

GB Syndrome ER and ICU management issues -

Moderator - Dr. Mihir Sarkar

Panelist – Dr. Agnisekhar Saha

Dr. Prabhas Prasun Giri

Dr. Rohit Bhowmik

Dr. Kaushik Maulik

History

- A 6 year old male, 20 kg
- Sudden onset weakness of lower limbs, inability to stand
- Progressed to UL over next 2 days
- Decreased volume of voice
- Sensorium was normal.
- No H/O – fever, trauma, immunization, diarrhea or seizure.

CNS – Alert, conscious.

Quadriparesis – power LL -1/5, UL- 2/5

Global areflexia.

No sensory loss.

Resp – RR-30/min, CVS – Hr- 110/min,

BP – 98/58 mmHg

What is your working diagnosis ?

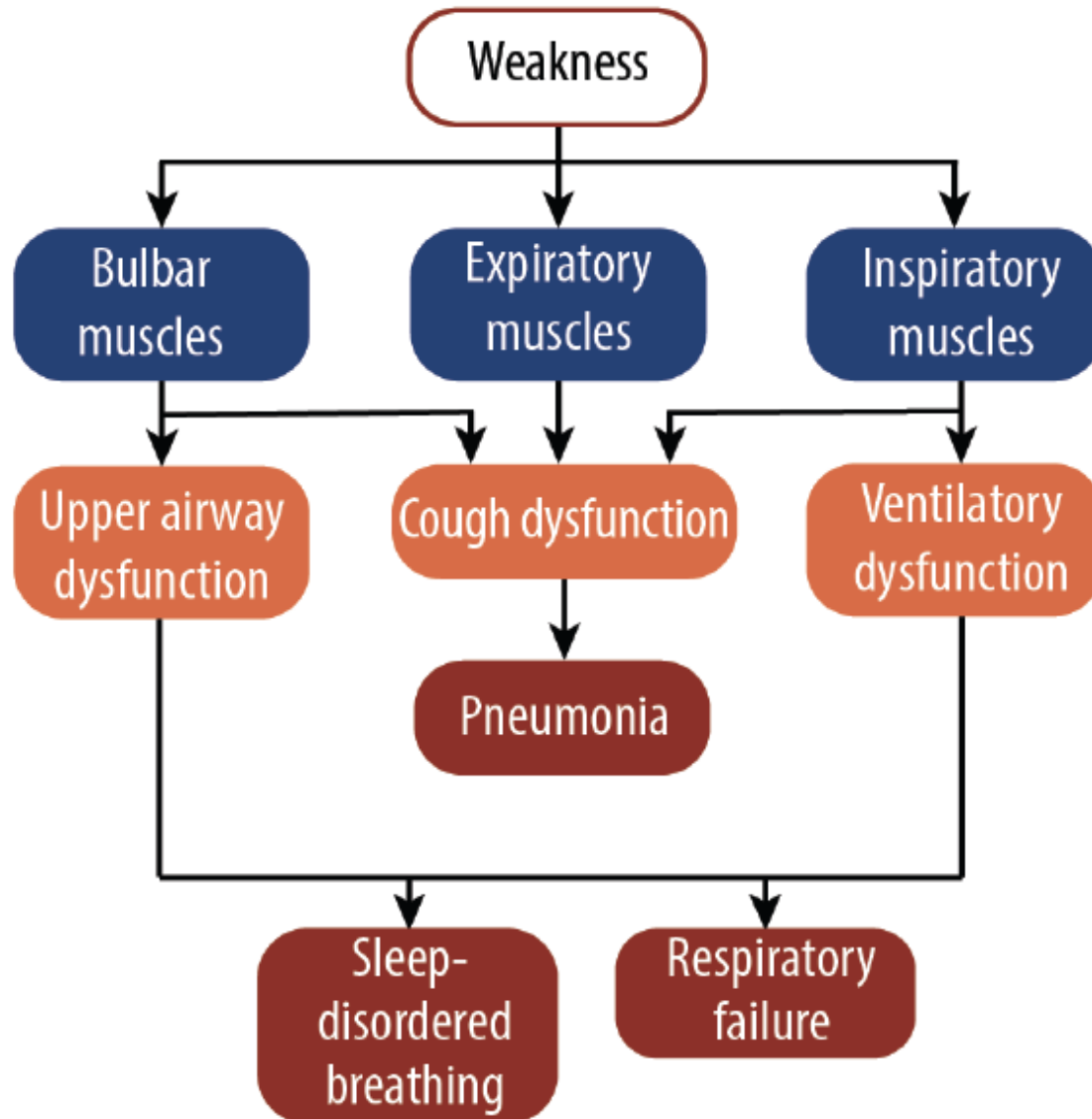
Kaushik



- **What are the Emergency issues a patient with GB Syndrome might have ?**

Rohit

Spectrum of Emergency Care



Dysautonomia –

Labile BP, Arrhythmia, ileus, bladder control, Cardiomyopathy

DVT

Pain

Anxiety

What are the indications of ICU admission in a patient f GB Syndrome ?

Prabhas

Indication to admission in PICU

- Rapid progression of motor weakness involving respiratory muscles
- Ventilatory insufficiency
- Pneumonia
- Severe bulbar weakness
- Autonomic instability: arrhythmia, or bradycardia
 - Autonomic dysfunction is an important cause of death due to hemodynamic instability and arrhythmias.

- How will you assess and monitor a patient of GB Syndrome in ER or PICU ?

Agnida

Assessment of Adequate Respiratory Function

Clinical

Respiratory rate—Good index of response to hypoventilation caused by muscular weakness; tachypnea is the earliest response

Swallowing and handling of secretions

Quality of cough

Volume of speech

Single-breath count

Chest expansion

Presence of tachycardia/diaphoresis (nonspecific)

