Assessing Risk for Relapse Among Children with Infantile Spasms Using the Based Score After ACTH treatment: A Retrospective Study

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Supplementary Materials

The supplementary materials include the following figures and tables: Figure S1, …

Table S1. Cox regression analysis of relapse risk factors in children with infantile spasms (72 cases) who achieved short-term response.
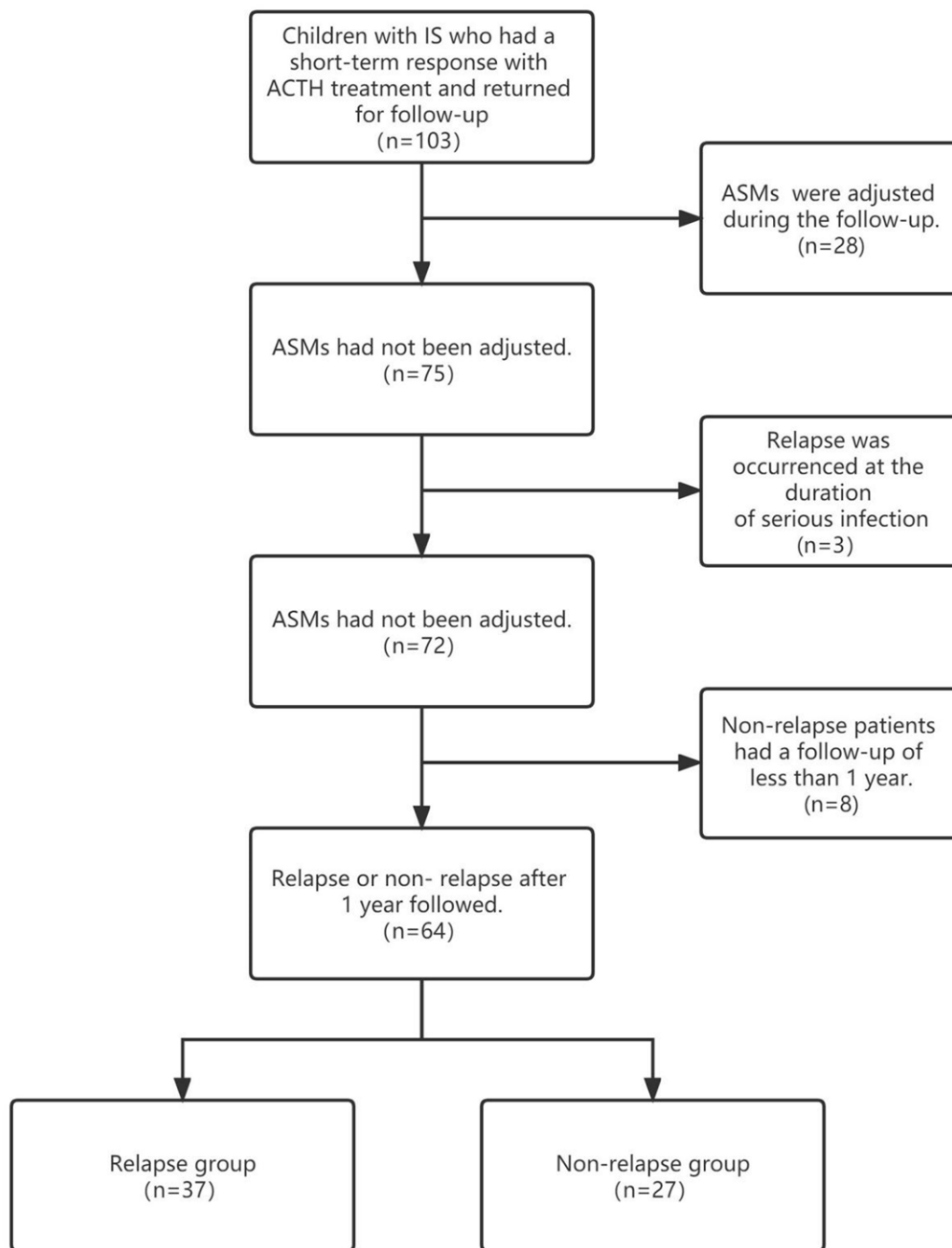
Model 1: Univariate cox regression analysis.

