Cases of Generalised Epilepsy in Children

Dr Muhamad Azamin Anuar

20th October 2022

MSN-Sanofi Webinar

Flow of presentation

- 2 cases of childhood seizures
- Diagnostic criteria
- Choice of Treatment
- Take home message
- References

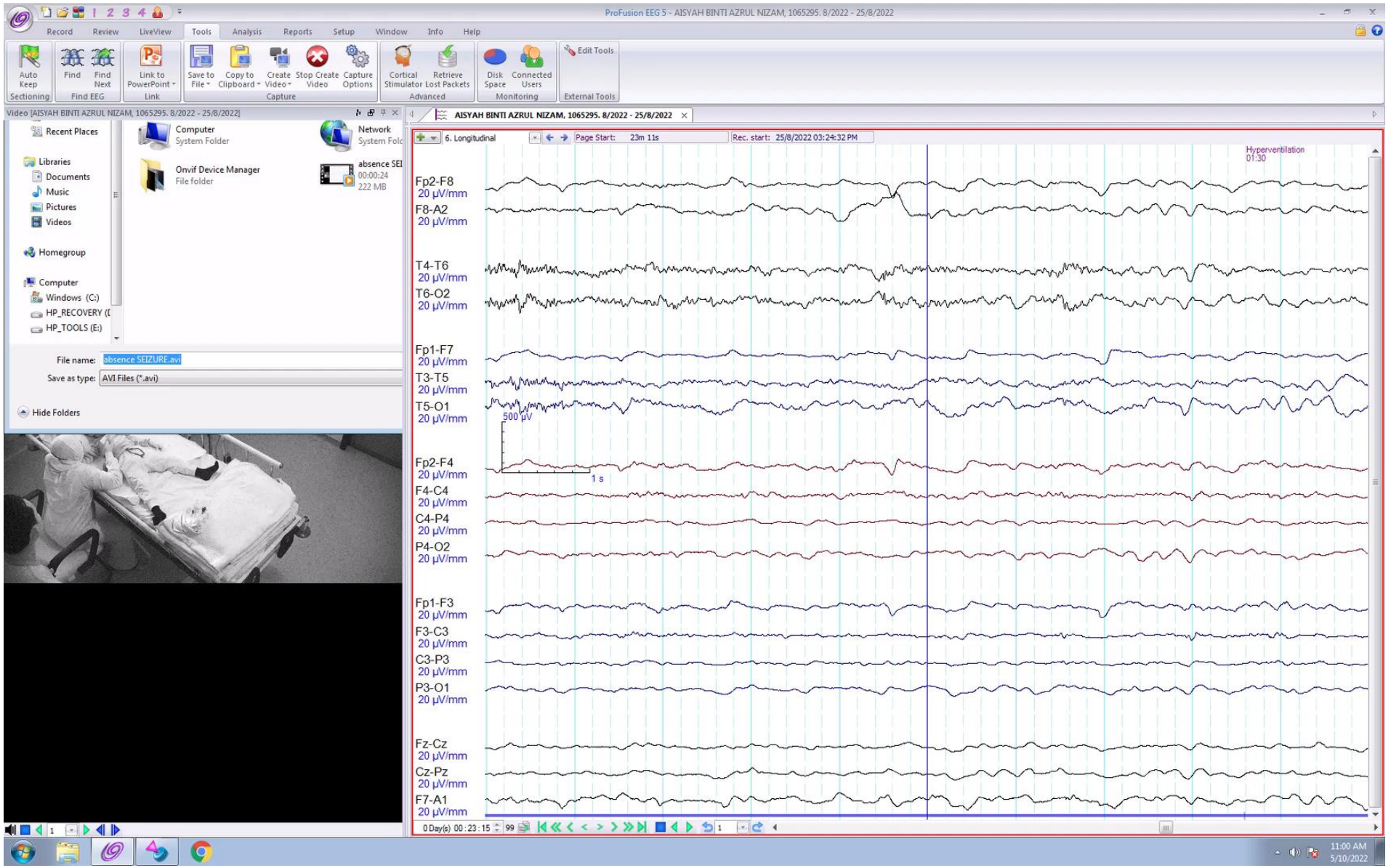
Case 1

- A 5 y/o girl admitted to children ward due to head injury after fallen from a bicycle. She was unable to tell how she fell. During the case clerk-in, the medical officer noted multiple episodes of staring into space.
- She stops abruptly while she was talking for about 10s and then continue her sentence again.
- There was no abnormal movements and her eyes remained open during these episodes
- Mother thought she was daydreaming for past few months

Case 1 cont.