Use of accessory muscles

Orthopnea

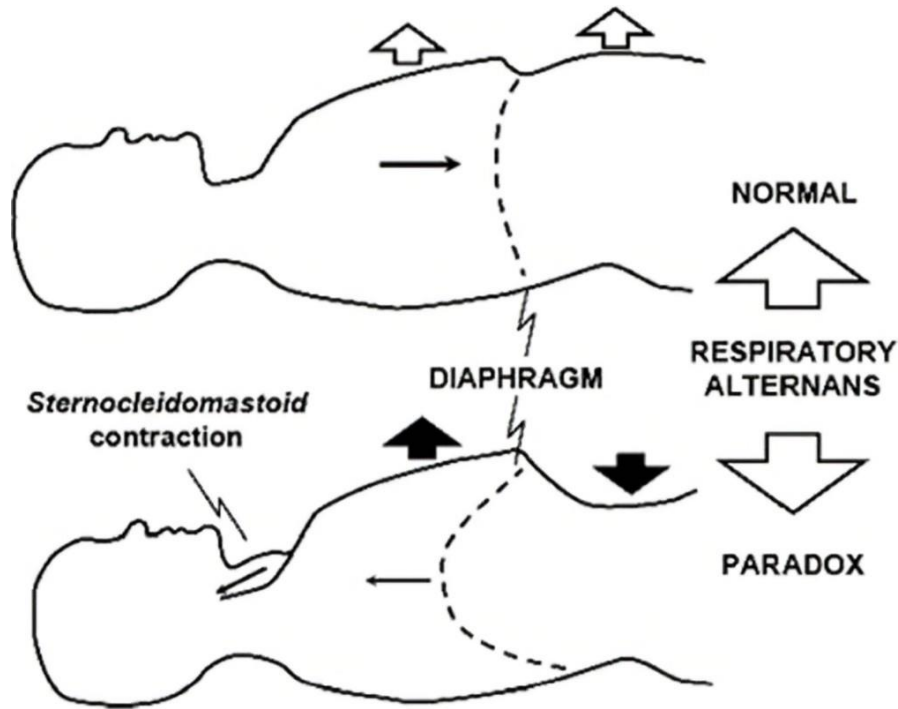
Inward movement of abdomen during inspiration

Breathing pattern alternates between accessory and major respiratory muscles, signifying weakness of major respiratory muscles

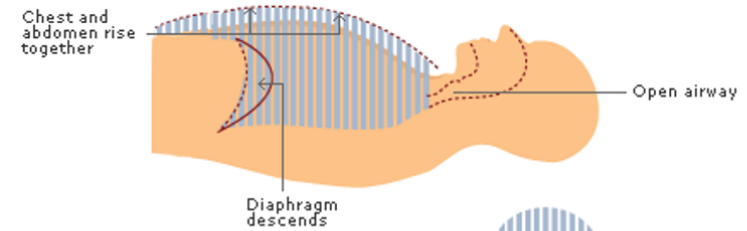
Change in status when sleeping—accessory muscle tone decreases

Rate of progression of generalized weakness

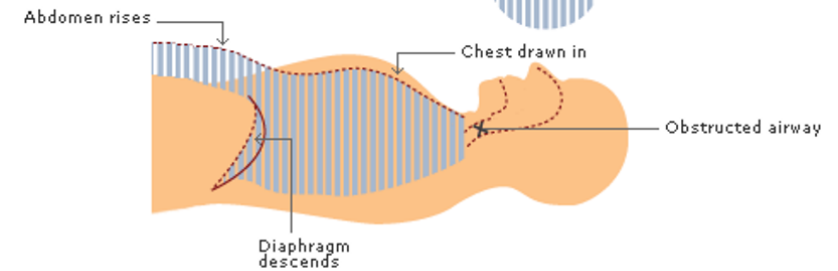
Paradoxical vs Sea Saw Breathing



Normal Inspiration: open airway



See-saw Respiration: obstructed airway



Laboratory

Vital capacity

Maximum inspiratory pressure

Maximum expiratory pressure

SaO₂, PaO₂, PaCO₂, pH

Chest radiograph

Count up to 10 in one breath, the FVC is at least 15–20 mL/kg.
Can count up to 25, the vital capacity is ~30–40 mL/kg.

Monitoring the trend in single-breath counting may help to determine disease progression

Ability to FLEX the neck

Increasing trend of PaCO₂

Are there any predictors of need of Mechanical Ventilation ?

Kaushik

Anticipating Mechanical Ventilation in Guillain-Barré Syndrome

*Nicholas D. Lawn, FRACP; Dade D. Fletcher, MD; Robert D. Henderson, FRACP;
Troy D. Wolter, MS; Eelco F. M. Wijdicks, MD*

1. Rapid disease progression,
2. Bulbar dysfunction,
3. Bilateral facial weakness, or dysautonomia
4. Vital capacity of less than 20 mL/kg,
5. Maximal inspiratory pressure less than 30 cm H₂O,
6. Maximal expiratory pressure less than 40 cm H₂O.
7. Reduction of more than 30% in vital capacity

“20/30/40 rule” – In Adults

Clinical predictors of mechanical ventilation in Guillain-Barré syndrome

Birinder S. Paul, Rohit Bhatia¹, Kameshwar Prasad¹, M. V. Padma¹, Manjari Tripathi¹, M. B. Singh¹

Department of Neurology, Dayanand Medical College and Hospital, Ludhiana, Punjab, ¹Department of Neurology, All India Institute of Medical Sciences, New Delhi, India

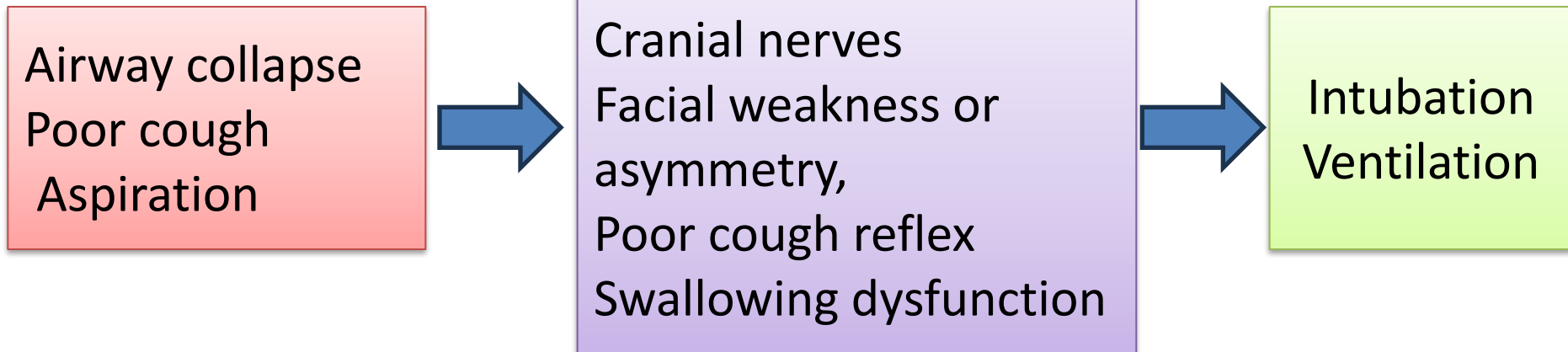
- Simultaneous weakness of upper (UL) and lower (LL) limbs as the initial symptom ($P < 0.001$);
- UL power less than Grade 3/5 at nadir ($P < 0.001$);
- Presence of neck and bulbar weakness ($P < 0.001$);
- Shorter duration from onset to bulbar weakness and confinement to bed ($P = 0.001$)
- Bilateral facial involvement ($P < 0.01$)
- **An elective endotracheal intubation may prevent sudden respiratory arrest and its consequences**

NIV vs Mechanical Ventilation – What and Whom ?

