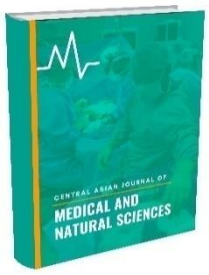
CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES



Volume: 05 Issue: 01 | Jan-Feb 2024 ISSN: 2660-4159

http://cajmns.centralasianstudies.org

A COMPARATIVE STUDY OF SOME THYROID HORMONES FOR AUTISM PATIENTS PRE-PUBERTY

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Received 20th Nov 2023,
Accepted 28th Dec 2023,
Online 18th Jan 2024

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Abstract: Autism is one of the common diseases in the modern life, which has spread recently, and in which newborns are vulnerable to it, and the main causes of this disease have not been identified, and the researchers formulated the research problem in the form of a question, which is: Does the lack of thyroid hormones have a relationship with autism, and the study aimed to identify the relationship between the lack of thyroid hormones and autism, as well as to identify autism in both sexes, males and females, the researchers chose the descriptive approach in the style of a comparative study, as for a sample The research included (48) children with autism at a rate of (6) males and (6) females, i.e. (44.44%) of the research community, whose number, according to the statistics of the Maisan Health Directorate, is (108) with autism, The researchers concluded that the lower the proportion of hormones T3 and T4, the greater the severity of autism, and the increase in TSH is related to autism, and that hormones have a significant impact on autism, and there is no difference between males and females in symptoms, and the researchers recommend paying attention to nutrition leading to the completion or assistance of the work of hormones such as nuts, eggs, dairy, chicken and fish, as they are food sources that help regulate thyroid hormones.

Key words: Thyroid hormones, Autism, puberty.

1. Introduction and Study Importance:

1.1. Introduction:

Autism is one of the common diseases in the modern era, which has spread recently, and that newborns are vulnerable to it, and the main causes of this disease have not been identified, some see them as genetic reasons, some see them as social reasons, and others see them as health reasons and did not specify exactly the main cause of it, that it is a scientific axiom that all disorders that occur inside the human body is the result of the difference in the natural concentrations of its components and the valve glands are one of the most important components Which must be the concentrations of their products of hormones natural because of their importance in maintaining the balance

of the body and its internal and external effectiveness, as the thyroid gland is one of the glands responsible for secreting hormones in the body, It is located in the front part of the neck below the vocal cords, and resembles a butterfly in its shape, and the thyroid gland consists of two parts, one right and the other left, and they meet to close the trachea, and it is worth noting that the weight of the thyroid gland ranges between (20-60) grams, and the thyroid gland mainly controls the growth of the body and its attainment and the speed of metabolic processes, which represents the speed of the body's consumption of energy, as well as controls the processes of breathing and the speed of the heartbeat, the central nervous system, the peripheral nervous system, weight, muscle strength, the menstrual cycle and the degree of body temperature, cholesterol levels, rapid digestion of food by the intestines and other tasks performed by the thyroid gland.

The thyroid gland secretes hormones and travels in the blood to almost all cells of the body, and the body produces more of these hormones when energy is needed, such as when feeling cold or during pregnancy. Among these hormones secreted by the thyroid gland is thyroxine T4, and the third hormone iodine thyronine T3, where thyroxine is the main hormone produced by the thyroid gland as it reaches the tissues of the body through the bloodstream and is the most active hormone in the body and is responsible for the basic metabolic activity This hormone is present in the bloodstream and is linked to a protein called thyroxine-binding globulin.

Autism is divided in terms of the severity of symptoms into three types, simple, medium and severe, and therefore the severity of the injured can only be determined after being exposed to several questions and tests, and then the answers are collected to obtain results that enable to know the severity of the injury to the patient, as the severity of the disease can only be determined after exposing him to tests. Hence the importance of research to study the deficiency of some thyroid hormones that carry out various body functions and their association with autism.

1.2. Study Problem:

The thyroid hormones are of real importance in the fact that they regulate the functions of the human body, as the increase or decrease of these hormones in the thyroid gland leads to disorders in the body, and the lack of thyroid hormones leads to the appearance of signs of mental retardation of atrophy and damage to the nerve cells of the cerebral cortex,Where the researchers decided to delve into this research problem for the purpose of finding a treatment that may reduce the strength of the disease on autistic patients, and the researchers formulated the research problem in the form of a question: Is the lack of thyroid hormones related to autism.

1.3. Study Objectives:

1. To identify the relationship between thyroid hormone deficiency and autism.
2. To identify autism in both males and females.

1.4. Study Hypotheses:

- There is a relationship between a lack of thyroid hormones and autism.

