IMPACT: International Journal of Research in Engineering & Technology (IMPACT: IJRET)
ISSN(E): 2321-8843; ISSN(P): 2347-4599
Vol. 4, Issue 2, Feb. 2016, 25-36

STUDY THE ASSOCIATION OF DAT1 GENE POLYMORPHISMS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER IN SAMPLE OF IRAQI PRIMARY SCHOOL CHILDREN

SHATHA Q. JAWAD[1], AMINA N. AL-THWAINI[2] & SALWA SH. ABDUL-WAHID[3]

[1]Assistant Professor, Department of Basic Science, College of Dentistry, Baghdad University, Iraq

[2]Professor, Immunogenic, Institute of Bio-Technology and Genetic, Pakistan

[3] Assistant Professor, Community Medicine, Diyala Faculty of Medicine, Diyala. Iraq

ABSTRACT

Summary

Attention Deficit Hyperactivity Disorder is a multifactorial disorder which results from combination of environmental and genetic factors. If children with ADHD are identified early and appropriate interventions are made the problem is likely to be mitigated.

The study was carried out to determine the frequencies of ADHD among Iraqi primary school pupils, and recognize the role of3UTR-VNTR of*DAT1* genein ADHD.

The study sample included 1431 school pupils (777) males, and (654) females with age ranged between 8-12 years, selected from nine primary schools, at Baquba city. Revised version of RCBQ has been used as a means for identification of children with ADHD and prosocial (control).Genetic investigation were performed for Variable Number Tandum Repeats of 3UTR*DAT*polymorphysimsand the sequencing carried out in BioScience company (Nottingham,UK), association between ADHD and alleles was tested by odd ratio, the magnitude of this association was estimated by 95% confidence interval.

The results revealed that 16.8% (241/1431) of those pupils have ADHD of combined type, males to females ratio was 2.2:1. This disorder was distributed highly among the age group 10-12years. Out of 241 ADHD pupils, 118 (49%) suffer ADHD of combined type comorbid with aggressive symptoms, 65.3% (77/118) of them were males and 34.7% (41/118) were females.The VNTR ranged between 3 to11 repeat, six alleles were identified 3,7,8,9,10 and 11R, while 4,5,6 R not found in this study. There was highly significant increase in the frequency of 10 R allele that found in 30%, 16% of ADHD and control groups respectively (OR=0.412, $p<0.01$), also there was highly significant increases in the frequency of the genotype 9/10 among ADHD group (OR=1, $p<0.01$), which showed significant association as a risk effect, while 9R and 10/11 genotype was highly significant increased in control group (OR=1, $P<0.01$), revealed significant association as a protective effect.

Conclusion: The frequency of ADHDsymptoms among primary school children in Baquba city is high and appear in males more than females.This study showed that 10R and 9/10 genotype of *DAT1* 3'UTR significantly associated with ADHD while 11R and 10/11R genotype significantly associated with normal control children.

KEYWORDS: Gene Polymorphisms, Iraqi Primary School