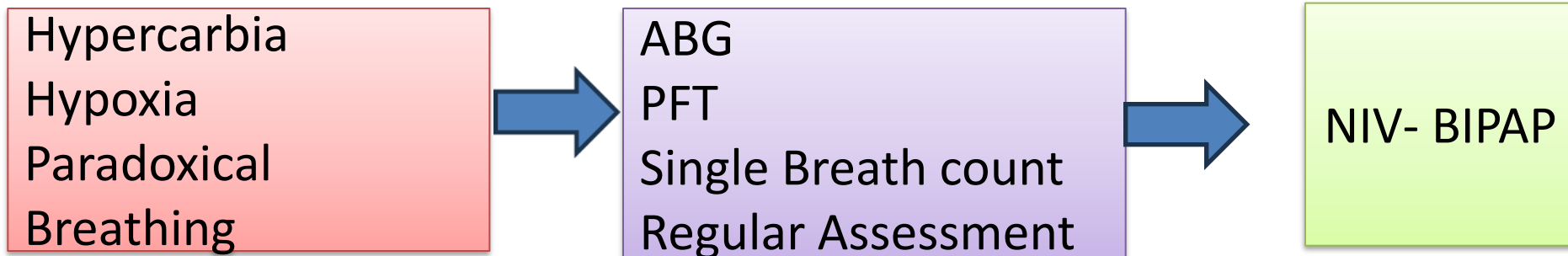
Rohit

Assessing Ventilation and the Need for Urgent Intubation and Ventilatory Support

Oropharyngeal weakness –



Diaphragmatic and intercostal muscle weakness



What precautions will you take during intubation ?

Prabhas

Special considerations for intubation

- Dysautonomia may exaggerate the hemodynamic responses to the drugs

Emergency intubation (with full stomachs or ileus)

- Modified RSI technique – **Apnea Oxygenation, cricoid pressure**
- Prepare atropine/glycopyrrolate, fluids, and vasopressors (risk of associated autonomic instability)
- **Avoid use of succinylcholine.** Consider 1.0–1.4 mg/kg rocuronium. **Reduce the dose in MG and myopathis**
- **Volatile anesthetic agents are preferable**
- A titrated or reduced dose of a sedative and analgesics

What strategy will you take while ventilating this patient ?

Agnida

Ventilator Settings

- Volume-controlled / SIMV + PS ventilation
- Normal V T (8 ml/kg) and Respiratory rate.
- Although high V T have been recommended by some authorities, not necessary for most patients.
- Set V T and respiratory rate that the patient considers comfortable.
- Low pressures and a low FiO₂
- PEEP is set (eg, 5 cm H₂O) to prevent atelectasis.

Weaning



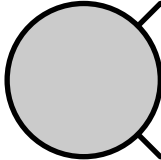
Train the diaphragm and respiratory muscle



Gradual weaning



Initially Day time PS mode and Night time controlled mode



Gradually decrease the PS , even can reduce to ZERO PS and.....gradually night PS also



Can give T-Piece trail

Patient is not moving at all - Sedation and analgesia does it require ?

Kaushik

Pain is often overlooked feature of GBS, occurring in 55% to 89% of patients. Anxiety occurs in 82% of patients.

Cause - Inflammation of proximal nerve roots,
Sensory nerve fiber dysfunction
Musculoskeletal pain from immobility

Analgesics options – Opiates - ileus may limit their use
Gabapentine, Carbamazepines.

Sedation and Anxiolytic - Benzodiazepines, SSRI

D - 2

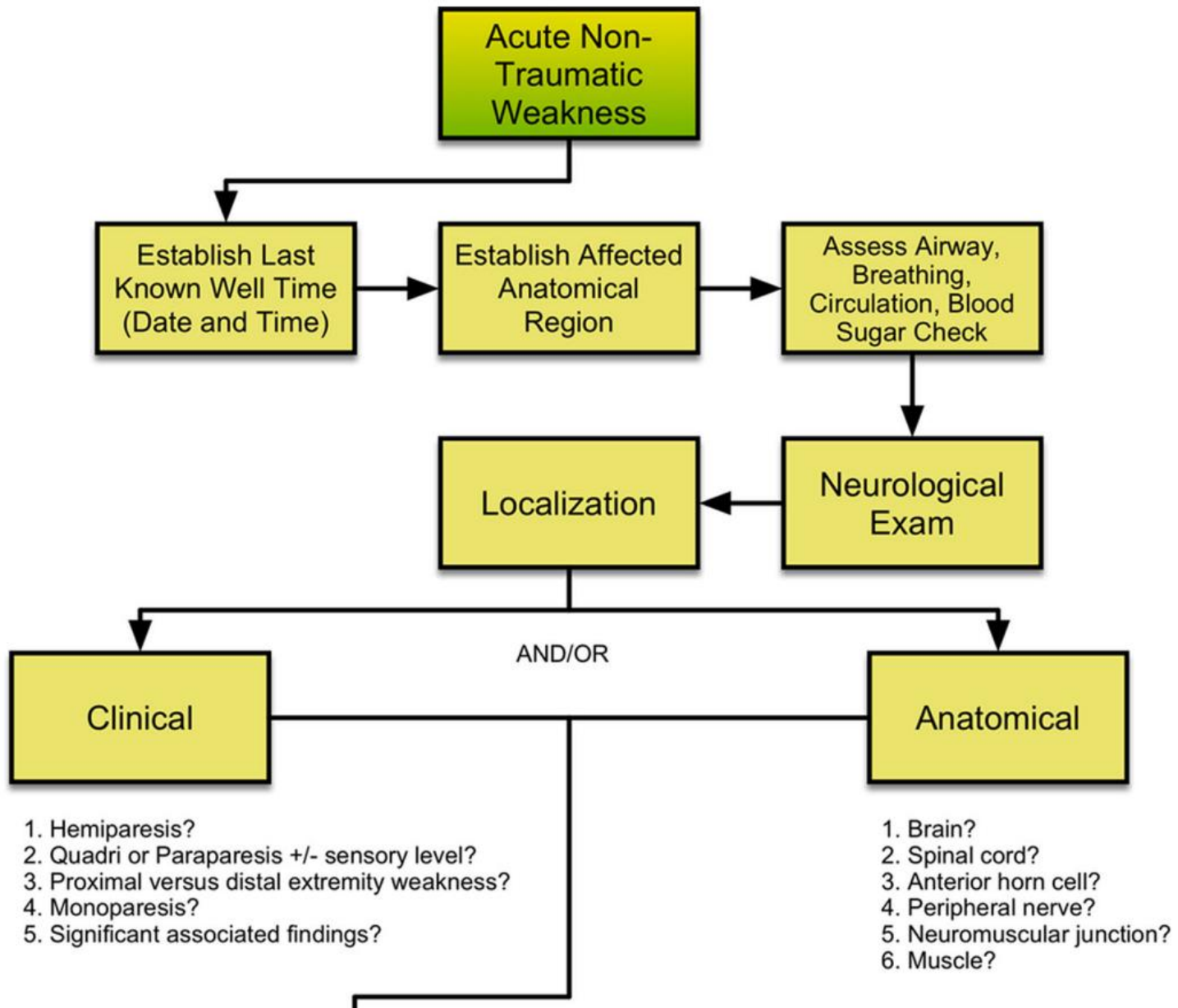
- Patient had sudden onset of tachycardia (HR – 180), hypotension (BP- 70/40 mmHg) and profuse perspiration .
- What are the possibilities ?
- How will manage the situation ? Rohit
- Autonomic dysfunction - occurs in 2%–10% of patients
- Volume repletion, and if refractory to fluids, a pure α -agonist such as phenylephrine.
- Fluctuating BP - Monitor ABP to guide fluid.

