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Dear Dr. Muhamad Azamin Anuar
This letter is to certify that, as the chair of the Annual Meeting of the Japanese Society of Child Neurology, I have invited Dr.Muhamad Azamin Anuar as a speaker in the International Session of the Annual Meeting of Japanese Society of Child Neurology, which shall be held from June 2-5, 2022 in Takasaki, Japan. It is expected to be a very productive meeting with fruitful discussions by presenting the research results.

Sincerely yours

山内 秀雄

Hideo Yamanouchi, MD
Chair, Annual Meeting of the Japanese Society of Child Neurology
<https://www.c-linkage.co.jp/jscn64/en/index.html>
Professor, Child Neurology and Pediatrics,
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The Predicting Factors in Outcomes of Infantile-Onset Epilepsies: A Single Centre Study

Abstract

Epilepsy has a high incidence in the first year of life and its course is highly variable. There are limited study on infantile onset epilepsy, excluding infantile spasms, in terms of prognostic factors in outcome measures. Therefore, we aimed to describe the seizure control, developmental outcome and prognostic factor in a single centre study. Methods: Data of patients with seizure onset before the age of 12 months and followed up more than 2 years, were retrieved from electronic patient records of Hospital Raja Perempuan Zainab II. The patients' records were retrospectively reviewed and clinical outcomes were assessed based on the last follow-up. Results: Of the 75 patients, 60 (80%) have seizure good seizure control or entered remission. Twenty-five (33.3%) were found to have developmental delay at the last follow-up and 17/32 (53.1%) have abnormal neuro-radiological findings. Onset of seizures before 8 months old, present of delay development at presentation and abnormal radiological findings were likely associated with poor seizure control ($p<0.05$). Conclusions: This study demonstrated that most patient with infantile epilepsy can achieve seizure remission. There are factors that contributed to poor seizure control and associated with developmental delay. Infantile onset epilepsies might require extensive resources and precision intervention for better outcome.

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【The 64th Annual Meeting of the Japanese Society of Child Neurology】
Result of Abstract Submission

