THE INVOLVEMENT OF AUTOIMMUNE SYSTEM IN PEDIATRIC INTRACTABLE EPILEPSY

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INTRODUCTION

Epilepsy in children is a prevalent neurological disorder that can pose serious risks. The involvement of the autoimmune system is a significant factor in the pathogenesis of the disease. The N-methyl-D-aspartate-receptor (NMDAR) is a glutamate receptor and ion channel present in neurons and is associated with the mechanism of autoimmune epilepsy.

OBJECTIVES

This study aims to compare the levels of NMDAR auto antibodies in children with intractable and non-intractable epilepsy.

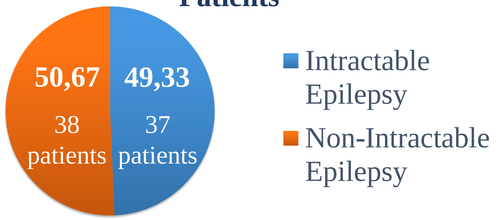
MATERIALS AND METHODS

- A prospective analytic study was conducted from June to September 2022 at Dr. Soetomo General Academic Hospital, Surabaya.
- The study sample consisted of patients aged 1 month to 18 years diagnosed either with intractable epilepsy or non-intractable epilepsy and receiving anti-epileptic drug therapy.
- The patients were divided into two groups, namely intractable epilepsy and non-intractable epilepsy.
- The NMDAR autoantibody levels were determined using enzyme-linked immunosorbent assay (ELISA).

  Sensitivity of the assay : <0.938 ng/ml
- Statistical analysis employed the chi-squared and Wilcoxon-Mann-Whitney test.

RESULTS

Patients



I. Correlation between NMDAR autoantibody levels in children with intractable epilepsy and those with non-intractable epilepsy

		Intractable Epilepsy (n (%))	Non-Intractable Epilepsy (n (%))	P
NMDAR autoantibody	Positive	32 (41.3)	25 (33.4)	0.127
	Negative	6 (8)	13 (17.3)	

II. Comparison of NMDAR autoantibody levels in children with intractable and those with non-intractable epilepsy

NMDAR autoantibody (ng/ml)	Intractable Epilepsy	Non-Intractable Epilepsy	P
Range	0.58-43.72	0.37-65.08	0.157
Median	6.49	4.53	

III. Correlation between seizure frequency and NMDAR autoantibody positivity in children with intractable epilepsy and those with non-intractable epilepsy

		NMDAR Autoantibody		P	C
		Positive (n (%))	Negative (n (%))		
Seizure frequency	Often	25 (69.4)	11 (30.6)	0.002	0.360
	Seldom	12 (30.8)	27 (69.2)		

IV. Correlation between the number of administered antiepileptic drugs and NMDAR autoantibody positivity in children with intractable epilepsy and those with non-intractable

		NMDAR autoantibody		P
		Positive (n (%))	Negative (n (%))	
Antiepileptic drug therapy	Monotherapy	16 (61.5)	10 (38.5)	0.064
	Polytherapy	41 (83.7)	8 (16.3)	

CONCLUSION

The NMDAR autoantibody levels were numerically but not significantly higher in children with intractable epilepsy compared with children with non-intractable epilepsy

REFERENCES

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