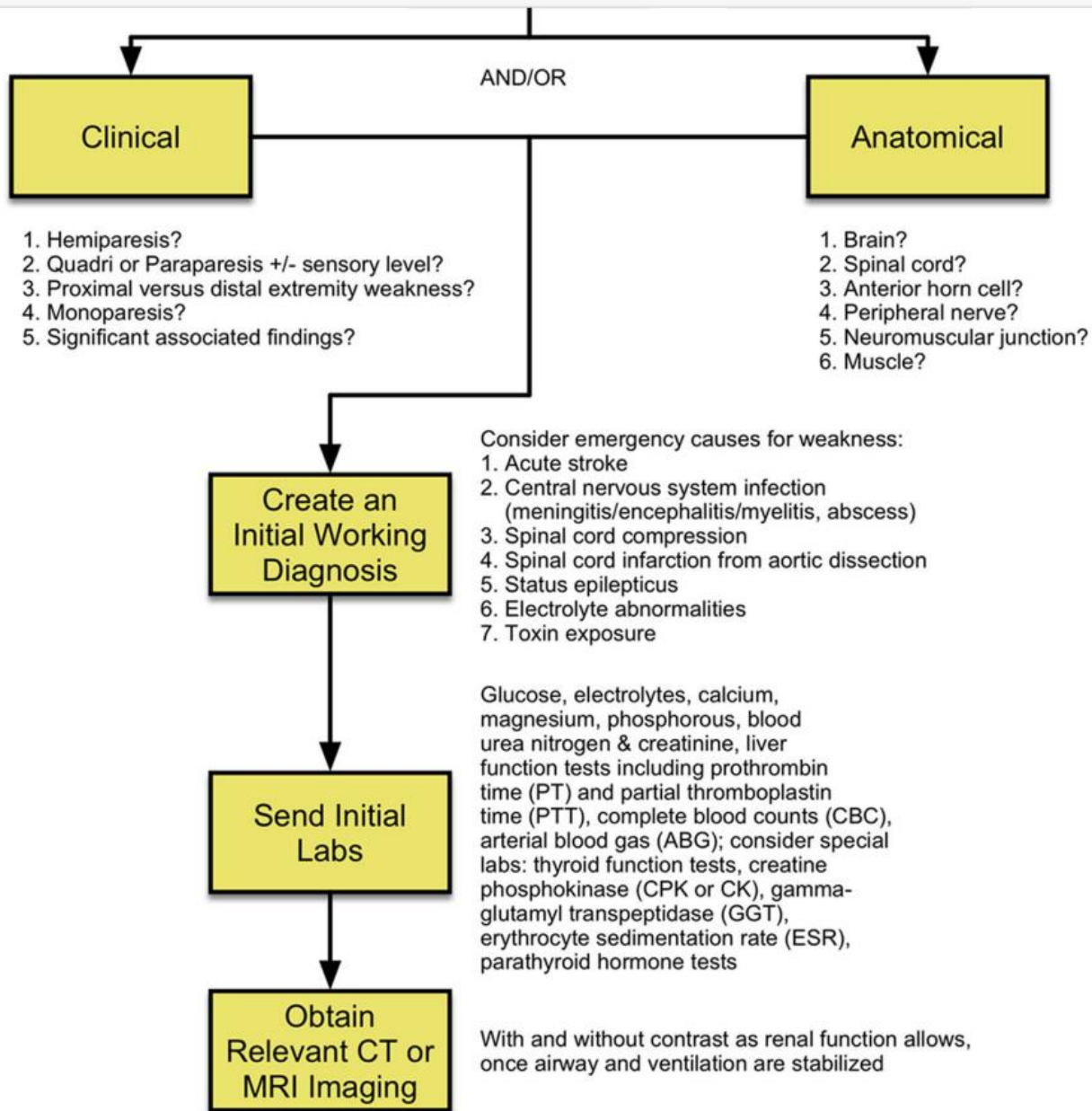
What are the Lab tests will you do ?

Acute weakness checklist for the first hour

- Assess airway, breathing, and circulation
- Characterize the weakness by detailed exam
- Build an initial differential diagnosis of the causes of weakness
- Consider emergency causes in the differential diagnosis
- Initial labs: Glucose, electrolytes, Ca, Mg, PO₄, BUN/Cr, LFTs, PT, PTT, CBC, and ABG
- Special Labs: TFTs, CPK or CK, ESR, parathyroid hormone, GGT
- Relevant MRI and CT imaging

Nerve Conduction Study, CSF Analysis





Course

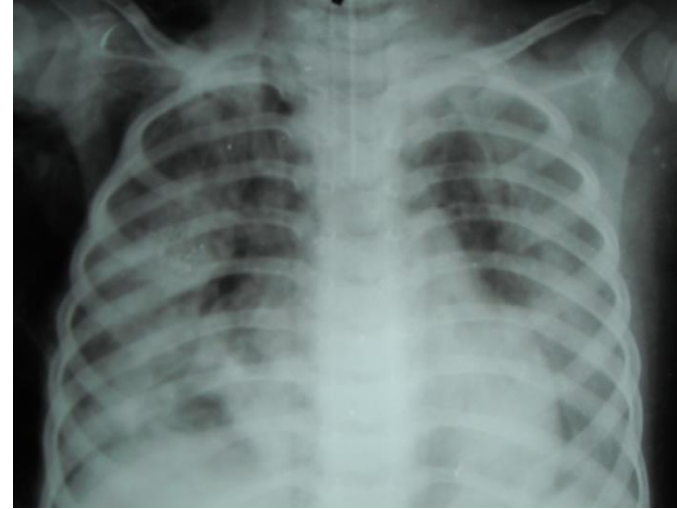
- Nerve conduction study - low CMAP amplitudes in all 4 limbs suggestive of Acute Motor Axonal Neuropathy (AMAN) variety
-
- Cerebrospinal fluid (CSF) analysis done on day 10 of weakness showed albumin-cytological dissociation

Child received intravenous immunoglobulin (IVIg) 2 g/kg over 5 days on Day 2 and 3 of admission - no clinical improvement

Plasma Exchange done after 10 days

D-7

- Child worsened
- **Fall in saturation to 85%**, heart rate increased to 180/min, although BP was normal. High grade fever with profuse secretion in ET.
- **EtCO₂-56**, expiratory tidal volume corresponding to inspiratory tidal volume, ventilator working well.
- Apparently chest movements normal on both sides, **Crepitation bilateral**.