1.5. Study Fields:

1.5.1. Human field: Autistic patients recorded by neurologists in Maisan.

1.5.2. Spatial field: Laboratories of the specialized doctors' clinic.

1.5.3. Time Temporal: 5/5/2023 until 1/11/2023.

2. Methodology and Field Procedures:

2.1. Research Methodology: The researchers chose the descriptive approach in the style of comparative study, which "means knowing the similarities and differences in order to reveal any factors or circumstances that accompany certain events, conditions, processes or practices through the fact that there is a relationsh ".

2.2. Research sample:

One of the important procedures in scientific research is the method of selecting the research sample, so the research sample was selected in a random way, "as it consists of certain vocabulary that represents the community properly". Where the research sample was selected and included (48) children with autism at a rate of (6) males and (6) females, i.e. (44.44%) of the research community, whose number, according to the statistics of the Maisan Health Directorate, is (108) with autism.

2.3. Study variables:

2.3.1. Determine the variables of research: After reviewing the sources and research in the field of autism and access to schools and institutes for autism and the knowledge of the researchers in this field, the variables under study were determined after taking the opinion of specialized doctors.

2.4. Tests used in research:

2.4.1. Thyroid hormones: Test name: Thyroid hormones test Purpose of the test: Detection of the proportion of thyroid hormones.

Devices used: ICROMA device as shown in picture (1).

Picture (1) showing the ICROMA device

Test specifications: When receiving the patient, we take a blood sample from the patient and then tie the patient's hand with the tornica and sterilize the patient's hand (withdrawal area) and then we draw blood in a sufficient amount and put it in Gel Tube and wait for about 5-10 minutes and put it in the centrifuge (Center Fusion) We wait for 4 minutes until the blood is separated.

2-4-1-1 T3 test: Take 75 microns of serum and put it in the tube for the work of T3. Take 75 microns from the box (B Buffer) and put it in the T3 tube and then mix the two materials. We wait for 8 minutes at room temperature. We take 75 microns from the T3 tube and put it on the catridge (catridge T3). Then we wait 8 minutes for the catridge at room temperature and it is read in the hormone-making device with the T3 id-coud.

2-4-1-2 T4 test: Take 75 microns of serum and put it in the tube of T4 and mix 10 times. Take 75 microns from the can (B Buffer) and add it to the mixture, mix 10 times and leave it for 8 minutes. 3- We take 75 microns from the mixture to the T4 catridge and wait for 8 minutes and then read in the device with the T4 reading code.

2-4-1-3 TSH test: Take 150 microns of serum and put it in the TSH tube. We take 75 microns from the TSH box and put it in the special tube and mix 10 times. take 75 microns of tube mixed with both materials and put it in the catridge. Wait for 12 minutes in the catridge at room temperature and read to the machine with its coud.

2-5 Exploratory experiment: The exploratory experiment is "a practical test for the researcher to find out for himself the negatives and positives that meet him during the tests to avoid them in the future." The researchers conducted the exploratory experiment on 13/5/2023 on a number of injured (8) children. The aim of conducting the exploratory experiment was to find out the following:

1. Ensure the validity of the tools and devices used. Identify the time it takes for the test.
2. Know the adequacy of the assistant team.
3. Identify the organizational and administrative requirements for the implementation of the test.
4. Know the difficulties that researchers may face during the conduct of the main experiment and remedy them.

2-6 Main experiment: After completing the exploratory experiment and ensuring the validity and validity of the tests, the researchers began to conduct laboratory tests for the sample of (48) patients, where the researchers conducted the tests in the laboratory of the specialist doctor, where the sample examination was conducted over the days of their monthly periodic review of the specialist doctor, where the tests took place over four days from the first day 18/5/2023 until the fourth day, all the research sample was examined, as the numbers of their attendance varied in the days in which they were held Examinations, where the tests were conducted under the supervision of specialists in that field, as the sample was distributed to four groups for each category of the disease, 6 males and 6 females, and they were as follows:

No.	Disease category	Male	Female
1	Light	6	6
2	Middle	6	6
3	Intense	6	6
4	Very strong	6	6

The severity of the disease (categories) was identified through the data available to the specialist doctor.

