

ENDOCRINOLOGY 2020: Changes of subtests of Wechsler Memory Scale and cognitive function in subjects with subclinical hypothyroidism following treatment with levothyroxine.- LailyNajafi - Iran University of Medical Sciences

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Introduction:

Hypothyroidism (underactive thyroid) is a condition where your thyroid organ doesn't create enough of certain urgent hormones.

Hypothyroidism may not cause perceptible side effects in the beginning times. After some time, untreated hypothyroidism can cause various medical issues, for example, stoutness, joint agony, fruitlessness, and coronary illness.

Exact thyroid capacity tests are accessible to analyze hypothyroidism. Treatment with engineered thyroid hormone is typically basic, safe, and successful once you and your PCP locate the correct portion for you.

Side effects:

- Thyroid organ indicating larynx and trachea
- Thyroid organ Open spring up discourse box

The signs and indications of hypothyroidism change, contingent upon the seriousness of the hormone lack. Issues will in general grow gradually, regularly over various years.

From the start, you may scarcely see the manifestations of hypothyroidism, for example, exhaustion and weight gain. Or then again you may basically ascribe them to getting more seasoned. Be that as it may, as your digestion keeps on easing back, you may grow progressively evident issues.

Hypothyroidism signs and side effects may include:

- Fatigue
- Increased affectability to cold
- Constipation
- Dry skin
- Weight gain
- Puffy face
- Hoarseness
- Muscle shortcoming
- Elevated blood cholesterol level
- Muscle hurts, delicacy and firmness
- Pain, solidness or growing in your joints

- Heavier menstrual periods
- Thinning hair
- Slowed pulse
- Depression
- Impaired memory
- Enlarged thyroid organ (goiter)

Hypothyroidism in a newborn child:

In spite of the fact that hypothyroidism regularly influences moderately aged and more seasoned ladies, anybody can build up the condition, including newborn children. At first, coddles conceived without a thyroid organ or with an organ that doesn't work appropriately may have scarcely any signs and side effects. At the point when babies do have issues with hypothyroidism, the issues may include:

- Jaundice. By and large, this happens when an infant's liver can't process a substance called bilirubin, which regularly shapes when the body reuses old or harmed red platelets.
- An enormous, distending tongue.
- Difficulty relaxing.
- Hoarse crying.
- An umbilical hernia.

As the ailment advances, newborn children are probably going to experience difficulty taking care of and may neglect to develop and grow regularly. They may likewise have:

- Constipation
- Poor muscle tone
- Excessive lethargy

At the point when hypothyroidism in newborn children isn't dealt with, even mellow cases can prompt serious physical and mental impediment.

Hypothyroidism in youngsters and teenagers:

- In general, youngsters and teenagers who create hypothyroidism have indistinguishable signs and

side effects from grown-ups do, yet they may likewise understand:

- Poor development, bringing about the short height
- Delayed advancement of lasting teeth
- Delayed adolescence
- Poor mental turn of events

Causes:

At the point when your thyroid doesn't create enough hormones, the equalization of compound responses in your body can be disturbed. There can be various causes, including immune system infection, hyperthyroidism medicines, radiation treatment, thyroid medical procedure and certain meds.

Your thyroid is a little, butterfly-formed organ arranged at the base of the front of your neck, just beneath your Adam's apple. Hormones delivered by the thyroid organ — triiodothyronine (T3) and thyroxine (T4) — enormously affect your wellbeing, influencing all parts of your digestion. These hormones likewise impact the control of crucial capacities, for example, internal heat level and pulse.

- Hypothyroidism results when the thyroid organ neglects to deliver enough hormones. Hypothyroidism might be because of various elements, including:
 - Autoimmune sickness. The most widely recognized reason for hypothyroidism is an immune system issue known as Hashimoto's thyroiditis. Immune system issues happen when your immune system produces antibodies that assault your own tissues. Once in a while this procedure includes your thyroid organ.
 - Scientists aren't sure why this occurs, yet it's conceivable a mix of variables, for example, your qualities and a natural trigger. Anyway, it occurs, these antibodies influence the thyroid's capacity to deliver hormones.
 - Over-reaction to hyperthyroidism treatment. Individuals who produce an excess of thyroid hormone (hyperthyroidism) are frequently rewarded with radioactive iodine or hostile to thyroid drugs. The objective of these medicines is to get thyroid capacity back to typical. Be that as it may, once in a while, rectifying hyperthyroidism can wind up bringing down thyroid hormone creation to an extreme, bringing about changeless hypothyroidism.
 - Thyroid medical procedure. Expelling all or an enormous bit of your thyroid organ can decrease or

stop hormone creation. All things considered; you'll have to take thyroid hormone forever.

- Radiation treatment. Radiation used to treat malignancies of the head and neck can influence your thyroid organ and may prompt hypothyroidism.
- Medications. Various drugs can add to hypothyroidism. One such drug is lithium, which is utilized to treat certain mental issues. In case you're taking the drug, get some information about its impact on your thyroid organ.

Objective:

Subclinical hypothyroidism has been reported to be associated with disturbed cognitive function. In this study, changes of subtests of Wechsler Memory Scale and memory quotient were investigated in subjects with subclinical hypothyroidism following treatment with levothyroxine.

Design:

A randomized double-blind placebo controlled clinical trial.

Methods:

Sixty subjects (51 females and 9 males) with subclinical hypothyroidism were enrolled. Memory quotient was evaluated at the beginning of study and three months after enrollment, using Wechsler's memory test. Subclinical hypothyroidism was defined as serum TSH level between **4.5** mU/L to 10 mU/L in the presence of normal free-T4 (0.8-2 ng/dl) and Positive Anti-TPO-Ab. The intervention and control groups received Levothyroxine and placebo respectively for three months. Re-evaluation was done by Wechsler Memory Scale at the end of the study.

Results:

The mean age was 34 (± 10), mean TSH level was $8.25(\pm 3.64)$ mU/L. Memory quotient was similar in both groups at the beginning of the study: 105.70 ± 2.1 in intervention group vs 105.87 ± 2.1 in control group ($P=0.89$). At the end of the study, the memory quotient raised by 9.3 points in the intervention group and by 3.23 in the controls ($P=0.002$). Analysis of the scores of Wechsler Memory subtests in the intervention group indicated significant improvement of mental control (p -value: 0.002), logical

memory (p-value: 0.000), associate learning (p-value: 0.014), age corrected score (p-value: 0.002), and memory quotient (p-value: 0.000).

Conclusions:

This study showed the efficacy of levothyroxine on cognitive function of subjects with subclinical hypothyroidism.

Keywords:

Memory Quotient, Subclinical Hypothyroidism, Wechsler Memory Test, Levothyroxine

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