What is happening ?

Outcome depends on smooth sailing throughout the long course.

- **What are the complications of prolonged Mechanical Ventilation?**

Agnida

What are the complications of prolonged Mechanical Ventilation?

- Nosocomial pneumonia
- Atelectasis

Long-term, invasive ventilation may result in

- Tracheomalacia,
- Tracheoesophageal fistula formation, or
- Tracheal stenosis.
- Adhere to VAP Bundle .Practice sterile techniques during suctioning.

General Supportive Care – Key to Success ?

Kaushik

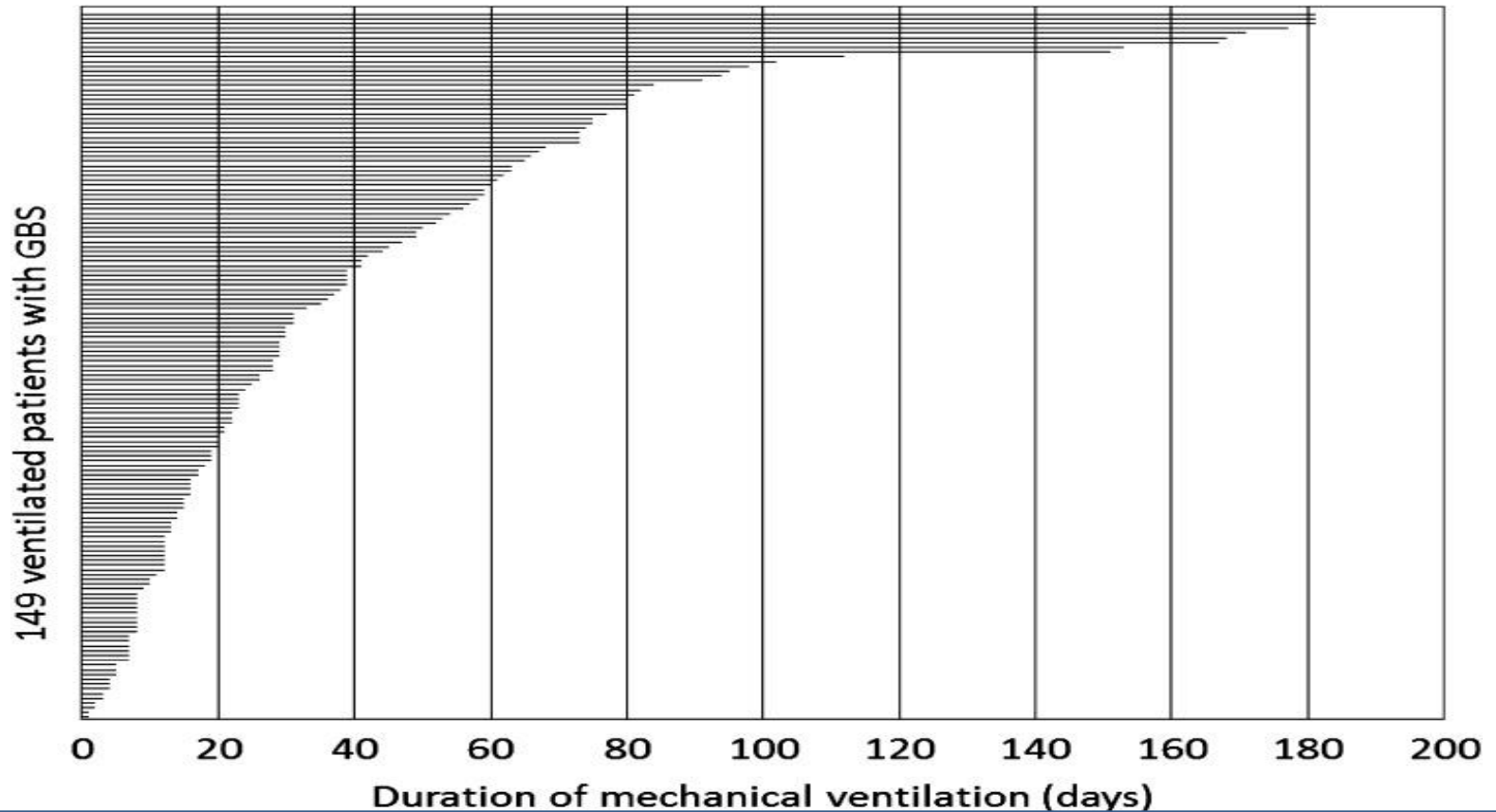
- Regular physiotherapy,
- Provision of splints to prevent joint contractures,
- Prevention of deep vein thrombosis
- Careful positioning and repositioning.
- Early Enteral nutrition - **Inadequate calories and protein may result in ventilator dependence.**
- Handwashing, strict policies regarding intravenous and urinary catheter asepsis and antimicrobial stewardship.

Nutrition – How will you go about it ?

Rohit

- GBS is a hypermetabolic and hypercatabolic state .
- Inadequate nutrition -
 - Fluid and electrolyte abnormalities,
 - Decubitus ulcers, as well as
 - Nosocomial infections
- Early enteral feeding.
- High-protein diet at 1.3 to 1.5 × their calculated basic energy expenditure (BEE) plus an additional 30% to 50% for weight.
- Monitor nitrogen balance, prealbumine, transferrin.
- Bowel care – Prevent constipation

Duration of MV



The figure indicates the Duration of mechanical ventilation in 149 patients with GBS. Median duration of mechanical ventilation was 28 days, interquartile range of 12–60 days, absolute range 1 to >181 days (follow-up of the studies ended at 181 days)

Let's talk about tracheostomy


Why Tracheostomy ?

- To prevent laryngeal and upper airway damage due to prolonged translaryngeal intubation
- To allow easy or frequent access to the lower airway for suctioning and secretion removal
- To provide a stable airway in a patient who requires prolonged mechanical ventilation or oxygenation support

- When will you consider tracheostomy and how will you approach ?