	HR	95% Confidence interval for hazard ratio		P
		Lower	Upper	
Gender (Male/Female)	0.73	0.37	1.46	0.38
Presence of hypsarrhythmia before ACTH treatment	0.54	0.26	1.15	0.11
Pathogenic structural abnormalities on MRI	0.85	0.39	1.85	0.68
Definitive etiology	1.5	0.78	2.86	0.22
Number of ASMs	1.47	0.93	2.31	0.098
VPA exposure history	2.18	1.14	4.17	**0.018**
TPM exposure history	0.84	0.3	2.38	0.75
VGB exposure history	0.46	0.06	3.33	0.44
Hormonal therapy history	1.09	0.43	2.81	0.85
Presence of hypsarrhythmia after ACTH treatment	3.09	1.27	7.53	**0.013**
Interval from onset to receive ACTH treatment	1.1	1.01	1.2	**0.026**
Age at spasms onset	0.39	0.99	1	1.04
Frequency of spasms	1	0.99	1	0.39
Dosage of ACTH	0.76	0.35	1.68	0.5
BASED score	1.54	1.27	1.88	＜**0.001**
Model 2： Multivariate cox regression analysis				
Presence of hypsarrhythmia after ACTH treatment	2.09	0.76	5.73	0.2
VPA exposure history	1.85	0.87	3.94	0.11
Interval from onset to receive ACTH treatment	0.97	0.87	1.09	0.7
Presence of hypsarrhythmia before ACTH treatment	0.66	0.25	1.71	0.4
Number of ASMs	1.41	0.84	2.38	0.2
BASED score	1.5	1.2	1.87	＜**0.001**

Note: Bold P value is statistically significant; data are expressed as number, mean standard deviation, or median (range).

Abbreviations: ACTH, Adrenocorticotropic Hormone; ASM, anti-seizure medication; BASED, Burden of AmplitudeS and Epileptiform Discharges; TPM, topiramate; VGB, vigabatrin; VPA, valproate.

**Figure S1. Flow chart of screening of the subjects.**

Children with IS who had a short-term response with ACTH treatment and returned for follow-up (n=103)

ASMs were adjusted during the follow-up. (n=28)

ASMs had not been adjusted. (n=75)

Relapse was occurrenced at the duration of serious infection (n=3)

ASMs had not been adjusted. (n=72)

Non-relapse patients had a follow-up of less than 1 year. (n=8)

Relapse or non- relapse after 1 year followed. (n=64)

Relapse group (n=37)

Non-relapse group (n=27)

Abbreviations: ASMs, anti-seizure medicines；IS, infantile spasms; ACTH, Adrenocorticotropic hormone

Figure S2. Multivariate Cox regression analysis of relapse risk factors in children with infantile spasms (64 cases) who achieve a short-term response.
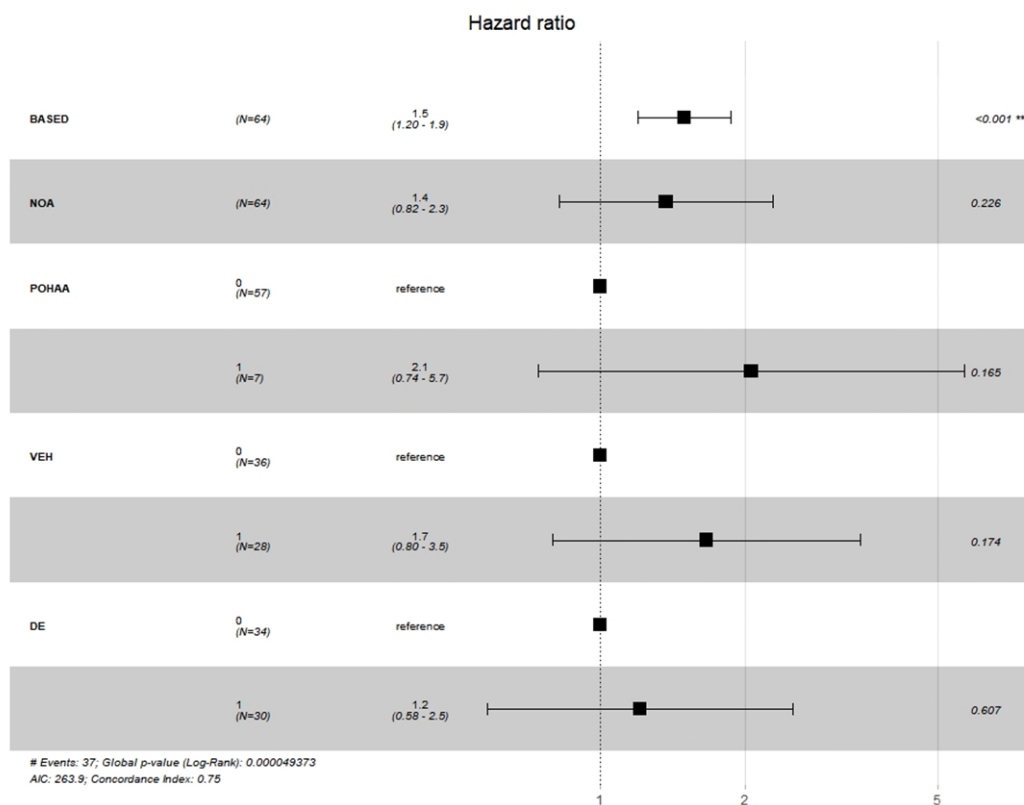

