Evaluation of Serum Oxytocin Hormone Level in Children with Autism

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Abstract

Background: Autism spectrum disorder (ASD) is a gathering of complex neuro-improvement issue portrayed by repetitive and characteristic patterns of behavior and difficulties with social correspondence and cooperation.

Aim: to study oxytocin levels in the serum of children with autism and its relation with disorder..

Patients and Methods: Across-section study was carried out at Pediatric Hospital- Kirkuk-Iraq in a period between the 10th of Jan 2019 30th July 2019. 55 children with autism and 25 healthy children, with the same age group, were subjected to this study. Biochemical tests were done for estimation of serum Oxytocin hormone levels in children with autism and comparing them with serum OT hormone levels in control group.

Results: The results showed that there was a significant ($P< 0.05$) decrease in the levels of serum Oxytocin hormone in children with autism which declined to 69.67 ± 10.122 Pg/ml as mean values among children with autism when compared with same parameters in control children which was 108.44 ± 4.33 Pg/ml.

Conclusion: It was concluded that children with autism disorder have lower serum level of oxytocin hormone than normal healthy children.

Keywords: *Autism, Oxytocin Hormone, Children.*

Introduction

The term autism is derived from the Greek word (autos) which means (self). It was introduced in 1910 by the Swiss psychiatrist Eugen Bleuler with schizophrenia to describe the withdrawal of schizophrenic patients into their fantasies [1]. Autism spectrum disorder (ASD) refers to a group of complex neuron development disorders. The term "spectrum" refers to the wide scope of signs portrayed by difficulties with social skills, repetitive behaviors, speech and nonverbal communication difficulty building friendships appropriate to their age, changes in their environment. "...Because autism is a spectrum disorder, every individual with this disorder has a particular arrangement of qualities and difficulties. Some individual with ASD may require noteworthy help in their every day lives, while others may require less help. Signs no ASD are typically recognized at age range between 2 and 3 years of age and affect daily functioning [2,3] .

In 2018, Centers for disease control and prevention (CDC) increases estimate of autism's prevalence by 15 percent, to1in 59 children [4,5].

The new estimate represents a 15 percent increase in prevalence nationally: to1in 59 children, from1 in 68 two years, previous ASD prevalence in Qatar is consistent with recent international studies.

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The incidence of ASD in many undeveloped countries families with low or-middle income is so far unknown. Based on epidemiological studies conducted over the past 50years, the prevalence of ASD appears to be increasing globally. There are many possible elucidations for this obvious rise, including improved alertness, development of diagnostic criteria, better analytic instruments, improved reporting and increasing the number of population [6]. And it is known no racial, ethnic or social boundaries. autism's occurrence does not affected by income of the family, lifestyle and knowledge [7].

There are no settled pharmaceutical methodologies that adequately treat social shortages in mental imbalance range issue (ASD).Autism spectrum disorder (ASD) has emerged as one of the most prevalent and poorly unexplained disorders of our time. Now, the etiology of autism stays poorly illuminated. This is because there are no recognized medical policies that successfully treat social debits in ASD [8].

Oxytocin, a neurohormone that assumes a role in various sorts of social practices, has been proposed as a potential helpful against social debilitation and different indications in ASD [9] . Oxytocin (OT) has been Oxytocin (OT) has been involved to play a significant role in causes of autism due to its effects on emotional and social behavior[10-12] . The present study aimed to find out the serum oxytocin hormone level in children with Autism and to Clarify relationship of serum levels of oxytocin hormone in children.

Material and Methods

Study Population:

Across-section study was carried out in Kirkuk City between 10th of January 2019 to 30th July 2019. 55 children (from both sex) admitted to Pediatric Hospital-Kirkuk-Iraq with autism were subjected to this study. Their ages ranged between 3 and13years . 25 healthy children with same age group were also subjected to the study as a control.

Sampling:

Three ml of venous blood was collected from each patient by vein puncture . The Blood sample was placed into the gel tube and left for 30 minutes at 37ºC for clotting then were centrifuged at 3000 rpm for 10 minutes to separate serum from clot. The sera were obtained and transferred into a clean test tube and stored in a deep freeze at -20ºC for later biochemical testing .

Oxytocin hormone level in serum of the patient estimated by using the Enzyme - linked Immune assay technique (ELISA- Biotech - U.S.A.). using kit biorbyt-U.S.A.

Results

Both the autistic group and control group were categorized into two

Subgroups according to their age, as shown in the table -1. Results of our study showed that there were differences between the levels of OT hormone in autistic children group (69.67 ± 10.12pg/mL) and the control group (108.44 ± 4.33 pg/mL) .

Table (4.1) Distribution of autistic group and control group according to their age

Groups	Age	Age	Total
	(3-6 Y)	(7-13 Y)	
Autistic Group	35	20	55
Control Group	17	8	25
Total	52	28	80

Mean values of serum Oxytocin hormone were different in autistic children group compared to the control group. There was a significant difference (P<0.05) in the level of OT hormone in the autistic group at age (3-6 years) (70.97 ± 8.56 pg/mL) and control group at age(3 – 6 years) (107.64 ± 4.65 pg/mL) as shown in the figure1.