Prabhas

Tracheostomy or Not: Prediction of Prolonged Mechanical Ventilation in Guillain–Barré Syndrome

Christa Walgaard¹  · Hester F. Lingsma² · Pieter A. van Doorn¹ ·
Mathieu van der Jagt³ · Ewout W. Steyerberg² · Bart C. Jacobs^{1,4}

Conclusions -

Ventilated GBS patients who are unable to lift the arms from the bed and patients who have axonal degeneration (AMAN) or unexcitable nerves at 1 week are at high risk of prolonged MV, and tracheostomy should be considered in these patients.

WHEN ?

- Published recommendations and experts' opinions mostly consider 10 to 15 days as the optimal delay for performing tracheotomy .
- Tracheotomy after 21 days might be associated with longer ICU stay and higher mortality.
- **Tracheotomy: why, when, and how?** *Respir Care* 2010, **55**: 1056-1068.

Benefits of Changing From a Translaryngeal Endotracheal Tube to a Tracheostomy Tube

Benefit	Type and Quality of Literature Support Showing Benefit
Improved patient comfort	Uncontrolled reports, clinical opinion
Less need for sedation	Several RCTs
Lower work of breathing	Theoretical analysis, one small study
Improved patient safety	Clinical belief but minimal data
Improved oral hygiene	Clinical observation
Oral intake more likely	Opinion only
Earlier ability to speak	Uncontrolled reports
Faster weaning from mechanical ventilation	One RCT
Lower risk of ventilator-associated pneumonia	Controversial, data support for both sides
Shorter intensive care unit and hospital stay	Several meta-analyses

Rehabilitation and permanent disability

Agnida

- **Early Mobilization:**
- **Physical Therapy:**
- **Occupational Therapy:**
- **Respiratory Therapy:**
- **Speech and Swallowing Therapy:**
- **Emotional and Mental Support:**

Course

Tracheostomy done on D-18

Need MV for 55 days (2 VAP episode)

Decannulation on D- 70

Discharged on D-75

D -90 follow up – Able to walk with support, Feeding and voice normal . D -120 – Able to walk independently

Key Points

Asses the early indications of ICU admission and Mechanical Ventilation

Stabilize the patient before transport and continue support during transport

Be aware of autonomic dysfunction

Prevent nosocomial infection

Good and meticulous supportive care is the key to success



PEDI ON 2026

63rd Annual Conference of The Indian Academy of Pediatrics
JANUARY 2026 | KOLKATA



West Bengal
Academy of Pediatrics



January, 2026



Venue: Kolkata, India



THANK YOU

Himadri Ari

Dr. Balwan Bolsure | Dr. Mihir Sarkar | Jasodhara Chaudhuri | Himadri Ari | Aarti Kinikar

Prof Kaustav N... | Bibekbikash Ma... | Subhra

Prof Kaustav Nayek EBM ... | Bibekbikash Mandal | Subhra

DR SWAPAN KR RAY

Amitabha Sarkar | Saroj Sukla

Amitabha Sarkar | Vasant | Saroj Sukla | Dr Samir kumar Deb | Sukanta Chatterjee

Dr.Anindya Cha...

Dr.Anindya Chakraborty | OSD&SSME, WB | Dr diptendu dutta | Dr Tapan Kumar Das | Dr Sudip Dan

arun manglik | S H Purkait. BMOH MD B... | Dr. Tarapada Ghosh | Debashish Ghosh | Dr. Swapan Saren

Participants (110)

Find a participant

- DM Dr. Mihir Sarkar (Host, me)
- AS Amitabha Sarkar (Co-host)
- Jasodhara Chaudhuri (Co-host)
- DS DR SWAPAN KR RAY
- A .
- 8 82617e68
- AL A Lahiri
- Aarti Kinikar
- AR Abhijeet Roy
- A Adam
- A Ankana
- AC Arijit C

Invite Mute all

Audio Video Participants 109 Chat 2 React Share Host tools More End

Dr.Balwan Bols...
Dr. Mihir Sarkar Jasodhara Chaudhuri

Himadri Ari
Himadri Ari Aarti Kinikar

Prof Kaustav N... **Bibekbikash Ma...** **Subhra**
Prof Kaustav Nayek EBM... Bibekbikash Mandal Subhra DR SWAPAN KR RAY Arijit C

Amitabha Sarkar **Saroj Sukla**
Amitabha Sarkar Saroj Sukla Biman Kanti Ray Alamgir Alam Dr.Anindya Cha...

Dr diptendu dutta **Dr Tapan Kumar Das** **Dr Sudip Dan** **arun manglik** **S H Purkait, BMOH MD B...**

D K Paul **Dr.Sanghita Nath** **OSD&SSME, WB** **Dr Samir kumar Deb** **Zoom user**

Participants (181)

Find a participant

- DN Dr.Sanghita Nath
- DK Dr20230923.Ranjit Kumar Das
- DM DRupak Mandal
- DC Dy CMOH 2, Coochbehar
- GB Gita Banerjee
- HA Himadri Ari
- I iPad
- I iPhone
- I iPhone
- I iPhone
- I iPhone
- IS iPhoneDr Santosh Kumar khanna

Invite Mute all

Audio Video Participants 181 Chat 2 React Share Host tools More End

Dr. Balwan Bolsure | Dr. Mihir Sarkar | Jasodhara Chaudhuri | Himadri Ari | Aarti Kinikar

Prof Kaustav N... | Bibebkikash Ma... | Subhra

DR SWAPAN KR RAY | Arijit C

Amitabha Sarkar | Saroj Sukla | Biman Kanti Ray | Alamgir Alam | Dr. Anindya Cha.

Xiaomi 23043R... | Mahua Chatterjee | DHS | S H Purkait, BMOH MD B... | D K Paul

OSD&SSME, WB | Dr Samir kumar Deb | Zoom user | Samsung SM-E225F | Dr diptendu dutta

Participants (204)

Find a participant

- DM Dr. Mihir Sarkar (Host, me)
- AS Amitabha Sarkar (Co-host)
- Jasodhara Chaudhuri (Co-host)
- D DHS
- A .
- 8 82617e68
- AL A Lahiri
- Aarti Kinikar
- AR Abhijeet Roy
- AS Abhijit Sarkar
- A ACMOH,RNP
- A Adam

Invite **Mute all**

Audio Video 204 11 Share Host tools More End

Dr. Mihir Sarkar

Amitabha Sarkar

OPPO CPH2617 sayantan mondal

OPPO CPH2617 sayantan mondal



Current status of AFP & G B Syndrome cases in west Bengal under 15 Years

Dr Amitabha Sarkar
 State Surveillance Medical Officer- WHO India(NPSN)
 West Bengal