Abbreviations: DE, Definitive etiology； NOA, Number of anti-seizure medication； POHAA, Presence of hypsarrhythmia after ACTH； VEH, VPA exposure history=VEH

Figure S3. Multivariate Cox regression analysis of relapse risk factors in children with infantile spasms(72 cases) who achieve a short-term response.
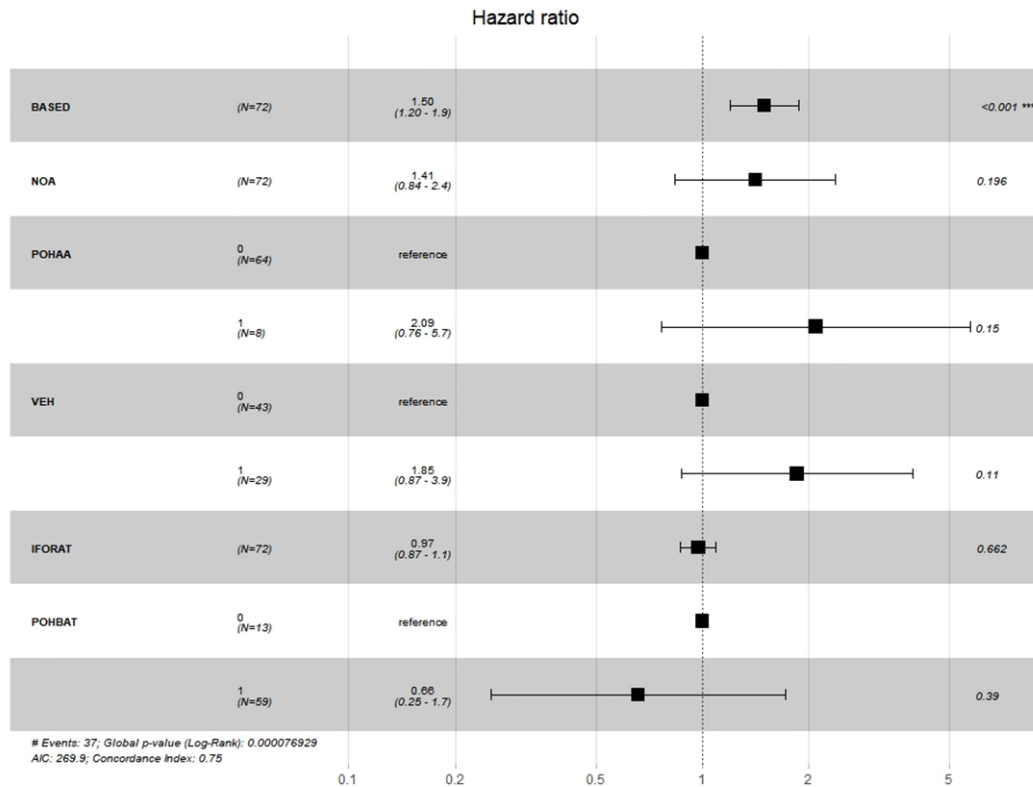
Abbreviations: IFORAT, Interval from onset to receive ACTH treatment；NOA, Number of anti-seizure medication；POHAA, Presence of hypsarrhythmia after ACTH；VEH,VPA exposure history=VEH； POHBA, Presence of hypsarrhythmia before ACTH

