Expression of Osteopontin in Patients with Thyroid Dysfunction

Thesis

Submitted for Partial Fulfillment of Master Degree in

Endocrinology & Metabolism

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2015

نسبة الاوستيوبنتن بالدم وعلاقته باعتلال وظائف الغدة الدرقية

توطئة للحصول على درجة الماجستير
فى أمراض الغدد الصماء والأيض

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2015

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List of abbreviations

AACE	American Association of Clinical Endocrinologist
AIT	Autoimmune Thyroiditis
Alk.Ph.	Alkaline Phosphatase
AUC	Area Under Curve
BMI	Body Mass Index
ANOVA	Analysis of Variance Tests
Ca	Calcium
CHT	Congenital Hypothyroidism
CKD	Chronic Kidney Disease
Creat	Creatinine
CXR	Chest X-Ray
dl	deciliter
ECG	Electrocardiogram
e.g.(i.e.)	exempli gratia(for example)
FBG	Fasting Blood Glucose
FDA	US Food and Drug Administration
fT3	free Triiodothyronine
fT4	Thyroxine

GD	Grave's Disease
HBA1C	Glycosylated Hemoglobin
IV	Intravenous
IQ	intelligence quotient
Kg	Kilograms
LT4	Levothyroxine
m2	miter square
mg	milligram
µg	microgram
mIU/L	mille International Unit/ litter
MNG	Multi Nodular Goiter
NHANES III	The third National Health and Nutrition Examination Survey
ng	nanogram
NPV	Negative Predictive Value
OPN	Osteopontin
pg	picogram
Ph(PO4)	Phosphorus
PPV	Positive Predictive Value
ROC Curve	Receiver Operating Characteristic curve analysis

SD	Standard Deviation
Sens	Sensitivity
SCH	Subclinical Hypothyroidism
SLE	Systemic lupus erythematosus
Spes	Specificity
2hrPPBG	Two Hours Post Prandial Blood Glucose
TgAb	antithyroid peroxidase antibodies
TNG	Toxic Nodular Goiter
TPOAb	antithyroid peroxidase antibodies
TSH	Thyroid Stimulating Hormone
%	Percentage
°C	degree Celsius

Introduction

Thyroid dysfunctions are common endocrine problems. They are often misdiagnosed, misunderstood, and frequently overlooked. These disorders affect almost every aspect of health. Most of them remain undetected because the clinical assessment alone lacks both sensitivity and specificity. As it is not sufficient enough we require the biochemical tests to confirm the diagnosis ***(Shamon. 2009)***.

As a consequence there is still great interest in new biomarkers that complement existing diagnostic tools ***(Saha et al ,2007)***.

Osteopontin, a glycoprotein that can be detected in plasma, it was found to be upregulated in several patients with hyperthyroidism and downregulated in hypothyroid patients so it may represent a new biomarker ***(Zohar et al ,2000)***.

These findings suggest that alterations in thyroid status can change serum osteopontin concentration. So the measurement of this parameter may provide useful information regarding the diagnosis of thyroid disease ***(Gursoy et al ,2010)***.

Aim of the work

In our study we aimed to study the correlation of serum osteopontin levels with parameters of thyroid hormone dysfunction.

Hyperthyroidism

Thyrotoxicosis is a condition having multiple etiologies, manifestations, and potential therapies. The term (Thyrotoxicosis) refers to a clinical state that results from inappropriately high thyroid hormone action in tissues generally due to inappropriately high tissue thyroid hormone levels ***(Bahn et al, 2011)***.

The term (hyperthyroidism) , is a form of thyrotoxicosis due to inappropriately high synthesis and secretion of thyroid hormone(s) by the thyroid. Appropriate treatment of thyrotoxicosis requires an accurate diagnosis. In the United States, the prevalence of hyperthyroidism is approximately 1.2% (0.5% overt and 0.7% subclinical); the most common causes include Graves' disease (GD), toxic multinodular goiter (TMNG), and toxic adenoma (TA) ***(Singer et al, 1995).***

The prevalence of hyperthyroidism in women is between 0.5 and 2%, and is 10 times more common in women than in men ***(Hollowell et al, 2002)***

The prevalence data in elderly persons show a wide range between 0.4 and 2.0% ***(Kanaya et al, 2002)*** and a higher prevalence is seen in iodine-deficient areas***(Aghini-Lombardi et al, 1999)***.

Signs & Symptoms of thyrotoxicosis:***(Baskin et al, 2002)***

Symptoms:

- Fatigue
- Weakness
- Palpitations
- Heat intolerance
- Excessive sweating
- Dyspnea
- Diarrhea
- Insomnia
- Poor concentration
- Oligomenorrhea

Signs:

- Weight loss
- Hair loss
- Tachycardia
- Proximal myopathy
- Warm, moist skin
- Hyperkinesis
- Emotional liability
- Hyperactive reflexes
- Thyroid enlargement (in most cases)
- Stare, lid lag, lid retraction, and exophthalmos (with Graves' disease).

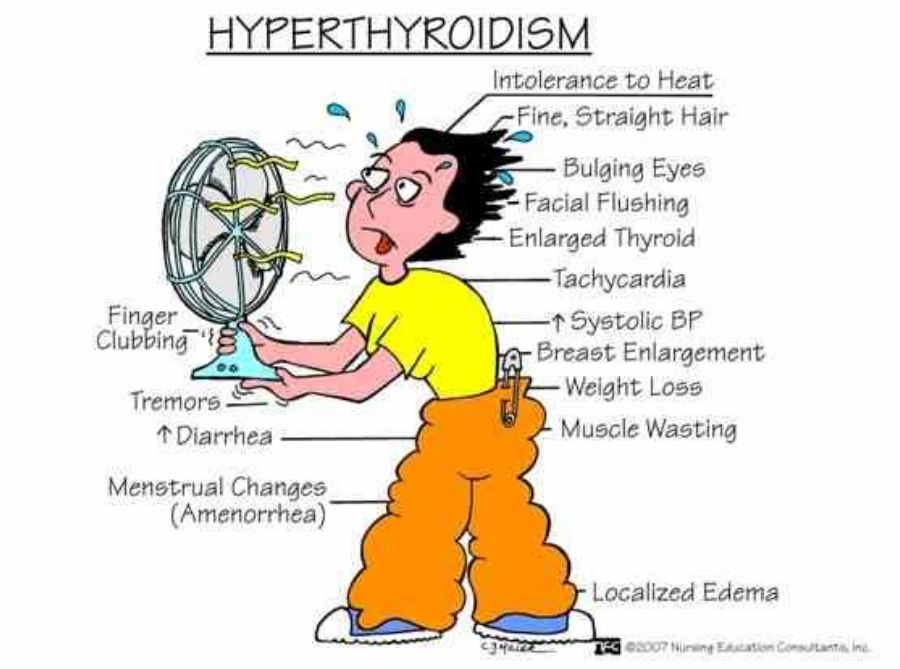

Figure (1): Demonstrating some Signs and Symptoms of Hyperthyroidism *(Baskin et al, 2002)*