ Using booth shoes routinely when go to school ▪ Avoid hanging foot when sitting position ▪ Home based NMES routinely everyday																																																														
August 15 th , 2019	Patient walk independent with out assitive device	General Status • GCS 456, ambulation independent, waddling gait • BP : 120/70 mmHg, HR : 80x/mt, RR : 20 x/mt, SpO2 : 98% Physical Examination Th : C : S1-2 single, mur2 -, gallop - P : Rh -/- Wh -/- Chest exp : T2/T4/T6 3/3/3 cm Count test : 24 Genu recurvatum + Musculoskeletal status : <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>ROM</th> <th>MMT</th> </tr> </thead> <tbody> <tr><td>Head/Neck</td><td>F</td><td>5</td></tr> <tr><td>Trunk</td><td>F</td><td>5</td></tr> <tr><td>Upper extr</td><td></td><td></td></tr> <tr><td>Shoulder</td><td>F/F</td><td>4/4</td></tr> <tr><td>Elbow</td><td>F/F</td><td>4/4</td></tr> <tr><td>Wrist</td><td>F/F</td><td>4/4</td></tr> <tr><td>Fingers</td><td>F/F</td><td>4/4</td></tr> <tr><td>Thumb</td><td>F/F</td><td>4/4</td></tr> <tr><td>Lower extr</td><td></td><td></td></tr> <tr><td>Hip</td><td></td><td></td></tr> <tr><td>Flexion</td><td>F/F</td><td>4/4</td></tr> <tr><td>Extension</td><td>F/F</td><td>3/3</td></tr> <tr><td>Abduction</td><td>F/F</td><td>4/4</td></tr> <tr><td>Adduction</td><td>F/F</td><td>4/4</td></tr> <tr><td>Int. Rot</td><td>F/F</td><td>4/4</td></tr> <tr><td>Ext. Rot</td><td>F/F</td><td>4/4</td></tr> <tr><td>Knee</td><td>F/F</td><td>4/4</td></tr> <tr><td>Ankle</td><td>F/F</td><td>2/2</td></tr> <tr><td>Toes</td><td>F/F</td><td>4/4</td></tr> <tr><td>Bigtoes</td><td>F/F</td><td>4/4</td></tr> </tbody> </table> • Neurological status : Cranial nerves : normal Physiological reflexes : BPR : +2/+2 KPR : +2/+2 TPR : +2/+2 APR : +2/+2 Pathological Reflexes: - Barthel Index: 95 Feeding : 10 Bowel : 10 Grooming : 10 Bladder : 10 Bathing : 10 Transfer : 15 Dressing : 10 Mobility : 15 Toileting : 10 Stairs : 0 Standing balance static: good Standing balance dynamic: poor Hand Function: Functional bilateral		ROM	MMT	Head/Neck	F	5	Trunk	F	5	Upper extr			Shoulder	F/F	4/4	Elbow	F/F	4/4	Wrist	F/F	4/4	Fingers	F/F	4/4	Thumb	F/F	4/4	Lower extr			Hip			Flexion	F/F	4/4	Extension	F/F	3/3	Abduction	F/F	4/4	Adduction	F/F	4/4	Int. Rot	F/F	4/4	Ext. Rot	F/F	4/4	Knee	F/F	4/4	Ankle	F/F	2/2	Toes	F/F	4/4	Bigtoes	F/F	4/4	Tetraparese (improved) ec Guillain Barre Syndrome (5 months) PDX : PTx : Rehabilitation program : ▪ Therapy exercise: (do as patients tolerate) • AROM exercise upper and lower extremity D/S (except hip extensor D/S) • AAROM exercise hip extensor D/S, ankle plantarflexor D/S • Active breathing exercise (deep breathing) • Strengthening exercise upper and lower extremity (except hip extensor D/S and ankle plantarflexor D/S) • Endurance exercise with walking: F: 5x/week I: Heart rate rest + 20 T: 10 minutes warm up, 20 minutes conditioning, 10 minutes cooling down T : aerobic PMx : ▪ Clinical signs & symptoms, vital sign ▪ ROM, MMT, barthel index PEx : ▪ Explain about patient condition and rehabilitation program to the patient and his family ▪ Do Home Base NMES everyday ▪ Avoid fatigue during exercise ▪ Use booth shoes when walking ▪ Doing home based NMES routinely
	ROM	MMT																																																																
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This case explained that 7 years old male children. was presented with main complaint of weakness at extrimites on both side since March 27th, 2019. Diagnosed Tetraparesis LMN type due to GBS. Patient diagnosed by general, physical, and diagnostic examination. Examination shows that patient suffered weakness at lower extrimites gradually followed by upper extrimites, felt numbness on all of extrimity, patient are unable sit and stand, losing all of hand function, difficult to breath suspected of pneumonia, patient experience a stomach discomfort. Barthel index is 25 (severely dependent).

2nd month rehabilitation, patient shows improvement of upper extrimity muscle tone, grasp, turn his body to the right and left, patient also can sit around 30 minutes. BI increased to 50. 3rd month rehabilitation, patient shows improvement of upper extrimity muscle tone, grasp, move his buttocks. BI increased to 60. 4th month rehabilitation, patient shows improvement of lower extrimity muscle tone, patient can stand by hold walker/wall. BI increased to 75. 5th month rehabilitation, patient can walk independent without assistive device. BI increased to 95.

GBS more favorable in children than in adults (Andary, 2021). The average incidence was 0.82 cases per 100,000 children aged <15 years (Landaverde *et al.*, 2010). This patient experiencing decreased tendon reflexes in the affected extremity All children had weakness of bilateral limbs and disappearance or reduction of tendon reflex, and limb weakness reached the highest level of severity within 4 weeks (Ju-Fang *et al.*, 2021) and pneumonia (Katirji, 2016). Some patients have symptoms of cranial nerve disorders, most commonly facial, oculomotor or bulbar weakness and ataxia known as *Miller Fisher Syndrome* (Thomas and Therattil, 2010). Patient got rehabilitation medicines consist of NMES, ROM. Occupational therapy professionals should be involved early in the rehabilitation program to promote positioning, posture, upper body strengthening (Craig, Richardson and Ayyangar, 2016), range of motion (ROM), and activities that aid functional self care (Andary, 2021).

Patient also undergo active breathing, endurance, strengthening, transfer and mobilization exercise, occupational therapy. Patient got improvement in muscle power of upper and lower extremities after five (5) month rehabilitation medicines. The recovery period often weeks to months, with a median estimated recovery time of 6–12 months. Full recovery within 3–12 months is experienced by 90–95% of pediatric patients with GBS (Andary, 2021). Barthel index also improved to 95. Patient can do activity daily living independently

Family counseling and education is extremely important early in the illness. The family must be prepared for a prolonged and potentially complicated course of illness.

Conclusion

This report established that male children suffering tetraparese due to GBS was able to increase physical strength and Activity Daily living following a five (5) months rehabilitation medicine using the NMES, ROM, active breathing, endurance, strengthening, transfer and mobilization exercise, and occupational therapy.

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