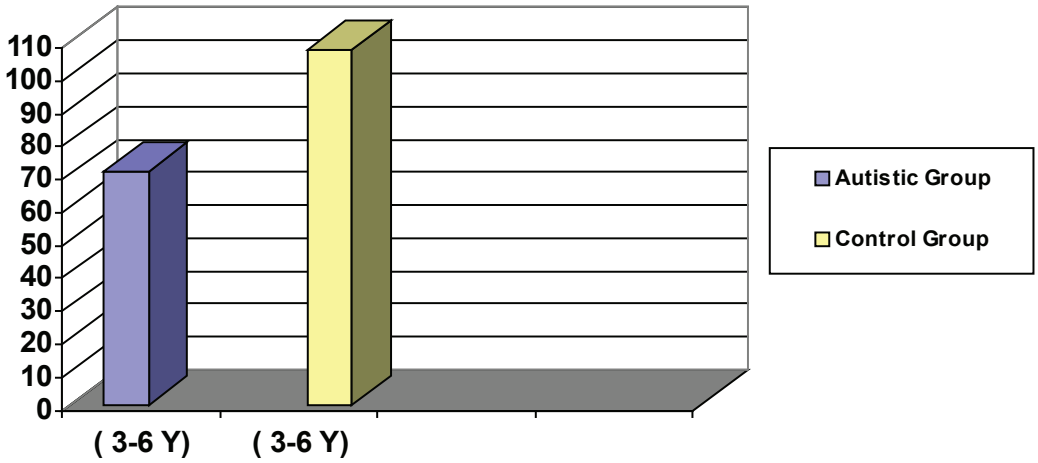

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Figure (1) Difference in mean values of OT hormone levels(pg/mL) in the autistic group and control group at age (3 – 6 years).

The significant (P < 0.05) difference of results of OT hormone levels in the autistic group at age (7-13 y) (68.14 ± 11.71 pg/mL) and control group at same age group (7 – 13 y) (109.91± 2.35 pg/mL).

In this study we recorded that the serum OT hormone level in autistic children are divided in to two groups according to their means, and compared with control group. OT hormone level in Group 1 (autistic group) is significantly (P < 0.05) lower (72.39 ± 5.64 pg/mL) than in control group (108.44± 4.33 pg/mL) . This difference in the level of OT level between group 2 and control showed more decline in OT hormone level in autistic group than that in control group which was statistically significant (P< 0.05) and recorded (42.43± 2.31 pg/mL) and (108.44± 4.33 pg/mL) , respectively in both groups , as shown in figure 2.

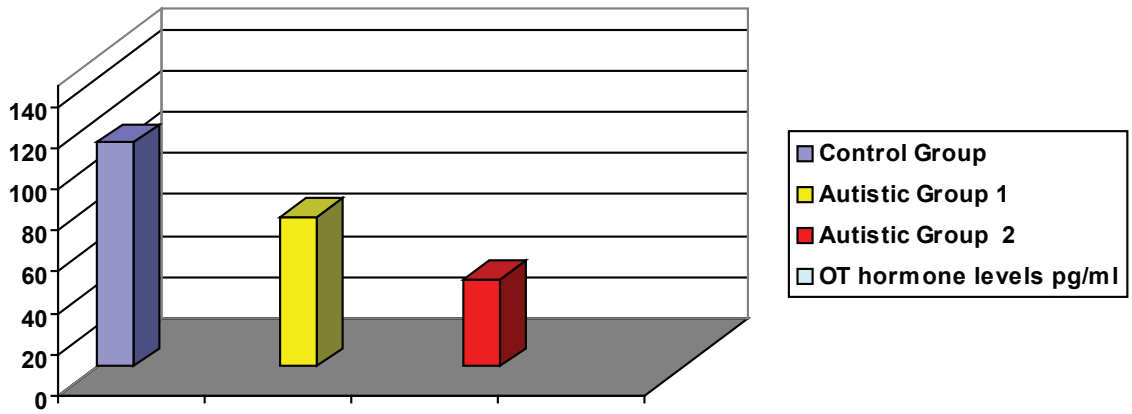

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Figure (2):Difference in mean values of OT hormone levels (pg/mL) between autistic groups according to their autistic mean and compared with control group.

Discussion

ASDs are roughly one out of 68 youngsters are related to ASD as indicated by gauges from the Centers for Disease Control and Prevention (CDC)'s, evaluated worldwide ASD commonness of 20 for each 10,000 with high level of heterogeneity among inquiries. Determination has for some time been depended on clinical investigations[13]. Our study is to evaluation oxytocin hormone level in the autistic children and compared with normal children Control. Oxytocin hormone (OT) are mostly known for their role in labor lactation and maternal behavior [14] Released from the posterior pituitary gland but created in the hypothalamus [15]. We participated in 80 children as a total of two groups, the first group includes 55 children in the case of autism and confirmed their condition through medical reports and did not receive any treatment to get the results more correct and close to the situation. And the second group includes 25 healthy children as control free of any organic or psychological diseases and both gender boy and girl, to measure the proportion of OT hormone in their serum. All children enrolled were between 3 to13 years old. Children with autism were selected from the local Autism Centre for children in Kirkuk and Erbil. We measured the levels of OT hormone in the serum of both autistic children group and control group. In this study high significant difference between the serum OT hormone level in the autistic children groups and the serum OT hormone level in control children's group, this was in agreement with the same result high significant difference between the serum OT hormone level in the autistic children group, and the Serum OT hormone level in control children's group was reported by Amanda P., et al. done before [15]

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Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

Conflict of Interest: The authors declare that they have no conflict of interest.

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