Abstract submission number	Abstract number	Date	Start Time	End Time	Room	Session Title	Last name	First Name	Name of Institution	Presentation Title
10369	EO-032	June 3	9:20	10:20	Room 6	Neurogenetic Disorders	Lee	Vanessa Wan Mu	Department of Paediatrics, Hospital Tunku Azizah, Kuala Lumpur, Malaysia	Atypical presentation of Primary HLH:Unlocking diagnosis through the brain, eye and genetics
10037	EO-033						Takano	Takako	Department of Child Health, Tokyo Kasei University, Tokyo, Japan	Acampomelic campomelic dysplasia due to a translocation involving chromosome 17q upstream of SOX9
10183	EO-034						Lim	Weikang	Department of Paediatrics, University of Malaya, Kuala Lumpur, Malaysia	Novel mutations in two cases of complicated hereditary spastic paraplegia (HSP) in children
10470	EO-035						Ajihara	Sayaka	Departments of Pediatrics, Saitama Medical University, Saitama, Japan	A boy of Cornelia de Lange syndrome 2 originally suspected to have MOPD.
10483	EO-036						Mahalingam	Malini	Paediatric Neurology Unit, Department of Paediatrics, Penang General Hospital, Penang, Malaysia.	Early infantile stroke as a manifestation of Deficiency of Adenosine Deaminase 2 (DADA2).
10448	EO-037						Prasad	Asuri N.	Division of Pediatric Neurosciences, Department of Pediatrics, London Health Sciences Centre, London, Ontario, Canada	Long-term follow-up of primary neurotransmitter disorders- single centre experience (2004-2021)
10345	EO-038	June 3	10:40	11:30	Room 6	Epilepsy 1	Hashiguchi	Marina	Department of Pediatrics, Jichi Medical University, Shimotsuke, Tochigi, Japan	Severe developmental and epileptic encephalopathy due to SCN8A A1491V variant with citrin deficiency
10509	EO-039						Aksu Uzunhan	Tugce	Department of Pediatric Neurology, Prof. Dr. Cemil Tascioglu City Hospital, Istanbul, Turkey	A homozygous novel variant in SCN1A gene associated with genetic epilepsy with febrile seizures plus
10263	EO-040						Nishioka	Kazuki	Department of Neurosurgery, Epilepsy Center, Juntendo University, Tokyo, Japan	Extent of leptomeningeal capillary malformation causes severity of epilepsy in Sturge-Weber syndrome
10385	EO-041						Tomonori	Ono	Epilepsy Center, National Nagasaki Medical Center	Developmental rate is highly accelerated within the first year after epilepsy surgery in children.
10504	EO-042						Shah	Harshuti	department of pediatric neurology, Rajvee Hospital,Ahmedabad,Gujarat,India	Utility of Oxcarbazepine for Neonatal Seizures
10473	EO-043	June 3	13:00	14:00	Room 6	Epilepsy 2	Anuar	Muhamad Azami	Department of Paediatrics, International Islamic University Malaysia	The predicting factors in infantile-onset epilepsies: a single center study
10190	EO-044						Ueda	Yuki	Department of Pediatrics, Hokkaido University Hospital, Sapporo, Japan	Adrenal function during long-term ACTH therapy for developmental and epileptic encephalopathy
10001	EO-045						Omatsu	Hiroo	National epilepsy center, NHO Shizuoka Institute of Epilepsy and Neurological Disorders, Shizuoka, Japan	A case of inherited GPI deficiency diagnosed with flow cytometry of peripheral blood cells
10496	EO-046						Mohamed	Ahmad R	Department of Paediatrics, Hospital Tunku Azizah Kuala Lumpur, Malaysia	Late-stage pontosubicular neuron necrosis in a term infant operated for refractory epilepsy
10478	EO-047						Nishiguchi	Reiko	Department of Medical Affairs, Invitae Corp., California, USA	Genetic testing and epilepsy Management: An int'l study of clinical practice and patient outcomes
10047	EO-048						Syuanyu	Hong	Division of Pediatrics Neurology, China Medical University, Children's Hospital, Taichung, Taiwan	Association Between Kawasaki Disease and Childhood Epilepsy: A Nationwide Cohort Study in Taiwan
10031	EO-049	June 3	14:20	15:10	Room 6	Neuroimage	Furukawa	Gen	Department of Pediatrics, Fujita Health University School of Medicine, Toyoake, Japan	A whole-brain quantitative susceptibility mapping analysis for children with febrile seizures
10231	EO-050						Tahara	Mayu	Department of Pediatrics, The Jikei University School of Medicine, Tokyo, Japan	Developmental changes in brain activity of heterozygous Scn1a knockout rats
10086	EO-051						Iwayama	Hideyuki	Department of Pediatrics, Aichi Medical University, Nagakute, Japan	Regional Difference in Myelination in Monocarboxylate Transporter 8 Deficiency
10500	EO-052						Wang	Hsin-Pei	Department of pediatrics, national Taiwan university hospital Yun-Lin branch, Yun-Lin, Taiwan	Iron deposition in the brain of Rett syndrome patients
10365	EO-053						Nabetani	Makoto	Department of Pediatrics, Yodogawa Christian Hospital, Osaka, Japan	Molecular imaging (PET and SPECT) for children with HIE and cerebral palsy – a review –
10460	EO-054	June 3	15:30	16:10	Room 6	Neurometabolic Disorders 2	Tsukida	Kiwako	Jichi Medical University	Iron Metabolism in SENDA/BPAN, an Autophagy Disease Due to WDR45 Variants
10270	EO-055						Eto	Yoshikatsu	Southern Tohoku Institute of Neuroscience, Kawasaki, Japan	Neuronal cell pathology from induced pluripotent stem cells of Fabry disease and Niemann Pick C
10410	EO-056						Kojima	Karin	Department of Pediatrics, Jichi Medical University, Shimotsuke, Tochigi, Japan	Long-term efficacy of gene therapy for AADC deficiency using AAV2-AADC vector
10168	EO-057						Yoshida	Noboru	Juntendo University Nerima Hospital	The effect of valproate for carnitine serum concentration in epilepsy patients
10257	EO-058	June 3	16:30	17:10	Room 6	Other Neurological Disorders	Mujgan	Arslan	Suleyman Demirel University Medical Faculty, Department of Pediatrics, Division of Pediatric Neurology Isparta, Turkey	Vertigo in childhood: how to evaluate vertiginous children?
10249	EO-059						Castro	Anna Dominique	Section of Child Neurology and Developmental Medicine, University of Santo Tomas Hospital, Manila, Philippines	SARS-CoV-2 neurotropism in a 12-year-old Filipino boy with focal encephalitis
10384	EO-060						Matsubara	Azusa	Department of Pediatric Neurology, Bobath Memorial Hospital, Osaka, Japan	Relationship between brain MRI findings and long-term outcomes in patients with AESD
10447	EO-061						Teng	Lipyuen	Hospital Tunku Azizah, Kuala Lumpur, Malaysia	Geniospasm: Like grandfather, like father, like son

Japanese English
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Factors Influencing Outcomes in Infants with Seizure Onset in First Year of Life: A Single Centre Study

Dr Muhamad Azamin Anuar
3rd June 2022
Paediatric Neurology Fellow
MALAYSIA

Disclosure

- No conflict of interest to declare in this study and presentation

Content of Presentation

- Introduction
- Methods
- Definitions
- Results & Discussion
- Limitations

Introduction

- Epilepsy has a high incidence in the first year of life compared to later childhood.
- Unlike infantile spams, epilepsy syndrome in infancy needs more epidemiology study, aetiology, associated conditions, treatment and prognosis.
- Hospital-based setting reported up to 38% children achieving normal development while population-based study reported 47% with normal cognition.
- We seek if we can ascertain prognostic factors of developmental outcome and seizure control in this study.