3. Results and Discussion:

3-1 Presentation and analysis of test results for the three research groups:

3-1-1 Presentation and analysis of the results of descriptive statistics and analysis of variance (F) for tests of the three groups of research variables:

3-1-1-1 Presentation and analysis of test results for the three groups in the T3 variable:

Table (1) shows the arithmetic means and standard deviations of the three groups in the T3 variable

Tests	Measurement units	M.	St.d
Light	Degree	1.19	0.08
Middle	Degree	0.94	0.03
Intense	Degree	0.74	0.06
Very strong	Degree	0.25	0.06

3-1-1-2 Presentation and analysis of the results of the analysis of variance and the value of (F) for the tests of the three groups in the T3 variable:

Table (2) The results of the analysis of variance, the calculated and tabular value of (F) and its significance level show the differences between the three sums in the T3 variable:

Dispersion Source	Sum of squares of differences	Freedom degree	Mean square differences	Calculated (f)	Sig. level
Among groups	3.32	3	0.08	262.41	0.00
Into groups	1.11	20	0.00		
Total	3.41	23			

Table (2) shows that the sum of the squares of the differences between the totals amounted to (3.32) and within the totals amounted to (1.11) and the general total amounted to (3.41) and that the average squares of the differences was between the totals (0.08) and within the totals (0.00) and by extracting the calculated value of (262.41) under the degree of freedom (3) and with a level of significance of (0.00), which is smaller than (0.05), which indicates that the difference is significant, and accordingly the value of (LSD) must be extracted with the lowest significant difference at the level of significance (0.05) and compared with the values of the differences of the arithmetic medians of the three groups and as shown in table (2).

Table (3) shows the significance of the differences between the arithmetic means of the t3 test for the three groups and the value of the lowest significant difference (LSD) for the significance level (0.05)

Groups		Light	Middle	Intense	Very strong	LSD
Groups mean		1.19	0.94	0.74	0.25	0.438
Mean differences	Light	-	0.24	0.72	0.94	
	Middle	-	-	0.47	0.69	
	Intense	-	-	-	0.22	
	Very strong	-	-	-	-	

Table (3) shows the results of the lowest significant difference (LSD) with a level of significance (0.05), which amounted to (0.438) and after comparing it with the differences of the arithmetic means between each two groups separately, a significant difference appeared in favor of the light group if it was compared to the severe and very severe groups as well as there are significant differences in favor of the average group if compared to the severe and very severe groups, while a non-significant difference appeared between the light and medium group as well as between the severe and very severe groups, and this means that the members of the light group are less The four experimental groups have a larger arithmetic mean than the rest of the circles.

3-1-1-3 Presentation and analysis of test results for the three totals in the T4 variable:

Table (4) shows the arithmetic means and standard deviations of the three totals in the T4 variable

Tests	Measurement units	M.	St.d
Light	Degree	63.08	0.73
Middle	Degree	54.75	2.67
Intense	Degree	19.66	1.47
Very strong	Degree	6.41	1.15

2-1-1-4 Presentation and analysis of the results of the analysis of variance and the value of (F) for the tests of the three groups in the T4 variable:

Table (5) shows results of the analysis of variance, the calculated and tabular value of (F) and the level of significance show the differences between the three sums in the T4 variable

Dispersion Source	Sum of squares of differences	Freedom degree	Mean square differences	Calculated (f)	Sig. level
Among groups	13362‹11	3	4454‹03	158‹7	0‹00
Into groups	56‹12	20	2‹850		
Total	13418‹24	23			

Table (5) shows that the sum of the squares of the differences between the totals amounted to (13362.11) and within the totals amounted to (56.12) and the general total amounted to (13418.24) and that the average squares of the differences was between the totals (4454.03) and within the totals (2.80) and by extracting the calculated value of (158.7) under the degree of freedom (3) and with a level of significance of (0.00), which is less than (0.05), which indicates that the difference is significant, and accordingly the value of (LSD) must be extracted the least significant difference with the level of significance (0.05) and compared with the values of the differences of the arithmetic media of the three groups and as shown Table (6).

Table (6) shows the significance of the differences between the arithmetic means of the t4 test for the three groups and the value of the lowest significant difference (LSD) for the significance level (0.05)

Groups		Light	Middle	Intense	Very strong	LSD
Groups mean		63,08	54,75	19,66	6,41	26‹18
Mean differences	Light	-	8,33	43,41	56,66	
	Middle	-	-	35,08	48,33	
	Intense	-	-	-	13,25	
	Very strong	-	-	-	-	

Table (6) shows the results of the lowest significant difference (LSD) with a level of significance (0.05), which amounted to (26.18) and after comparing it with the differences of the arithmetic media between each two groups separately, a significant difference appeared in favor of the light group if compared to the severe and very severe group as well as there are significant differences in favor of the average group if compared to the severe and very severe groups, while a non-significant difference appeared between the light and medium group as well as between the severe and very severe groups, and this means that the members of the light group are the least experimental groups The four have a larger mean than the rest of the circles.