- Other histories and physical examination are unremarkable
- EEG was performed and hyperventilation replicates the episodes

EEG and Hyperventilation



Case 1 cont.

- What is the diagnosis?
- How do you initiate medication? If so, which?
- How would you counsel the family regarding prognosis?

Typical 3Hz epileptic discharges

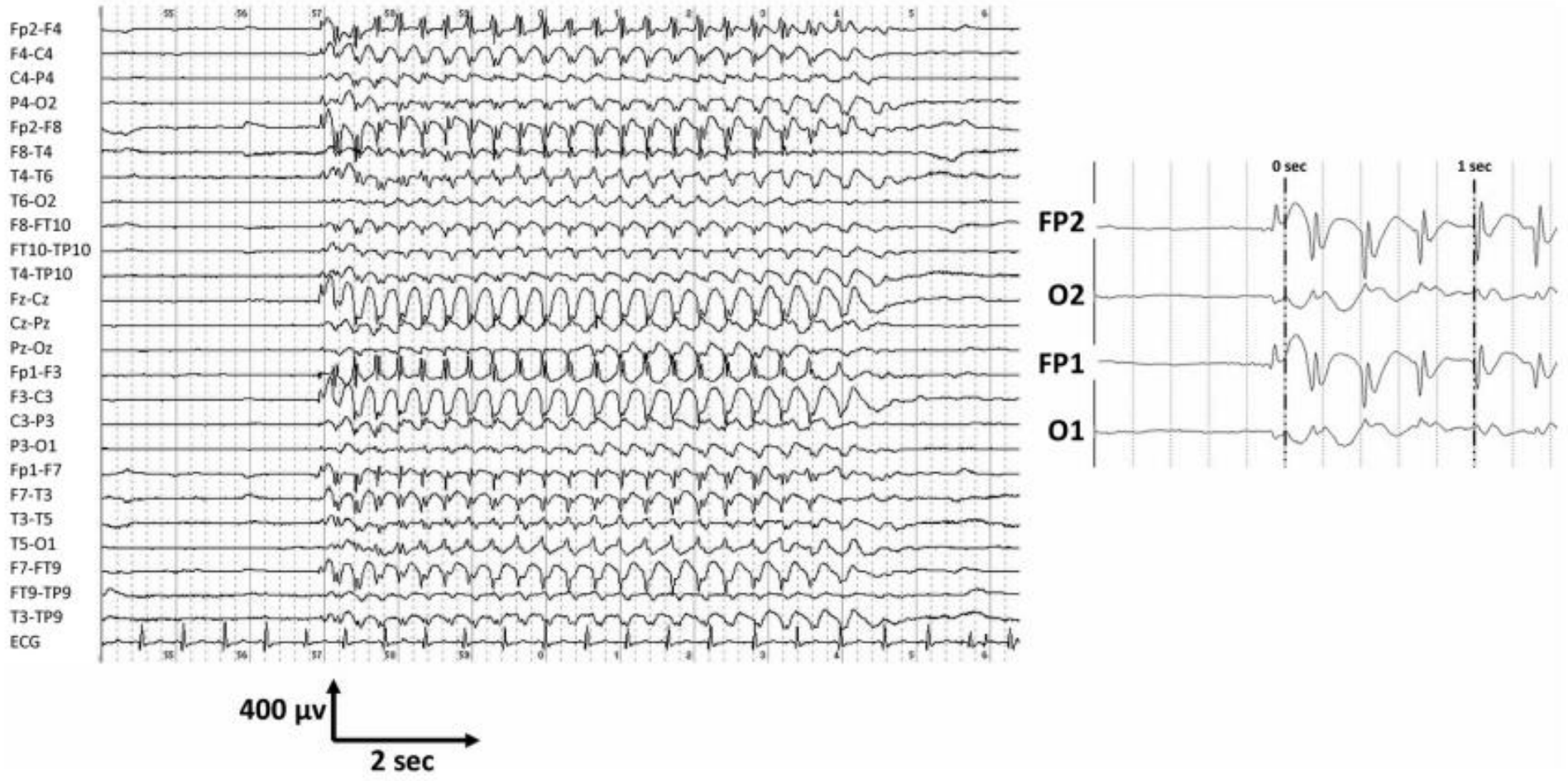


TABLE 3 Diagnostic criteria for CAE

	Mandatory	Alerts[a]	Exclusionary
Seizures	Typical absence seizures	GTCS prior to or during the period of frequent absence seizures Staring spells with typical duration > 30 s or with postictal confusion or fatigue Absences occurring <daily in an untreated patient	Any of the following seizure types: • Prominent myoclonic seizures • Prominent eyelid myoclonia • Myoclonic–absence seizures • Atonic seizures • Tonic seizures • Atypical absence seizures • Focal impaired awareness seizures
Comorbidities			Cognitive stagnation or decline
Imaging		Potentially relevant abnormal neuroimaging, excluding incidental findings (see text)	
Other studies: genetics, etc.			Low CSF glucose and/or *SLC2A1* pathogenic variant (testing not needed in most cases but strongly recommended in children with onset at ≤3 years, microcephaly, and/or intellectual disability)
An MRI is not required for diagnosis. An ictal EEG is not required for diagnosis, provided the interictal study shows paroxysms of 2.5–4-Hz generalized spike-wave discharge during wakefulness. However, most untreated patients will have a recorded absence seizure on routine EEG.			
Syndrome without laboratory confirmation: In resource-limited regions, CAE can be diagnosed in children without alerts who meet all other mandatory and exclusionary criteria, if they have a witnessed typical absence seizure with HV.			
Neurological exam		Potentially relevant neurological examination abnormalities, excluding incidental findings (see text)	

