Long-term Outcome of patients with Neonatal Hypoglycaemic Brain Injury: A Retrospective Study

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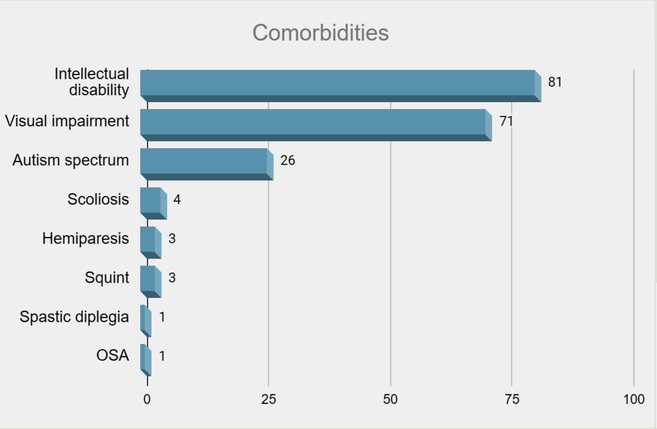
INTRODUCTION

- Neonatal hypoglycaemic brain injury (NHBI) : common entity in developing countries
- Incidence: Around 33% in high risk conditions[1] (small/large for age, preterm or diabetic mother)
- Threshold value of plasma glucose : <47 mg/dl from 3hrs to 72 hrs of life and <54 mg/dl beyond that.[2]
- NHBI diagnosed by characteristic MRI changes (Parieto-occipital gliosis) and compatible neonatal history with /without documented hypoglycaemia
- Varied well described clinical presentation : Developmental delay, epilepsy, visual disturbances
- Limited information regarding long term outcome of NHBI

OBJECTIVES

Determining the long term outcome in NHBI in following domains:

- Seizure burden, Anti seizure medication burden and adverse effects, Activities of daily living (ADL),Motor function ,Comorbidities ,cognition & education

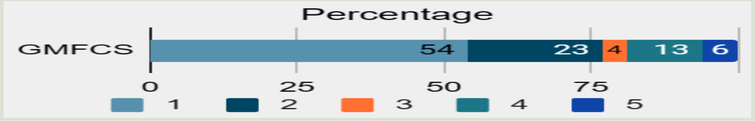


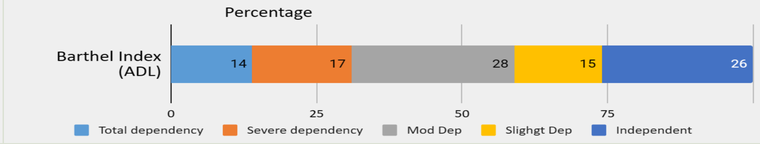
MATERIALS & METHODS

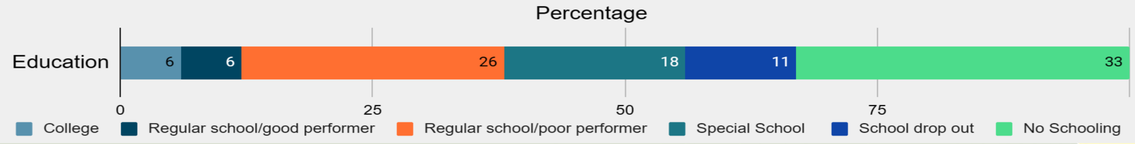
- Study Type & duration: Retrospective cohort study; study commenced in Jan 2023 –March 2024
- Ethical clearance taken, Informed consent waived off
- Inclusion Criteria: Definite NHBI patients with epilepsy; minimum 5yrs follow up after epilepsy onset
- Exclusion Criteria: Poor /irregular follow up, adequate medical records unavailable, not willing/ unable to participate in interview
- NHBI patients attending clinic b/w 2008 to March 2024 were retrospectively followed up
- Validated scales used: Barthel Index for ADL, Gross motor functional classification System (GMFCS), Clinical global impression improvement scale (CGI-I), age appropriate IQ scales
- Data Collection: Combination of medical record review, interview and examination; Data analyzed by Microsoft Excel Version 2021
- Qualitative variables expressed as number and percentage while quantitative variables as median/SD

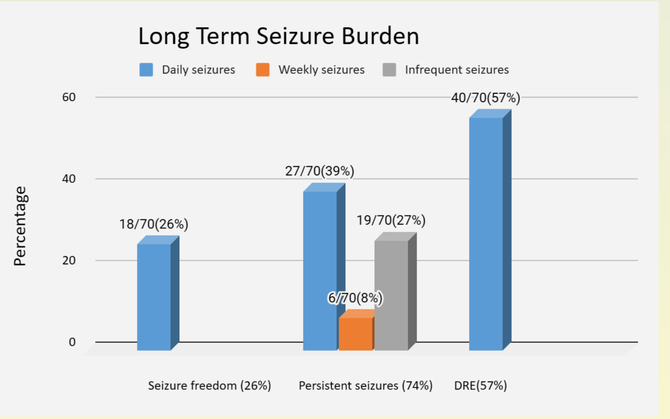
RESULTS

- Sample Size(n): 70
- Median age of study population: 13 ± 4.6 yrs (6yr 2 mo -24 yrs) ; Male 83%, Female 17%
- Median duration of follow up: 11.5 ± 4.6 yrs (5-22 yrs)
- 96% patients survived while 4% succumbed to the illness; Median age of death: 10±3.68 yrs (8.5-15.5 yrs)
- Median age of epilepsy onset: 1±1.9 yrs (2 mo-11 yrs)
- Long term seizure burden: Seizure freedom: 26 %; Persistent seizures: 74%, DRE: 57%
- Common long term seizure semiology: Drop attacks (46%), focal non motor(31%), Focal motor(17%)
- Median duration of seizure freedom: 2±2.18 yrs(6 mo-9yrs)
- Median anti seizure medication exposure: 4 ±1.89; Adverse effects noted : 28% (most common :skin rash)
- Medication (ASM) discontinuation successfully possible: 4% patients
- Median duration of ASM free period :2 ± 2.8 yrs (6 mo-6 yrs)
- CGI-I improvement (1-3) from baseline: Seizures (64%), cognition (64%), ADL(53%)









CONCLUSION

- NHBI is common but essentially preventable condition
- Awareness about long term impact expands spectrum of disease burden
- Very few long term outcome study in NHBI till date.[3,4]
- Epilepsy(DRE), poor cognition and ADL dependency is common with relative sparing of gross motor functioning
- High ASM burden, discontinuation possible in only a few
- ID, visual impairment, and autistic spectrum disorder: common co-morbidities
- Focus on primary prevention & multidimensional long term care for affected patients : Need of the hour

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