5-1-1-3 Presentation and analysis of test results for the three totals in the TSH variable:

Table (7) shows the arithmetic means and standard deviations of the three totals in the TSH variable

Tests	Measurement units	M.	St.d
Light	Degree	4‹43	0‹05
Middle	Degree	5‹25	0‹10
Intense	Degree	7‹45	0‹71
Very strong	Degree	9‹53	0‹87

3-1-1-6 Presentation and analysis of the results of the analysis of variance and the value of (F) for the tests of the three groups in the variable tsh:

Table (8) The results of the analysis of variance, the calculated and tabular value of (F) and the level of significance show the differences between the three sums in the tsh variable

Dispersion Source	Sum of squares of differences	Freedom degree	Mean square differences	Calculated (f)	Sig. level
Among groups	94‹68	3	31‹56	97‹49	0‹00
Into groups	6‹47	20	0‹32		
Total	101‹156	23			

Table (8) shows that the total squares of the differences between the totals amounted to (94.68) and within the totals amounted to (6.47) and the general total amounted to (101.156) and that the average squares of the differences was between the totals (31.56) and within the totals (0.32) and by extracting the calculated value of (97.49) under the degree of freedom (3) and with a level of significance of (0.00), which is smaller than (0.05), which indicates that the difference is significant, and accordingly the value of (LSD) must be extracted the least significant difference at the level of significance (0.05) and compared with the values of the differences of the arithmetic media of the three groups and as shown in the table .

Table (9) shows the significance of the differences between the means of tsh for the three totals and the value of the least significant difference (LSD) for the significance level (0.05)

Groups		Light	Middle	Intense	Very strong	LSD
Groups mean		4‹43	5‹25	7‹45	9‹53	2‹822
Mean differences	Light	-	0‹82	3‹01	5‹09	
	Middle	-	-	2‹19	4‹27	
	Intense	-	-	-	2‹08	
	Very strong	-	-	-	-	

Table (9) shows the results of the lowest significant difference (LSD) with a level of significance (0.05), which amounted to (2.822) and after comparing it with the differences of arithmetic means between each two groups separately, a significant difference appeared in favor of the light group if compared to the severe and very severe group as well as there are significant differences in favor of the average group if it is discussed in the very severe group, while a non-significant difference appeared between the light and medium group as well as between the medium and severe groups as well as between the severe and very severe group, and this means that the members of the light group They are the least of the four experimental groups because their arithmetic mean is lower than the rest of the circles.

3-1-2 Discussion of the results of the tests for the three research groups: Through what appeared from the results in tables (1) and (2) and (3) for hormones T3, T4 and TSH, it was found that there are statistically significant differences of hormones between the categories and the differences were inversely between the T3-T4 and TSH, the lower the proportion of TSH, the greater the other and vice versa, and the researcher attributes this to what was pointed out by Jabbar Rahima Al-Kaabi, who believes that "TSH hormone is the thyroid-stimulating hormone, It is secreted from the front part of the pituitary gland based on the orders of the thyroid-releasing hormone, which works to stimulate the growth of the thyroid gland and the secretion of hormones from it, the relationship between this hormone and thyroid hormone is a close relationship, when the secretion of thyroid hormones decreases, the secretion of TSH increases, which in turn stimulates the thyroid gland to secrete these hormones and when the level of thyroid hormones rises, this leads to inhibition of secretion (TSH).

The results showed that the relationship between the severity of injury and the hormones of T3-T4 is direct, that is, whenever the autism is severe, the severity of the shortage of hormones is severe, and through the above results it was found that there is a clear relationship that cannot be neglected between the lack of thyroid hormones and the severity of the disease, and the researcher attributes this to what he confirmed on the Ahmed Valley and sincerity of Ahmed Janabi "The thyroid gland is one of the important glands because of the negative effects that its disorder leaves on the human being that he cannot overcome and affect him physically and psychologically and up to It's even socially so ".

4. Conclusions and recommendations:

4.1. Conclusions:

Inverse relationship between T3, T4 and TSH hormones. The lower the proportion of hormones T3 and T4, the more severe the autism. TSH increase is related to autism. Hormones have a great impact on autism. Males and females do not differ between them in symptoms.

4.2. Recommendations:

Presenting people with autism to specialists in order to shorten the time and effort in the rehabilitation of the patient. Attention to nutrition leading to the completion or assistance of the work of hormones such as nuts, eggs, dairy, chicken and fish, as they are food sources that help regulate thyroid hormones. Not to neglect the segment of people with autism through the work of periodic examinations of functional organs such as the endocrine system. Conducting similar research and studies.

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