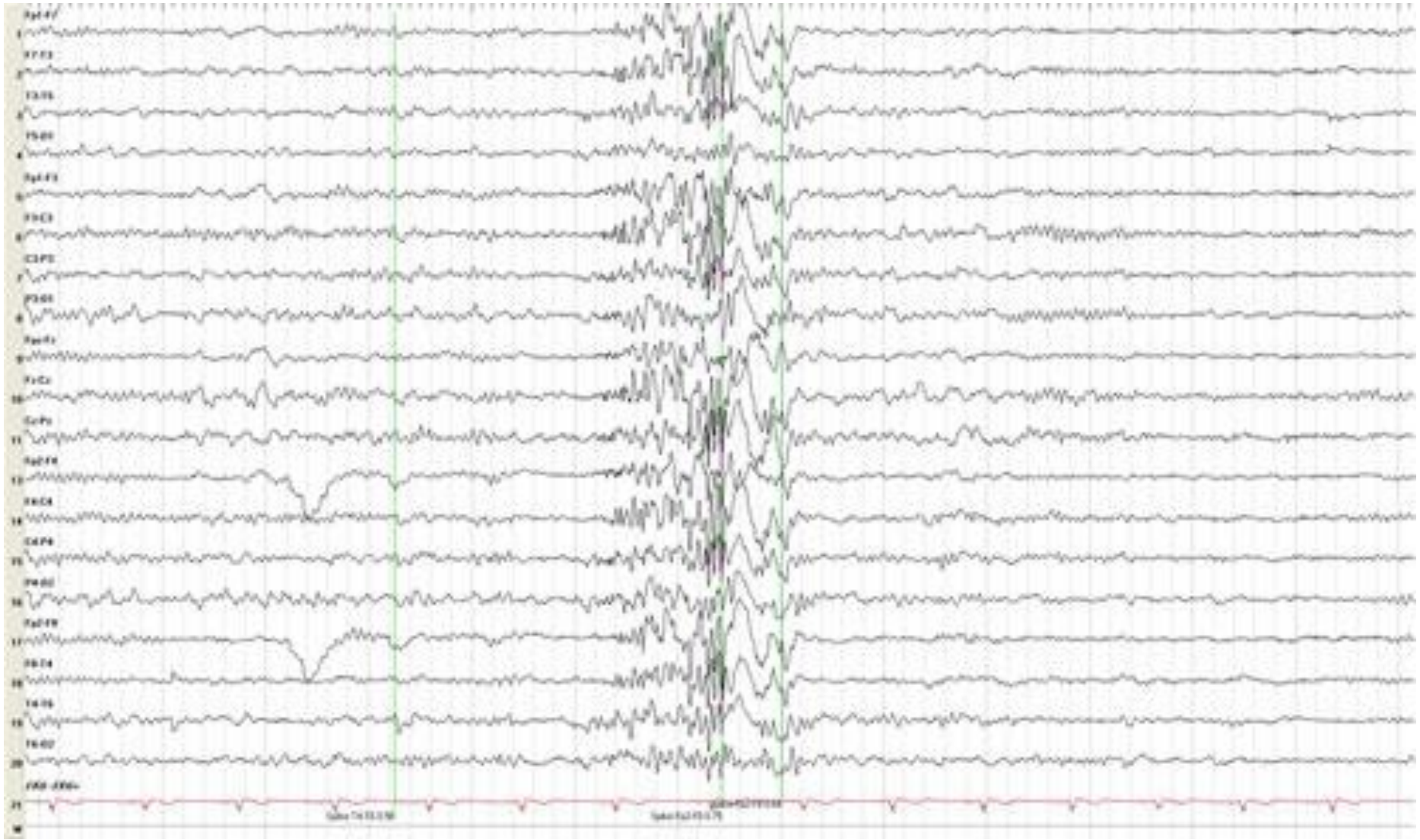
Case 2

- A 12 year old female referred to paeds clinic with involuntary movements of her arms and legs. These movements occur multiple times daily and she could not suppress or predict when they are going to occur
- Recently during COVID-19, she has been spending time of gadget screen and used to sleep late at night and often missed early morning school's PDPR.
- Upon returning to school physically, she had 4 episodes of whole body jerking.

Case 2 cont

- Other histories and examinations were unremarkable
- She is a bright student
- Recent mid-term exam she scores between TP5-6 in all core subjects

EEG



Case 2

- What is the diagnosis?
- How do you initiate medication? If so, which?
- How would you counsel the family regarding prognosis?

TABLE 5 Diagnostic criteria for JME

	Mandatory	Alerts[a]	Exclusionary
Seizures	Myoclonic seizures (see text)	Generalized tonic–clonic status epilepticus Consistent unifocal semiology (i.e., always affecting the same body part on the same side) at onset of generalized tonic–clonic seizures	• Myoclonic–absence seizures • Atonic seizures • Tonic seizures • Atypical absence seizures • Focal impaired awareness seizures • Myoclonus predominantly or
Age at onset		8–9 years or 25–40 years	<8 years or >40 years (CAE may occasionally evolve to JME; in such cases, persons may have onset of absence seizures, but not GTCS or myoclonic seizures prior to age 8 years)
Development at onset		Mild intellectual disability	Moderate to profound intellectual disability
Neurological exam		Potentially relevant neurological examination abnormalities, excluding incidental findings (see text)	
Imaging		Potentially relevant abnormal neuroimaging, excluding incidental findings (see text)	
Course of illness			Progressive cognitive decline Progressive myoclonus with impaired fine motor function
An MRI is not required for diagnosis. An ictal EEG is not required for diagnosis.			
Syndrome without laboratory confirmation: In resource-limited regions, JME can be diagnosed in persons without alerts who meet all other mandatory and exclusionary clinical criteria.			

Choice of treatment