Participants (228)

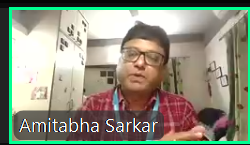
Find a participant

- DM Dr Md Ismail
- DM Dr Md Samim Akhtar
- DM Dr Mehedi Hasan Gdmo haroa
- DM Dr Moumita Das, Asansol DH
- DM Dr Mukul Ray , 2nd MO , Taki RH
- DP Dr Papri Nayak
- DR Dr R N Chakraborty Baranagar ...
- DR Dr Rahul
- DS Dr S K Ray (SMO)
- DS Dr Samapti Pal
- DS Dr Samir kumar Deb
- Dr Santa Chattopadhyay

Invite Mute all

Audio Video Participants 228 Chat 16 React Share Host tools More End

Dr. Mihir Sarkar



DR SWAPAN KR... sayantan mondal

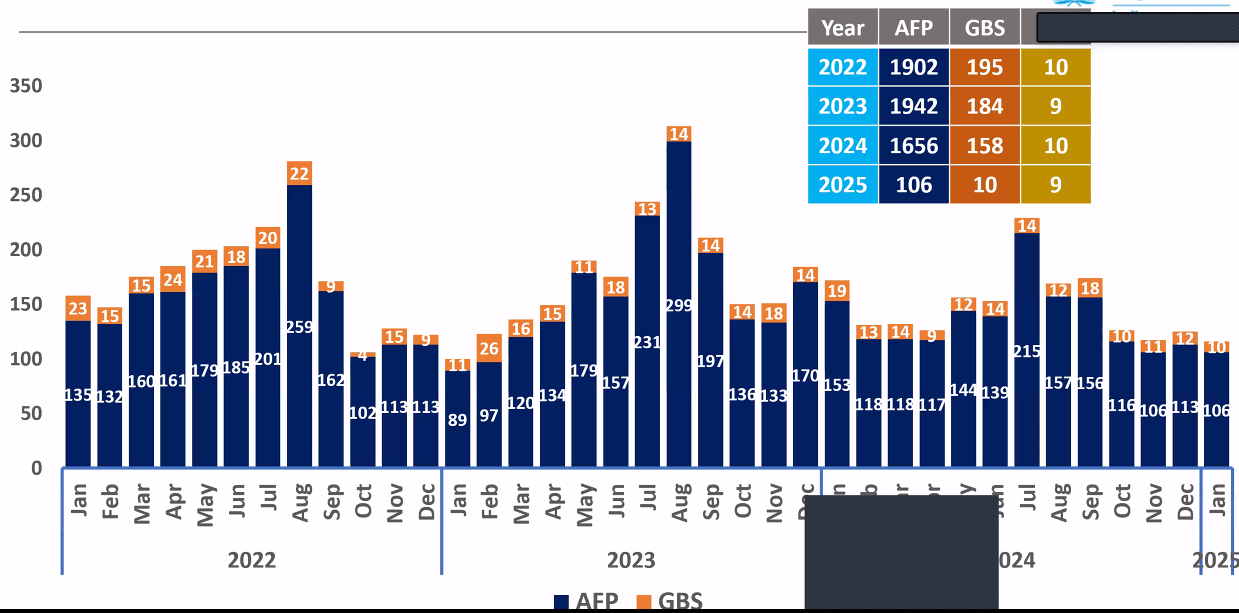
Dr. Mihir Sarkar

Amitabha Sarkar

DR SWAPAN KR RAY

sayantan mondal

AFP & GBS cases under 15 years, WB, 2022-25



Participants (237)

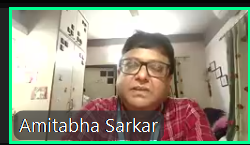
Find a participant

- DM Dr. Mihir Sarkar (Host, me)
- AS Amitabha Sarkar (Co-host)
- Jasodhara Chaudhuri (Co-host)
- 8 82617e68
- A A
- AL A Lahiri
- Aarti Kinikar
- AR Abhijeet Roy
- AS Abhijit Sarkar
- A ACMOH,RNP
- A Adam
- A agnimita.paed@gmail.com

Invite Mute all

Audio Video Participants 237 Chat 19 React Share Host tools More End

Dr. Mihir Sarkar



DR SWAPAN KR... sayantan mondal

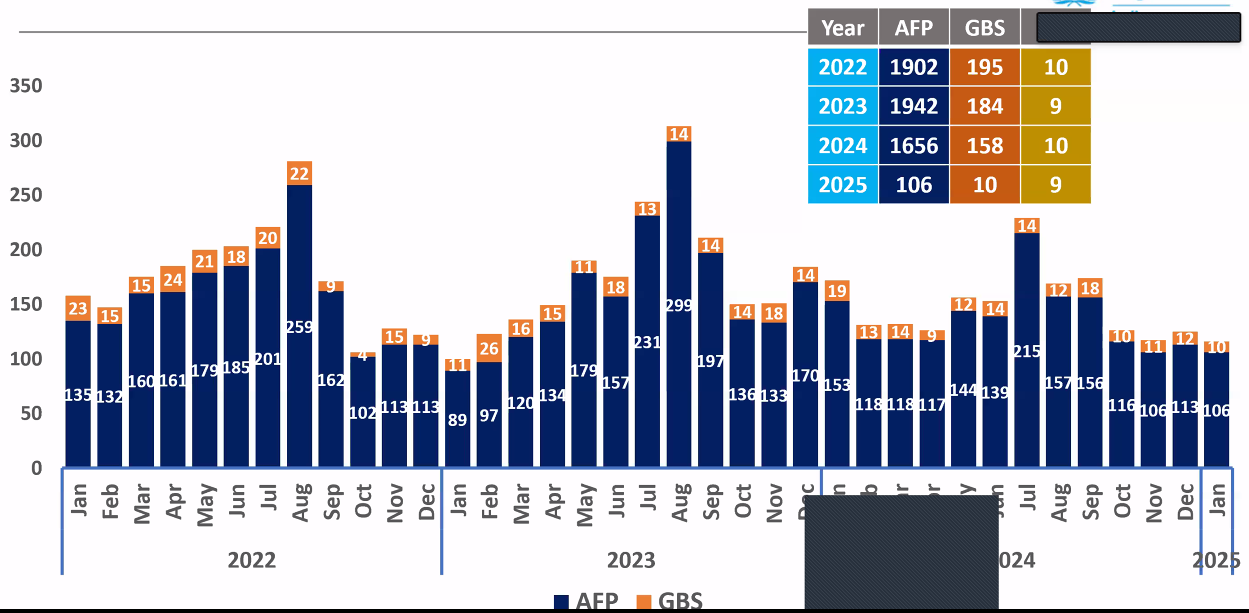
Dr. Mihir Sarkar

Amitabha Sarkar

DR SWAPAN KR RAY

sayantan mondal

AFP & GBS cases under 15 years, WB, 2022-25



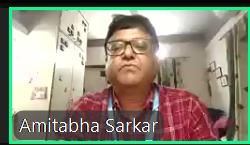
Participants (240)

