



Feasibility of the ILAE Recommendations of Maintenance Anti-Seizure Medication in Neonates with Hypoxic Ischemic Encephalopathy: An LMIC Perspective



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INTRODUCTION

- Hypoxic-ischemic encephalopathy (HIE) is a significant cause of neonatal brain injury. These neonates may experience seizures soon after birth, requiring Anti-seizure-medications (ASM's).
- ILAE recommends stopping the anti-seizure medications, following cessation of acute symptomatic seizures in these neonates, regardless of EEG and MRI brain findings.

OBJECTIVES

- To assess HIE neonates for seizure recurrence after discharge.
- To assess the development of epilepsy and the developmental outcome in these neonate in a 24 months follow-up.

MATERIAL AND METHODS

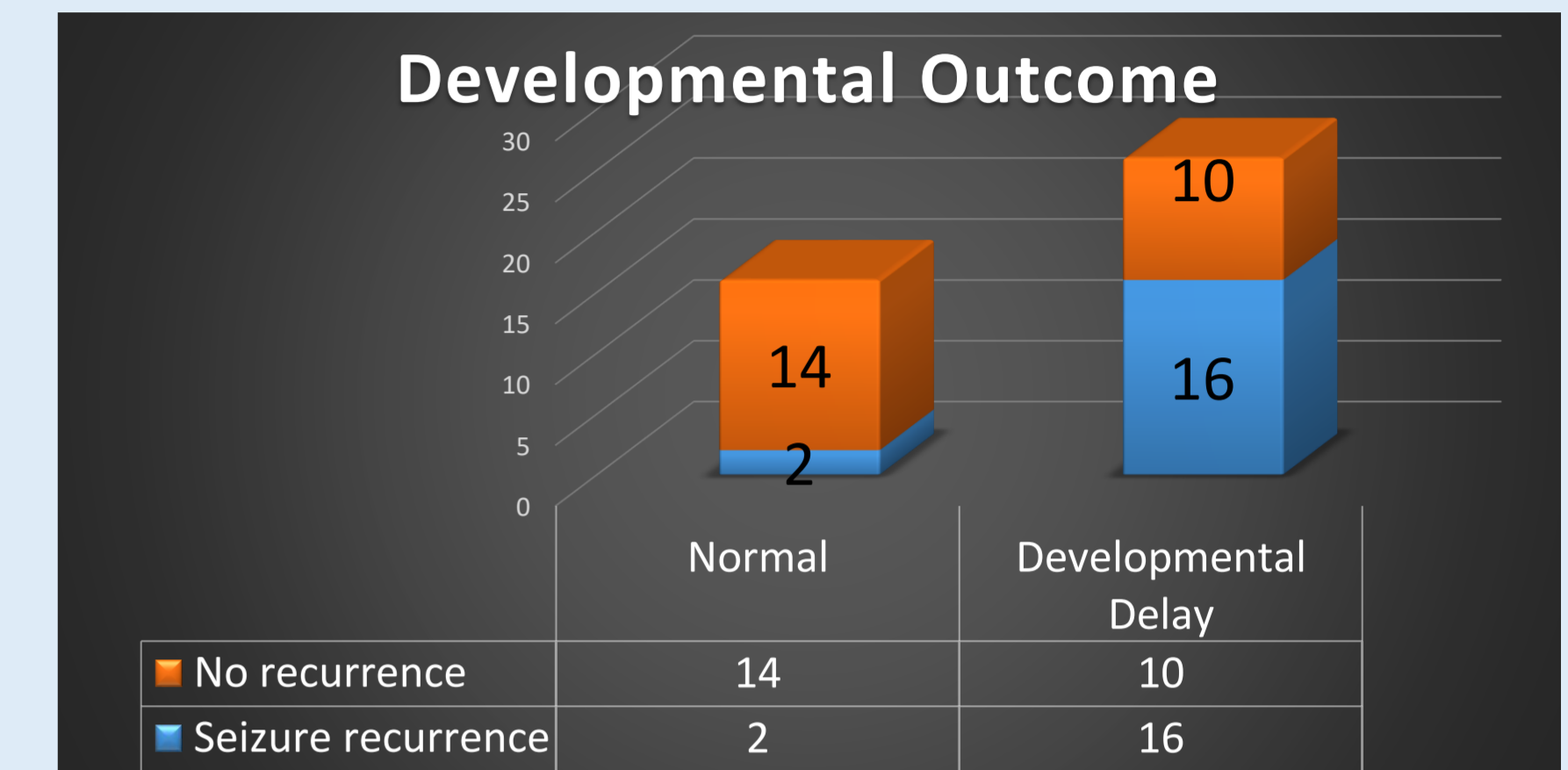
- Retrospective study, from **January 1, 2016, to December 31, 2022.**
- All neonates with the diagnosis of HIE were included and severity was classified on the basis of Sarnat Scale.
- Those having Seizures in hospital and survived to discharge were followed for seizures recurrence.
- Time of seizures recurrence was measured from the date of first discharge from NICU.
- Neonates were classified as epileptic if they had seizure recurrence in the follow-up period.
- Neonates were assessed for development on follow-up visits.

