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Research Article

**ANALYSIS OF ROLE OF OREXIGENIC IN OBESITY
AMONG HYPERTENSIVE PATIENTS IN PAKISTAN**Dr Talha Shahid Amin¹, Dr Raja Qasim Abbas², Dr Tehmina Aziz Qureshi³¹Medical Officer at Akhtar Saeed Trust Hospital, Lahore²Medical Officer in THQ Hospital Choa Saiden Shah, Chakwal**Article Received:** November 2019 **Accepted:** December 2019 **Published:** January 2020**Abstract:**

Objectives of the study: The main objective of the study is to analyze the role of Ghrelin in obesity among hypertensive patients in Pakistan. Methodology of the study: This cross sectional study was conducted in Akhtar Saeed Trust Hospital, Lahore during August 2019 to November 2019. This study was done with the permission of ethical committee of hospital. This was basically a cross sectional study. For this purpose we collected the data of 113 patients of both genders. Results: Total 113 obese patients were selected for this study, of which 57 hypertensive and 57 were normotensive. Minimum age was 10 years and maximum age was 25 years with mean age 39.35 ± 10.086 years. Mean age of hypertensive obese was 43.42 ± 10.466 years and mean age of normotensive was 35.28 ± 7.876 years. Conclusion: It is concluded that Ghrelin was positively associated with hypertension in obese patients and this association was inversely influenced by the increase of BMI.

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INTRODUCTION:

Ghrelin is also called orexigenic and it is a peptide hormone released from the P/D1 cells in fundus in upper part of stomach and in the pancreas. Ghrelin secreting cells are also called epsilon cells. It is released when stomach is empty and its release is inhibited when stomach is stretched. It's a potent appetite stimulant. Ghrelin effects on GIT and its motility, bone formation, cardiovascular cells and insulin as well¹. Previous studies show that its levels are low in obesity and also in hypertension; however ghrelin has important vascular and metabolic effects. It increases the gastric secretion and gut motility as well. Ghrelinergic cells are located in stomach, jejunum, lungs; islets of Langerhans, adrenal cortex, placenta, and kidney and according to recent studies in brain as well. Ghrelin-O-acyl transferase (GOAT) is an enzyme which modifies the 3serine by n-octanoic acid to increase ghrelin activity and this enzyme. It was discovered by Yang, (2008), and is present in GIT and testis. Its optimum temp is 37-50 °C and pH between 7-8. Growth hormone, the receptors for Ghrelin are called growth hormone secretagogous receptor 1. Its mRNA is present in arcuate (ARC), ventromedial nuclei (VMN) of hypothalamus and in hippocampus². It is a heterotrimeric G protein-coupled receptor (GPCR) containing 366 amino acids with the typical seven transmembrane domains³.

Ghrelin receptor (GHSR1) is involved in biological effect of ghrelin including growth hormone release, increase in hunger lipid and glucose metabolism, increased regulation of motility and secretion of GIT, and protection of nervous and cardiovascular cells. It also plays a role in cell signaling mechanism⁴.

Objectives of the study

The main objective of the study is to analyze the role of Ghrelin in obesity and hypertensive patients in Pakistan.

METHODOLOGY OF THE STUDY:

This cross sectional study was conducted in Akhtar Saeed Trust Hospital, Lahore during August 2019 to November 2019. This study was done with the permission of ethical committee of hospital. This was basically a cross sectional study. For this purpose we collected the data of 113 patients of both genders. A fasting venous blood sample with a total volume of 4 ml will be collected from each study participant. One ml of this will be used in for routine testing FBS and 1 ml for fasting lipid profile.

The remaining 2ml of blood sample will be collected in potassium/ethylene diamine tetracetic acid coated tubes containing 500 KIU aprotinin for the measurement of plasma levels of total ghrelin. Sample will be centrifuged at 2000g for 10 min. Plasma will be kept at -40 C until analyzed. Ghrelin levels will be determined using ELISA kit. Sensitivity of assay would be 8pg/ml for ghrelin.

Statistical analysis

Statistical analysis will be done on SPSS 20 software. Mean \pm SD will be given for quantitative variables. Comparisons between the groups will be done using t test. Level of significance will be taken as $p \leq 0.05$.

RESULTS:

Total 113 obese patients were selected for this study, of which 57 hypertensive and 57 were normotensive. Minimum age was age was 10 years and maximum age was 25 years with mean age 39.35 ± 10.086 years. Mean age of hypertensive obese was 43.42 ± 10.466 years and mean age of normotensive was 35.28 ± 7.876 years.

Table 01: Comparison of mean fasting ghrelin levels between hypertensive and normotensive obese

Group	n	Mean	Std. Deviation	P Value
Hypertensive obese	57	0.572	0.514	0.013
Normotensive obese	57	0.387	0.202	

Mean ghrelin levels in hypertensive obese was 0.572 ± 0.514 and mean ghrelin levels in normotensive obese was 0.387 ± 0.202 . Statistically significant difference of mean fasting ghrelin levels between hypertensive obese and normotensive obese was noted with p value 0.013.

Table 02: Comparison of mean fasting ghrelin levels for age group 10-25 years between hypertensive and normotensive obese

Group	n	Mean	Std. Deviation	P Value
Hypertensive obese	36	0.676	0.610	0.001
Normotensive obese	53	0.386	0.205	

DISCUSSION:

Obesity is known to be strongly associated with hypertension and other arteriosclerotic disease, but the pathogenic mechanisms linking hypertension and obesity have not been fully determined. The possible roles of obestatin and ghrelin in obesity and metabolic syndrome have been studied. Changes in the concentrations of these hormones, and in the ghrelin/obestatin ratio, may be risk factors for obesity and hypertension⁸.

Ghrelin is a peptide hormone secreted primarily from the stomach and duodenum; it is a stimulant of appetite and increases adiposity in rodents. However, many studies have shown that obesity is associated with a decrease in circulating ghrelin. Ghrelin has also been reported to have potent anti-inflammatory actions, including inhibition of pro inflammatory cytokine production and mononuclear cell binding in vascular endothelial cells. Ghrelin may therefore have a protective effect on endothelial function and has been shown to lower blood pressure levels. Low plasma ghrelin has been reported to be associated with insulin resistance, hypertension and type 2 diabetes⁹.

CONCLUSION:

It is concluded that Ghrelin was positively associated with hypertension in obese patients and this association was inversely influenced by the increase of BMI.

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