- Sodium valproate is a drug of choice for generalised epilepsy
- It is effective and fairly safe drug
- Contraindications
  - Hyperammonia
  - Porphyria
  - Thrombocytopenia
  - Liver failure

Take home notes

- Meticulous history gives important clues for diagnosis
- EEG is a supporting tool to help categorise seizures into epilepsy syndromes
- Generalised epilepsy has good response to broad-spectrum antiseizure medications
- Having a diagnosis help clinical teams counsel parents for treatment and prognosis

References

- Hirsch E, French J, Scheffer IE, Bogacz A, Alsaadi T, Sperling MR, et al. ILAE definition of the Idiopathic Generalized Epilepsy Syndromes: Position statement by the ILAE Task Force on Nosology and Definitions. Epilepsia. 2022;63:1475–1499. https://doi.org/10.1111/epi.17236
- Epilepsy Foundation https://www.epilepsy.com/
- Epilepsy Society UK https://epilepsysociety.org.uk/about-epilepsy/information-parents/childhood-epilepsy-syndromes
- International League Against Epilepsy https://www.ilae.org/guidelines

Malaysian Society of Neurosciences
Persatuan Neurosains Malaysia

In collaboration with Chapter of Child Neurology & Developmental Paediatrics (CCNDP)

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PAEDIATRIC NEUROLOGY WEBINAR

20th

20th OCT 2022 Thursday

6.00pm to 7.30pm

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PAEDIATRIC NEUROLOGY WEBINAR

Date : 20th October 2022 (Thursday)
Time : 6.00 - 7.30pm

Time	Topic	Speaker / moderator
6:00-6:10pm	Opening	**Asst. Prof. Dr. Muhamad Azamin bin Anuar** Paediatric Neurology fellow Hospital Tunku Azizah, Kuala Lumpur
6:10-7:00pm	Childhood Generalized Epilepsy Syndromes- An Overview of Management	**Assoc. Prof. Dr. Wong Sau Wei** Head of Department and Senior Consultant Paediatric Neurologist Hospital Canselor Tuanku Muhriz Universiti Kebangsaan Malaysia (HCTM, UKM)
7:00-7:10pm	Cases of Generalized Epilepsy in Children	**Asst. Prof. Dr. Muhamad Azamin bin Anuar** Paediatric Neurology fellow Hospital Tunku Azizah, Kuala Lumpur
7:10-7:25pm	Q&A	**All**
7:25-7:30pm	Closing Remarks	**Asst. Prof. Dr. Muhamad Azamin bin Anuar** Paediatric Neurology fellow Hospital Tunku Azizah, Kuala Lumpur

