Adjusted Serum leptin and leptin Adiponectin ratio in correlation with Hyperemesis gravidarum

Thesis

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Contents

List of Abbreviations

ACRP30		Adipocyte Complement Related Protein of 30
AdipoR	:	Adiponectin Receptors
ALT		Alanine Amino Transferase
		Adjusted Leptin Level
ALL		
AST	:	Aspartate AminoTransferase
AMPK		Adenosine Monophosphate activated protein Kinase
BMI		Body mass index
cAd		collagenous domain
CAD		Coronary Artery Disease
CNS		Central nervous system
DBG	:	Diagnostic Biomarker Genetics
DNA		Deoxyribonucleic Acid
EGF	:	Epidermal Growth Factor
gAd		globular Adiponectin
G.age	:	Gestational age
GBP		Gelatin Binding Protein.
GnRH	:	Gonadotropin-releasing hormone
HB-EGF	:	Heparin Binding EGF-like growth factor
HCG	:	Human chorionic gonadotropin
HG		Hyperemsis gravidarum
HMW	:	High Molecular Weight
hMADS		human Multipotent Adipose-Derived Stem cells
IBD	:	Inflammatory Bowel Disease
IL		Interleukin
KDa	:	Kilo Dalton.
L/A	:	Leptin/Adiponectin ratio.
LMW		Low molecular weight.
LRH-l	:	liver receptor homolog-l
MHG	:	Mild hyperemsis gravidarum.
m-RNA	:	Messenger Ribonuceloic acid
NPY	:	NeuropeptideY
OB-Rl	:	Long form leptin receptor
Ob-Rs	:	Short form leptin receptor
PAI-1	:	Plasminogen Activator Inhibitor type 1
PPAR	:	Peroxisome Proliferator-Activated Receptor

ROC	:	Receiver operating characterstic curve
SHG	:	Sever Hyperemsis gravidarum.
SNS	:	Sympathetic Nervous System
TNF	:	Tumor Necrosis Factor
WAT		White Adipose Tissue

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Introduction

Hyperemesis gravidarum [HG] is a significant but underappreciated illness of pregnancy. It is the most commen indication for admission to the hospital in the first half of pregnancy and second only to preterm labour as a cause of hospitalization overall. Hyperemesis gravidarum is a state characterized by intractable vomiting during pregnancy, leading to dehydration, ketonemia, electrolyte imbalance and weight loss ***(Goodwin et al., 2006).***

Nausea and vomiting is a common symptom of early pregnancy. Affecting up to 80 % of women. While the reported incidence of hyperemesis gravidraum is 0. 5-2. 0% ***(V, Kirk and PapGeorghiou, 2006).***

Although recent research say that the pathophysiology for hyperemesis gravidraum is not clear. It has been proposed that hormonal allergen, genetic factors, immunolgical, neuropsychosomotic, metabolic factors may play a role in the etiology of hyperemsis gravidraum ***(Karaca, Lee and Brady, 2009).***

Leptin and adiponectin are the hormones that are secreated mainly by the adipose tissue to signal the status of body energy stores to the central nervous system. As a signal of energy sufficiency, adequate leptin levels suppress feeding and permit energy-costly neuro endocrine functions ***(Bates et al., 2004).***

Leptin:

Is a circulating hormone which acts as an afferent satiety signal to regulate body weight and has a structure similar to that of cytokines. A relationship between leptin and hyperemesis gravidraum was originally based on the crucial role in reducing appetite and raising the consumption of energy by interacting with other factors such as cortisol, thyroid hormones and insulin ***(Considine and Caro 2008).***

Supporters of the leptin theory stated that this could be a false negative finding due to a negative energy balance in HG patients, a dramatic decrease in leptin levels being observed in other situations with a negative energy balance, such as fasting ***(Kolaczynski et al., 2009).***

Adiponectin:

A protein hormone produced and secreted exclusively by adipocytes (fat cells) that regulates the metabolism of lipids and glucose. Adiponectin influences the body's response to insulin. Adiponectin also has anti inflammatory effects on the cells lining the walls of blood vessels.

Matrnal serum adiponectin decreases in case of hyperemesis gravidraum.

Like in case of fasting due to decrease in fat cells in which this protein hormone is secreated from. Leptin

concentration in normal pregnancy was determined to be between 7. 4 and 19 ng / ml ***(Magariños et al., 2007).***

Circulating leptin levels are elevated during pregnancy, reaching a peak during the second trimester and remain elevated until parturition ***(Leeand Brady 2009).***

Although the pathophysiology for hyperemesis gravidarum is not clear. Maternal leptin level increases progressively during gestation. However, in other hypothesis, rapid increase in maternal leptin concentration disproportional to gestational week is a marker for hyperemesis gravidarum ***(Enriori and Evans et al., 2007).***

Adjusted leptin levels is a predictor for hyperemsis gravidarum in which it is significantly high, and shows an increase with gestational weeks of first trimester and reaches a high peak levels at the second trimester. Adjusted leptin levels is calculated by : maternal serum leptin level / gestional week. Thus concluded that adjusted leptin level (ALL) is a fundamental factor triggering the development of hyperemesis gravidarum can also be a good predictor for it ***(Henson and Castracene, 2008).***

A prospective study was carried out at the early prenatal care unit, SSk Ankara Women Health and Teaching Hospital on Leptin / adiponectin ratio which show that this ratiohave a siginificant role in hyperemsis gravidrum. It is calculated by dividing the maternal serum leptin levels which show an increase in cases of

hyperemesis gravidraum by the maternal serum adiponectin levels which show decrease in hyperemsis gravidraum. leptin / adiponectin ratio will be significance with hyperemsis gravidraum in the first trimester of pregnancy ***(Mantzoros et al., 2004).***

Aim of the work

The aim of this study is to determine the level of serum leptin, adiponectin and leptin /adiponectin ratio in women with hyperemesis gravidraum and compare it with those with normal pregnancy in order to speculate a possible role for adiponectin or leptin in pathogenesis of HG.