Methods

- A single centre study: Hospital Raja Perempuan Zainab II (HRPZII)
- Patients diagnosed with seizures aged 1-12 months from 1st January 2015 until 31st December 2020
- Excluding infantile spasms and neonatal seizures
- Imaging and EEG had been reviewed by paediatric neurologist
- Data analysis using SSPS version 23. Numerical data presented as frequency and percentages. Categorical data comparison performed by chi-square test and $p<0.05$ is considered significant

Results and Discussion

- Clinical characteristics
- Factors associated with seizure control
- Factors associated with developmental outcome

Demographics

- 75 patients enrolled in this study
- Age of seizure onset:
  - Mean 6.6 months (sd 3.3)
  - Median 6 months

- Analytical factors for seizure control and developmental outcome:
  - Age of seizure onset, background EEG, epileptiform discharges, seizure types, type of therapy and neuroimaging

Clinical Characteristics

Characteristics	N (%)
Age of seizure onset	
1 – 6 months	40 (53.3)
7 – 12 months	35 (46.7)
Gender	
Male	40 (53.3)
Female	35 (46.7)
Seizure type	
Focal	31 (41.3)
Myoclonic	8 (10.7)
Non-focal	36 (48)
Background EEG	
Normal	**61 (81.3)**
Abnormal	14 (18.7)
Neuroimaging	
Normal	**17 (48.6)**
Focal abnormality	9 (25.7)
Diffuse abnormality	9 (25.7)

Characteristics	N (%)
Family history	
No	**46 (61.3)**
Yes	29 (38.7)
Type of Therapy	
Monotherapy	**63 (84)**
Polytherapy	12 (16)
Seizure control	
Good control	**60 (80)**
Poor control	15 (20)
Developmental outcome	
Normal	**55 (73.3)**
Abnormal	20 (26.7)

Factors associated with seizure control

Characteristics	Seizure control		
	Controlled / Remission	Poor control	P value
Age of onset			0.069
1 – 6 months	28 (46.7)	**12 (80)**	
7 – 12 months	32 (53.3)	3 (20)	
Seizure type			0.551
Focal	**24 (42.9)**	4 (21)	
Myoclonic	2 (3.6)	4 (21)	
Non-focal	30 (53.8)	11 (58)	
Background EEG			0.61
Normal	**55 (55.6)**	8 (53.3)	
Abnormal	5 (11.1)	7 (46.7)	

Characteristics	Seizure control		
	Controlled / Remission	Poor control	P value
Epileptiform discharges			0.048
Normal	**30 (57.7)**	8 (32)	
Focal	19 (36.5)	6 (24)	
Multifocal/generalised	3 (5.8)	6 (24)	
Polyspikes/PFA	0	3 (12)	
Type of therapy			<0.001
Monotherapy	**58 (96.7)**	5 (33.3)	
Polytherapy	2 (3.3)	**10 (66.7)**	
Neuroimaging			0.036
Normal	**12 (63.2)**	5 (31.25)	
Focal abnormality	3 (15.8)	6 (37.5)	
Diffuse abnormality	4 (21)	5 (31.25)	

47/75 of good seizure control/remission associated with normal developmental outcome, p <0.001

Factors associated with Developmental Outcome

Characteristics	Developmental Outcome		
	Normal	Abnormal	P value
Age of onset			0.13
1 – 6 months	21 (38.2)	**13 (65)**	
7 – 12 months	34 (61.8)	7 (35)	
Seizure type			0.033
Focal	22 (44)	4 (16)	
Myoclonic	4 (8)	4 (16)	
Non-focal	24 (48)	**17 (68)**	
Background EEG			0.010
Normal	**55 (55.6)**	8 (53.3)	
Abnormal	5 (11.1)	7 (46.7)	

Characteristics	Developmental Outcome		
	Normal	Abnormal	P value
Epileptiform discharges			0.008
Normal	**27 (55.1)**	6 (23.1)	
Focal	**19 (38.8)**	10 (38.5)	
Multifocal/generalised	3 (6.1)	7 (26.9)	
Polyspikes/PFA	0	3 (11.5)	
Type of therapy			<0.001
Monotherapy	**48 (87.3)**	5 (25)	
Polytherapy	7(12.3)	**15 (75)**	
Neuroimaging			0.036
Normal	**10 (83.3)**	5 (25)	
Focal abnormality	2 (16.7)	6 (30)	
Diffuse abnormality	0	9 (45)	

47/75 has normal developmental outcome had good seizure control/remission, p<0.001

Highlights

- Good seizure control associated with good developmental outcome
- Good predictors in our cohort: focal seizure type, monotherapy and normal EEG and normal imaging
- No family history of seizure/epilepsy associated with poor developmental outcome indicate possible de novo genetic mutation. Lack of resources for extensive genetic study. Having opportunity to do this would add further value to our cohort.

Conclusion

- This study demonstrated that most patient with infantile epilepsy can achieve seizure remission.
- Main factors (focal seizure type, monotherapy and normal background EEG) that contributed to good seizure control and associated with normal development.
- Infantile onset epilepsies might require extensive resources i.e. genetics and precision intervention for better outcome.

Reference

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