SPEAKERS' BIO

Asst. Prof. Dr. Muhamad Azamin bin Anuar

Born in Kota Bharu, Dr Azamin earned his medical degree from the Queen's University Belfast, United Kingdom. Upon graduation, he worked with the National Health Service (NHS) UK as Foundation Doctor and Senior House Officer in various clinical specialties. He went on to train to become a general paediatrician in Northern Ireland and Yorkshire especially Leeds Children's Hospital where he spent 18 months in Children's Neurosciences Service. He obtained his Membership of the Royal College of Paediatrics and Child Health in 2016 and returned to Malaysia to join IIUM Kuantan Campus in 2018 as Paediatric Clinical Lecturer. He is now a fellow trainee in Paediatric Neurology and has garnered more experience from his time in Hospital Raja Perempuan Zainab II Kota Bharu and Hospital Tunku Azizah Kuala Lumpur. He has pioneered epilepsy clinic in SASMEC IIUM and managing paediatric patients with neurological problems. He has research output in infantile onset epilepsy and COVID-19 related neurological manifestations.

Assoc. Prof. Dr. Wong Sau Wei

Associate Prof Dr Wong Sau Wei is a senior consultant paediatric neurologist in Hospital Canselor Tuanku Muhriz Universiti Kebangsaan Malaysia (HCTM, UKM) and Head of Neurology Unit in Department of Paediatrics, HCTM UKM. He graduated from the University of Malaya in 1994. After obtaining the MRCPCH (UK) certificate, he completed clinical paediatric neurology fellowship in Royal Hospital of Sick Children, Edinburgh and joined UKM in 2002. He is actively involved in the management and research of various conditions in paediatric neurology. He has successfully supervised training of both local and international fellow in paediatric neurology. He is currently examiner of Conjoined Master of Paediatrics examination and sits in the National Specialist Registry committee for credentialing of a paediatric neurologist. He is the secretary of the Epilepsy Council of Malaysia, council member of the Chapter of Child Neurology and Developmental Paediatrics of the Malaysian Society of Neurosciences and past national delegate of the Asian and Oceanian Child Neurology Association. He is also actively involved in organizing local and international conferences and has been invited to speak at numerous conferences and workshops.

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Unit TB-18-1, Level 18, Tower B, Plaza 33,
No. 1 Jalan Kemajuan, Seksyen13, 46200 Petaling Jaya,
Selangor Darul Ehsan, Malaysia.
Tel: 03-76510800 Fax: 03-76510801/0802
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sanofi-aventis Singapore Pte Ltd
38 Beach Road #18-11 South Beach Tower
Singapore 189767
Tel: (65) 6226 3836 Fax: (65) 6535 5836

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17th October 2022

Asst Prof Dr Muhamad Azamin bin Anuar
Universiti Islam Antarabangsa Malaysia J
alan Sultan Ahmad Shah,
Bandar Indera Mahkota,
25200 Kuantan, Pahang

Dear Asst. Prof Azamin,

RE: Invitation as a Speaker for Paediatric Neurology Webinar on 20th October 2022

As part of our company's committed effort to work with our healthcare professionals in their continuing medical education and to deliver innovative medicines to patients, Sanofi would like to invite Asst Prof Dr. Muhamad Azamin bin Anuar as chairperson and speaker to give your expertise in the field of paediatric neurology, we would like to invite you to speak for Cases of Generalized Epilepsy in Children on 20th October 2022.

The details of the engagement are as per below:

Topic: Cases of Generalized Epilepsy in Children

Date: 20th October 2022

Time: 6.00 – 7.30pm

Venue: Virtual Webinar

We would be honoured if you would accept this invitation to be our speaker for this event.

Looking forward to your favourable reply. Thank you.

Should you require any clarifications, please do not hesitate to contact Ms Rachel Tan at mobile +60167179720 or Rachel.Tan@sanofi.com.

Yours sincerely,

Rachel Tan
Product Manager
Established Products of Malaysia & Singapore
Rachel.Tan@sanofi.com