STUDY OF THE RELATION BETWEEN LONG NON-CODING RIBONUCLEIC ACID SNHG16 AND VITAMIN D STATUS IN JUVENILE MYOCLONIC EPILEPSY EGYPTIAN PATIENTS

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Introduction

Epilepsy is a neurological disease characterized by recurring unprovoked seizures which seriously affect daily activities, physical and mental health of epileptic patients. Epilepsy affects people of all ages, races, social classes.

Despite considerable progress in clinical and preclinical epilepsy research, the pathophysiology of epilepsy remains an open question.

LncRNAs are a heterogeneous group of non-coding RNA molecules that can perform a wide range of molecular and cellular functions by employing various modes of action. LncRNAs regulate the expression of pro-inflammatory and anti-inflammatory cytokines in the CNS. SNHG16 is a newly identified oncogene that has been shown to regulate certain inflammatory pathways.

Several studies suggest that vitamin D3 raises the threshold of chemically induced seizures and suppresses epileptic activity by reducing the expression of certain proconvulsant cytokines in addition to its anti-inflammatory role in the CNS.

Aim of the work

The aim of the present work was to study the relation between lncRNA SNHG16 and vitamin D3 status in juvenile myoclonic epilepsy Egyptian patients.

Subjects and Methods

Subjects: The study was conducted on 45 subjects subdivided into three groups:

Group I: included 15 patients diagnosed as juvenile myoclonic epilepsy on valproate.

Group II: included 15 patients newly diagnosed as juvenile myoclonic epilepsy and didn't receive any antiepileptic treatment before.

Group III: included 15 healthy age- and sex-matched volunteers as a control group.

Methods: **1-** Measurement of serum lncRNA SNHG16 by quantitative real-time reverse transcriptase-polymerase chain reaction (qRT-PCR).

2- Determination of serum 25 OH vitamin D level by ELISA technique.

Results

Serum level of SNHG16 expression was significantly downregulated in patients on valproate and drug naïve patients compared to healthy subjects with better performance in male when compared to female cases with a higher sensitivity and specificity.

Although there was no statistically significant difference in vitamin D status among the studied groups, vitamin D was correlated with disease control and at a cut-off point of 20.6 ng/ml, it could discriminate patients with low seizure frequency from those with higher seizure frequency. There was a no statistically significant correlation between serum SNHG16 and serum level of 25 OH vitamin D.

Table: Validity (AUC, sensitivity, specificity) of serum lncRNA SNHG16 to discriminate cases (n = 30) from control (n = 15)

Total sample	AUC	p	95% C.I	Cut off#	Sensitivity	Specificity	PPV	NPV
Serum lncRNA SNHG16	0.829*	<0.001*	0.688 –0.970	≤0.38#	73.33	93.33	95.7	63.6

AUC: Area under a curve
CI: Confidence intervals
NPV: Negative predictive value
*: Statistically significant at p ≤ 0.05
#Cut off was choose according to Youden index
p value: Probability value
PPV: Positive predictive value

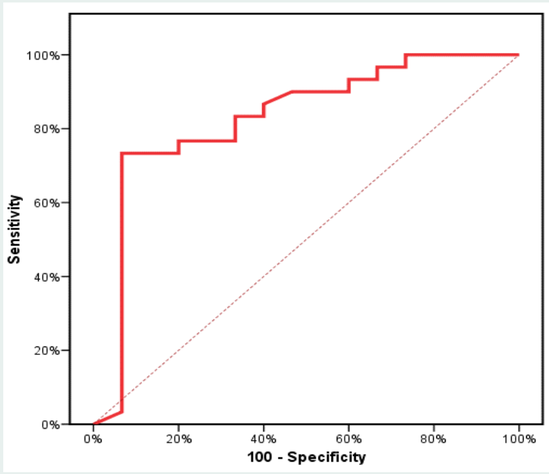

Figure : ROC curve for serum lncRNA SNHG16 to discriminate cases (n = 30) from control (n = 15)

Conclusion

- Relative expression of serum lncRNA SNHG16 may have a diagnostic role in juvenile myoclonic epilepsy.
- Serum levels of 25 OH vitamin D can predict seizure control in juvenile myoclonic epilepsy patients receiving valproate.