



Prevalence of Occult Cushing's syndrome in Metabolic Syndrome

Thesis by

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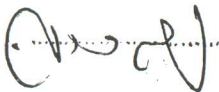
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بعد فحص الرسالة بواسطة كل عضو منفردا وكتابة تقارير منفردة لكل منهم انضمت اللجنة
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التي توصل اليها وكذلك الأسس العلمية التي قام عليها البحث .
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Abstract

Background: Subclinical Cushing's syndrome refers to autonomous cortisol production that is insufficient to generate the typical, clinically recognizable overt syndrome. However, SCS could be involved in the pathogenesis (development) of non-specific pathologies such as obesity, diabetes, and hypertension. **Aim:** to evaluate the prevalence of occult CS in metabolic syndrome patients using the Overnight 1 Mg Dexamethasone Suppression Test. **Methods:** For all the patients full laboratory test, calculation of body mass indices, The Overnight 1 mg dexamethasone suppression test was done. **Results &conclusions:** In our study we found that the prevalence of subclinical CS in metabolic syndrome patients using the overnight 1 mg dexamethasone suppression test with cut-off point of 3 µg/dL was 10% (3/30 patients) which is actually a high percentage to be considered.

Key words:- Metabolic syndrome , Subclinical Cushing's syndrome, dexamethasone suppression test.

Abbreviations

ACE	Angitensin converting enzyme
ACTH	Adrenocorticotropic hormone
ADA	American Diabetes Association
AIDS	Acquired immune deficiency syndrome
AIMAH	ACTH-independent bilateral macronodular adrenal hyperplasia
AMP	adenosine monophosphate
ANF	Antinuclear factor
ATP	adenosine triphosphate
ATP III	Adult treatment panel III
AVP	arginine vasopressin
BIPSS	bilateral inferior petrosal sinus sampling
BMI	body mass index
C	Control
cAMP	cyclic adenosine monophosphate
CBG	cortisol binding globulin
CHD	coronary heart disease
cm	centimeter
CRH	Corticotropin releasing hormone
CRP	C-reactive protein
CS	Cushing's Syndrome
CT	₁computed tomography

CVD	cardiovascular disease
CYP	cytochrome P450
DHEA-S	DehydroEpiandrosterone sulfate
DM	Diabetes Mellitus
DNA	Deoxyribonucleic acid
DST	Dexamesathone suppression test
DX	Dexamethasone
FFAs	free fatty acids
GC	glucocorticoid
GIP	Gastric inhibitory peptide
GnRH	Gonadotropin-releasing hormone
GR	glucocorticoid receptor
HDDST	high-dose dexamethasone-suppression test
HDL	High density lipoproteins
HH	hyperhomocysteinemia
HMG-CoA	3-hydroxy-3-methyl-glutaryl-CoA reductase
HPA	hypothalamo-pituitary-adrenal
IDF	International Diabetes Federation
IGF-1	Insulin-like growth factor 1
IGT	impaired glucose tolerance
IL-6	Interleukin-6
IPSG	inferior petrosal sinus ACTH gradient
IR	insulin resistance

LDL	low density lipoproteins
LDDST	Low dose Dexamethasone suppression test
LIF	Leukemia inhibitory factor
MetS	Metabolic syndrome
Mg/dl	Milligram/deciliter
mmHg	Millimeter mercury
Mmol/l	Millimol/litre
MR	mineralocorticoid receptors
MRI	Magnetic resonance imaging
mRNA	Messenger Ribonucleic acid
MSaC	midnight salivary cortisol
MSeC	midnight serum cortisol
NIH	National Institutes of Health
nmol/l	Nanomol/liter
ODST	Overnight Dexamethasone suppression test
P	Patients
PAI-1	plasminogen activator inhibitor-1
PDE11A	Dual 3',5'-cyclic-AMP and -GMP phosphodiesterase 11A
PET	18-fluorodeoxyglucose positron-emission tomography
PEPCK	phosphoenolpyruvate kinase
POMC	proopiomelanocortin
PPAR	peroxisome proliferator-activated nuclear receptors alpha

PPNAD	Primary pigmented nodular adrenal disease
PTH	Parathormone hormone
PRKAR	cAMP-dependent protein kinase type I-alpha regulatory
SCLC	small cell lung cancer
SCS	Subclinical Cushing's syndrome
SPGR	spoiled gradient recalled acquisition
SNS	sympathetic nervous system
SOM	somatostatin analogue
SRB1	scavenger receptor class B1
St AR	Steroidogenic acute regulatory protein
TG	triglycerides
TLC	Theraputic life style change
TNF	Tumor necrosis factor
TZDs	thiazolidinediones
UFC	urinary free cortisol
11β-HSD	11βhydroxysteroid dehydrogenase
2Hpp	2 hour postprandial
μg/dL	Microgram/ deciliter

Introduction

Cushing's syndrome is an endocrinal disorder caused by prolonged exposure of the body tissues to high levels of the cortisol hormone. It affects adults aged 20 to 50. Cushing's syndrome (CS) is a chronic insidious disease that is associated with reduced life expectancy mostly due to cardiovascular complications. **(Newell-Price et al., 2002)**

There are striking similarities between Cushing's syndrome and the metabolic syndrome as both are characterized by central obesity, hypertension, insulin resistance, and glucose intolerance. **(Bo, 2007)**

A number of patients with subclinical CS may not be recognized while they are managed for diabetes, either because of mild clinical presentation or because of insufficient awareness of the physicians who take care of such patients. **(Tauchmanova et al., 2001)**

Missing a diagnosis of subclinical CS may have detrimental consequences because hypercortisolism, although clinically inapparent, makes metabolic control more difficult to achieve and increases the probability of future cardiovascular events through induction/amplification of other risk factors. **(Tauchmanova et al., 2001)**

A high index of suspicion is required to identify subclinical CS is requested when diabetes is first diagnosed than after many years of poor metabolic control and attending complications.(**Minetto et al., 2004**)

Subclinical Cushing's syndrome is much more common than classic Cushing's syndrome with an estimated prevalence of about 8 /10.000 in the general population, in fact, this prevalence is likely to be underestimated because of the lack of specific clinical picture in subclinical Cushing's syndrome patients.(**Bo, 2007**)

Metabolic syndrome may therefore be a clue to the presence of CS. However, relatively high prevalence of occult CS was found in some studies up to 26%. (**Bo, 2007**)

We are conducting a cross sectional study to evaluate the prevalence of occult CS in metabolic syndrome patients.

The best screening test to uncover autonomous cortisol secretion is the short dexamethasone suppression test (DST). (**Lindsay et al., 2006**)

AIM OF THE WORK

The aim of the present study is to evaluate the prevalence of occult CS in metabolic syndrome patients using the Overnight 1 Mg Dexamethasone Suppression Test.