Figure S4. Kaplan–Meier (KM) survival curves for the patients with a short-term response after ACTH treatment (n=72).
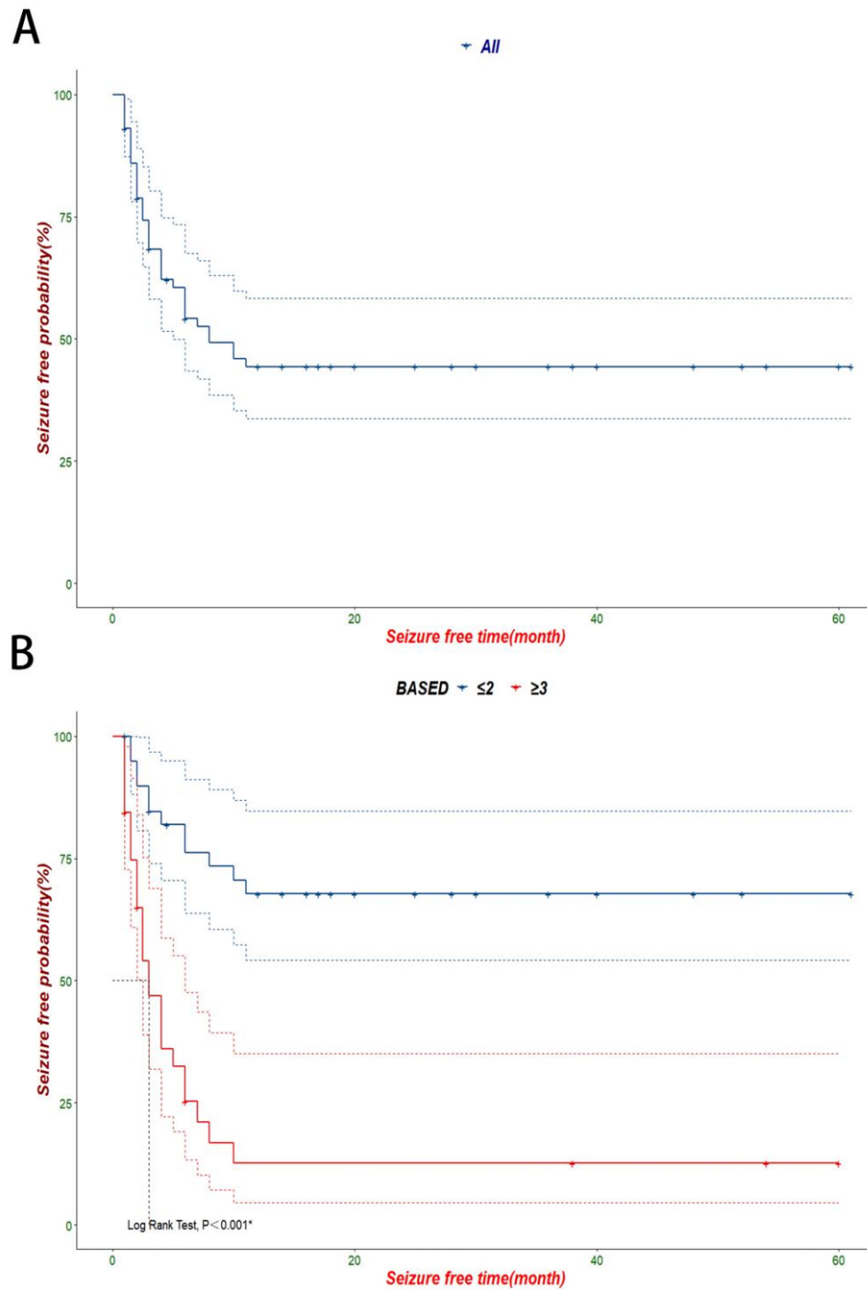
A. Survival curves for the patents with short-term response after ACTH treatment.

B. b.Survival curves with a cutoff value of BASED score (≥3 or ≤2)for the patents with shorterm-response after ACTH treatment.

Figure S5. Pipeline of the EEG-based functional connectivity states analysis

EEG Waveform

Functional Connectivity Matrix

silhouette criterion

K-means Clustering

Functional Connectivity Patterns

Statistical Analysis

p = 0.000446