شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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Assessment of Urinary Iodine Level and its relation to thyroid Function in sample of Egyptian Pregnant Females in 1st Trimester

Thesis

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List of Abbreviations

Abb.	Full term
AAP	American Academy of Pediatrics
AT	Autoimmune thyroiditis
ATA	American Thyroid Association
BMI	Body mass index
CNS	Central nervous system
DBS	Dried Blood Spot
ELISA	Enzyme-linked immunosorbent assay
ETA	European Thyroid Association
FT3	Free triiodothyronine
FT4	Free T4
hCG	Human chorionic gonadotropin
HPT	Hypothalamic–pituitary–thyroid
HT	Hashimoto's thyroiditis
ID	Iodine deficiency
IQ	Intelligence quotient
RCT	Randomized controlled trial
RDA	Recommended Dietary Allowance
RIs	Reference intervals
RNI	Recommended Nutrient Intake
T3	Triiodothyronine
T4	Thyroxine
TBG	Thyroxin binding globulin
TFTs	Thyroid function tests
Tg Ab	Thyroglobulin antibody
Tg	Throglobulin
THs	Thyroid hormones
TPO Ab	Thyroid peroxidase antibody
TRAb	TSH receptor antibody

List of Abbreviations Cont...

Abb.	Full term
TSH CLIA	Thyroid stimulating hormone Chemiluminscene Immunoassay
TSH.....	Thyroid-stimulating hormone
TT3	Total triiodothyronine
TT4	Total T4
Tvol.....	Thyroid volume
UIC	Urinary iodine concentration
URL	Upper reference limit
US.....	United States
USI.....	Universal salt iodization
WHO.....	World Health Organization

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INTRODUCTION

During pregnancy, normal thyroid activity undergoes significant changes, including a two – to threefold increase in thyroxine-binding globulin concentrations, a 30-100% increase in total triiodothyronine and thyroxine concentrations and increased iodide clearance. Furthermore, hCG has mild thyroid stimulating activity. Pregnancy produces an overall increase in thyroid activity, which allows the healthy individual to remain in a net euthyroid state. However, both hyper-and hypothyroidism can occur in pregnant females ***(Rinaldi and Stagnaro, 2007).***

Iodine is a naturally occurring element. Our body needs iodine for our thyroid gland to work properly. Iodine can be found in some foods, nutritional supplements, medications, and topical disinfectants. Women bodies need more iodine when they are pregnant or nursing. The Recommended Dietary Allowance (RDA) for iodine in women / who are pregnant is between 220 micrograms (mcg) and 290 mcg, and 290 mcg for women who are nursing ***(Eduardo and Pearce, 2020).*** The American Academy of Pediatrics (AAP) and the American Thyroid Association (ATA) have recommended that pregnant women use supplements containing150 mcg/day of iodine. Possibly; Low iodine levels in the body could cause low thyroid hormone levels (hypothyroidism). Low thyroid hormone levels during pregnancy may lead to birth defects. It may also increase the chance for prematurity ***(Leung et al., 2009).***

Women who have very low iodine levels are said to have "severe iodine deficiency). During pregnancy can lead to babies being born with learning problems or hearing defects. It is possible that mild iodine deficiency during pregnancy could lead to problems with learning and behaviour. An estimated 35% of the world s population has insufficient iodine intake and continues to live at risk for iodine deficiency and associated iodine deficiency disorders. Iodine deficiency poses a threat throughout the lifecycle and has been associated with mental impairment and goitre in older children and adults and complications with pregnancy, including stillbirth and congenital anomalies ***(Melse and Mackenzie, 2013).***

Urinary iodine is a well-accepted, cost-efficient and easily obtainable indicator for iodine status. Since the majoty of iodine absorbed by the body is excreted in the urine it is considered a sensitive marker of current iodine intake and can reflect recent changes in iodine status ***(Gibson, 2005).***

Because urinary iodine values are not normally distributed in the body the median is the preferred measure for detection of its level ***(WHO, 2007).***

AIM OF THE WORK

This study aims at assessing the level of urinary iodine in 1st trimester of pregnancy and its relation with thyroid hormones and autoimmune thyroid profiles.

Chapter 1

THE THYROID GLAND

A butterfly-shaped organ, the thyroid gland is located anterior to the trachea, just inferior to the larynx (Figure 1). The medial region, called the isthmus, is flanked by wing-shaped left and right lobes. Each of the thyroid lobes are embedded with parathyroid glands, primarily on their posterior surfaces. The tissue of the thyroid gland is composed mostly of thyroid follicles. The follicles are made up of a central cavity filled with a sticky fluid called colloid. Surrounded by a wall of epithelial follicle cells, the colloid is the center of thyroid hormone production, and that production is dependent on the hormones' essential and unique iodine

Anatomy and physiology

The blood supply of the thyroid gland comes from two arteries on each side: the superior thyroid arteries originate from the external branch of the carotid artery. Accompanied by the superior laryngeal nerve, they enter into the upper poles of the thyroid gland. Due to the close proximity of these blood vessels to the superior laryngeal nerves, it is usually recommended that the surgeon ligates the superior thyroid arteries as close to the thyroid gland as possible in order to avoid damaging the nerves. The inferior thyroid arteries are branches of the thyrocervical trunk and, as stated above, are in