Find a participant

- DM Dr. Mihir Sarkar (Host, me)
- AS Amitabha Sarkar (Co-host)
- Jasodhara Chaudhuri (Co-host)
- 8 82617e68
- A A
- AL A Lahiri
- Aarti Kinikar
- AR Abhijeet Roy
- AS Abhijit Sarkar
- A ACMOH,RNP
- A Adam
- A agnimita.paed@gmail.com

Invite Mute all

Dr. Mihir Sarkar



DR SWAPAN KR... sayantan mondal

Dr. Mihir Sarkar

Amitabha Sarkar

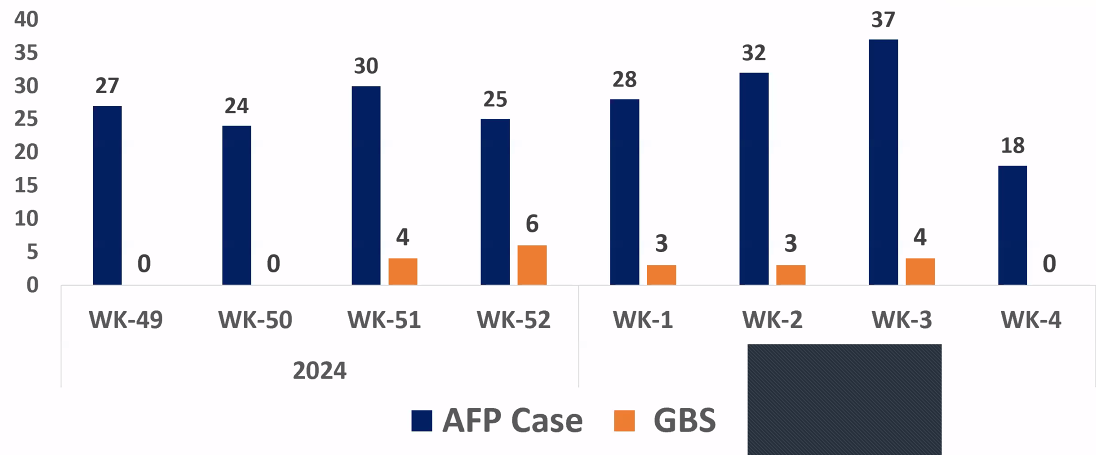
DR SWAPAN KR RAY

sayantan mondal

GBS cases status-Dec 2024 to Jan 2025-West Bengal



Year	WK	AFP cases	GBS
2024	WK no-49-52	106	10
2025	WK no-1-4	115	10



Participants (245)

Find a participant

- DM Dr. Mihir Sarkar (Host, me)
- AS Amitabha Sarkar (Co-host)
- Jasodhara Chaudhuri (Co-host)
- 8 82617e68
- 81 831 1924 8370
- A A
- AL A Lahiri
- Aarti Kinikar
- AR Abhijeet Roy
- AS Abhijit Sarkar
- A ACMOH,RNP
- A Adam

Invite Mute all

Audio Video Participants 245 Chat 19 React Share Host tools More End

Jasodhara Chaudhuri's screen

Dr. Mihir Sarkar
Dr. Mihir Sarkar

Jasodhara Chaudhuri

DR SWAPAN KR RAY

Subhasish Bhattacharyya

- 1 GB Syndrome
- 2 Panelists
- 3 GB Syndrome (Gut-Brain-Axis syndrome)
- 4 What are the Infections Preceding GBS
- 5 Infections Preceding GBS
- 6
- 7 Other Infections Linked to GBS

GB Syndrome

Dr. Jasodhara Chaudhuri
Assistant Professor, Dept. of Neuromedicine
NRS MCH, Kolkata

Participants (248)

Find a participant

- DM Dr. Mihir Sarkar (Host, me)
- Jasodhara Chaud... (Co-host)
- AS Amitabha Sarkar (Co-host)

Invite Mute all

GB Syndrome in pediatric age gr...

ssuidspwb@gmail.com

1

Aarti Kinikar 20:34
Pune cases mainly gastroenteritis

web.whatsapp.com

prabhas prasun giri
Satarupa
via Microsoft Edge



GB Syndrome (Guillain-Barré syndrome)

- Acute inflammatory polyneuropathy.
- Most common cause of acute/subacute generalized paralysis in clinical practice.
- Rapidly progressive, symmetric, ascending weakness (in majority) with areflexia.
- Usually preceded by a mild RTI, GI infection, or immunization 1-3 weeks before the neurologic symptoms.



Audio



Video



Participants 247



Chat



React



Share



Host tools



AI Companion



Apps



More



End

Type here to search



26°C

20:37
02-02-2025

9



Nani Gopal Cha... হাসি বিশ্বাস

Nani Gopal Chakraborty হাসি বিশ্বাস




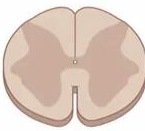

Participants (265)

Find a participant

- DM Dr. Mihir Sarkar (Host, me)
- Jasodhara Chaud... (Co-host)
- AS Amitabha Sarkar (Co-host)
- BK Biman Kanti Ray
- DS DR SWAPAN KR RAY
- SD Sanjoy Dey
- SB Subhasish Bhattacharyya
- 8 82617e68
- A A
- AB A Basu
- AL A Lahiri
- Aarti Kinikar

Guillain-Barré syndrome: Differentials

BKR

Nerve / nerve root	Muscle	Neuromuscular junction	Spinal cord	Higher CNS diseases
				
<ul style="list-style-type: none"> Acute onset CIDP Autoimmune nodopathy Vasculitic neuropathy Haematological malignancy / carcinomatosis with nerve root infiltration Acute infection / HIV seroconversion Acute intermittent porphyria Nutritional (thiamine deficiency) Heavy metals poisoning 	<ul style="list-style-type: none"> Hypokalaemic Periodic Paralysis Acute viral myositis Acute colchicine myopathy 	<ul style="list-style-type: none"> Myasthenia Gravis LEMS Botulism Organophosphate intoxication 	<ul style="list-style-type: none"> Acute transverse myelitis MOGAD-related conus medullaris syndrome 	<ul style="list-style-type: none"> Brainstem stroke Rhombencephalitis Wernicke's encephalopathy

Euro J of Neurology, Volume: 31, Issue: 8, First published: 30 May 2024, DOI: (10.1111/ene.16365)

Invite Mute all