RESULTS

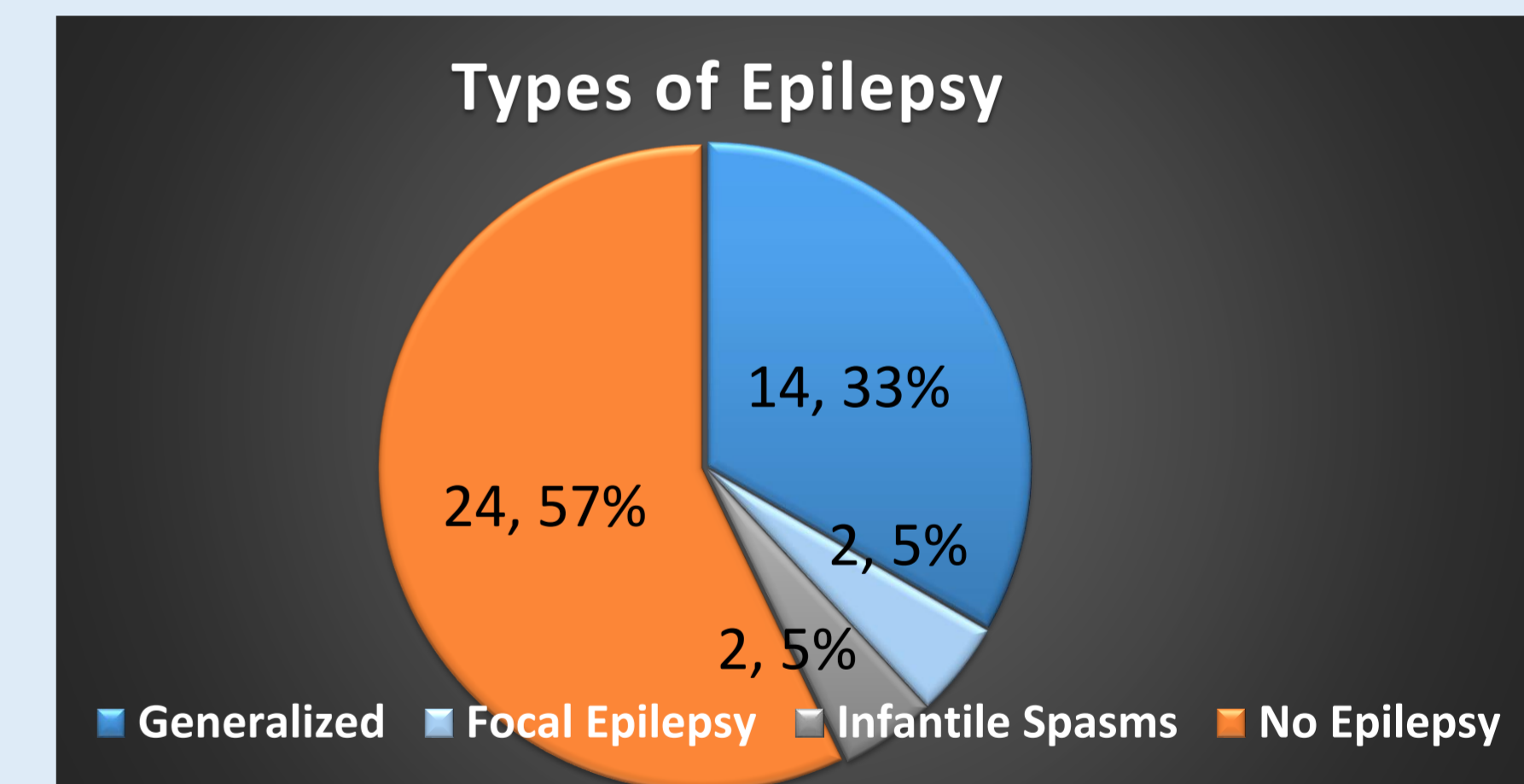
- Out of 182 term neonates with HIE, 83 neonates (45.60 %) experienced seizures during their hospital stay. Sixty-five (65/83) neonates survived to discharge.
- Of these 65 moderate HIE were 67.69% and severe HIE were 32.31%,. Twenty-three neonates were lost to follow-up. A final cohort of 42 neonates were followed for a mean duration of 667 days (22.3 months).
- Seizures recurrence occurred in **18 neonates** (18/42 [42.85%]) after discharge, and the median time of recurrence was **195 days (Range: 26-1270).**
- Univariate regression analysis showed that **prolonged hospital stay** and neonates requiring **more than one ASM for Initial seizure control**, as significant risk factors for seizure recurrence.

Characteristics N=42	Risk for Seizure recurrence		Univariate	
	Yes n=18 (42.8%)	No n=24 (57.2%)	OR(CI)	p-value
Gender (%)			Ref	
Males	12 (42.86%)	16 (57.14%)		
Females	6 (42.86%)	8 (57.14%)	1(0.27,3.66)	0.999
Length of stay (days) median(IQR)	6.00 (5.00-12.00)	6.00 (4.50-8.00)	1.18(0.99,1.41)	0.058
Severity HIE (%)				
Moderate	12 (41.38%)	17 (58.62%)	Ref	
Severe	6 (46.15%)	7 (53.85%)	1.21(0.33,4.53)	0.773
MRI Brain Findings (%)				
Normal	9 (42.86%)	12 (57.14%)	Ref	
Abnormal	9 (42.86%)	12 (57.14%)	1(0.3,3.4)	0.999
No; of ASM's required for seizure control, median(IQR)	1.00 (1.00-2.00)	1.00 (1.00-1.00)	5.08(1,25.73)	0.049

RESULTS



- Developmental delay was a major concern in the majority of the neonates in recurrence cohort vs in the non-recurrence cohort (88.88% [16/18] vs 41.66% [10/24]), and the difference was statistically significant (**p=0.05**)



- Forty-two percent (18/42) developed epilepsy in their 24-month follow-up period.

CONCLUSION

- Hypoxic ischemic encephalopathy in neonates is more severe in the low-middle-income countries(LMICs), therefore challenges remain in implementing the ILAE guidelines regarding stopping of ASMs at the time of discharge in low-middle-income countries.