CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.3151872

Available online at: http://www.iajps.com **Research Article**

A COMPREHENSIVE STUDY ON THE ROLE OF GHRELIN IN OBESITY AMONG LOCAL POPULATION OF PAKISTAN

Dr Muhammad Asim Shahzad[1], Dr Muhammad Shakeel[1], Dr Muhammad Hafeezullah[1]
[1]Health Department Punjab

Article Received: March 2019 **Accepted:** April 2019 **Published:** May 2019

Abstract:
Introduction: *Obesity is a major public health problem as more than 10% of the global population is obese. The number of patients affected by this modern epidemic and the associated co-morbidities, such as diabetes mellitus, cardiovascular diseases and cancer, are constantly rising, along with the associated health costs, making the management of obesity one of paramount importance.* ***Objectives of the study:*** *The main objective of the study is to analyze the role of Ghrelin in obesity among local population of Pakistan.* ***Methodology of the study:*** *This cross sectional study was conducted in Health department of Punjab during April 2018 to October 2018. The data was collected from 100 patients. The age range for this study was 10 to 25 years. Subjects with known history of Diabetes mellitus, malignancy and major abdominal surgery and on any major Drug e.g metocloperamide will be excluded from participating in the study. 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.* ***Results:*** *The data was collected from 100 patients of both genders. Mean age of hypertensive obese was 43.42 ± 10.466 years and mean age of normotensive was 35.28 ± 7.876 years. 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.* ***Conclusion:*** *It is concluded that Ghrelin was positively associated in obese patients and this association was inversely influenced by the increase of BMI.*

Corresponding author:
Dr.Muhammad Asim Shahzad,
Health Department Punjab

QR code

Please cite this article in press Muhammad Asim Shahzad et al., ***A Comprehensive Study On The Role Of Ghrelin In Obesity Among Local Population Of Pakistan.,*** *Indo Am. J. P. Sci, 2019; 06(05).*

INTRODUCTION:

Obesity is a major public health problem as more than 10% of the global population is obese. The number of patients affected by this modern epidemic and the associated co-morbidities, such as diabetes mellitus, cardiovascular diseases and cancer, are constantly rising, along with the associated health costs, making the management of obesity one of paramount importance [1]. 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 [2]. 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 well. Previous studies show that its levels are low in obesity and also in hypertension; however ghrelin has important vascular and metabolic effects [3]. It increases the gastric secretion and gut motility as well. Ghrelinergic cells are located in stomach, jejunum, lungs; islets of Lange hen's, adrenal cortex, placenta, and kidney and according to recent studies in brain as well [4].

During the past couple of decades the identification of circulating factors that contribute to the induction of hunger (orexigenic) or satiety (anorexigenic) has diversified the cause of food restriction after bariatric surgery apart from being solely a mechanical phenomenon to a more complex effect of both anatomical and humoral modifications induced by the different operative strategies [5]. Ghrelin is a well-known orexigenic hormone that stimulates food intake in a dose-dependent manner. Ghrelin increases appetite both by initiating homeostatic feeding driven by metabolic need and by non-homeostatic feeding, acting centrally and affecting the modulation of reward, memory and motivated feeding behavior. 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 mechanism [6].

Objectives of the study

The main objective of the study is to analyze the role of Ghrelin in obesity among local population of Pakistan.

METHODOLOGY OF THE STUDY:

This cross sectional study was conducted in Health department of Punjab during April 2018 to October 2018. The data was collected from 100 patients. The age range for this study was 10 to 25 years. Subjects with known history of Diabetes mellitus, malignancy and major abdominal surgery and on any major Drug e.g metocloperamide will be excluded from participating in the study. 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.

Statistical analysis

Statistical analysis will be done on SPPS 19.0 software. Level of significance will be taken as $p \leq 0.05$.

RESULTS:

The data was collected from 100 patients of both genders. Mean age of hypertensive obese was 43.42 ± 10.466 years and mean age of normotensive was 35.28 ± 7.876 years. 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.

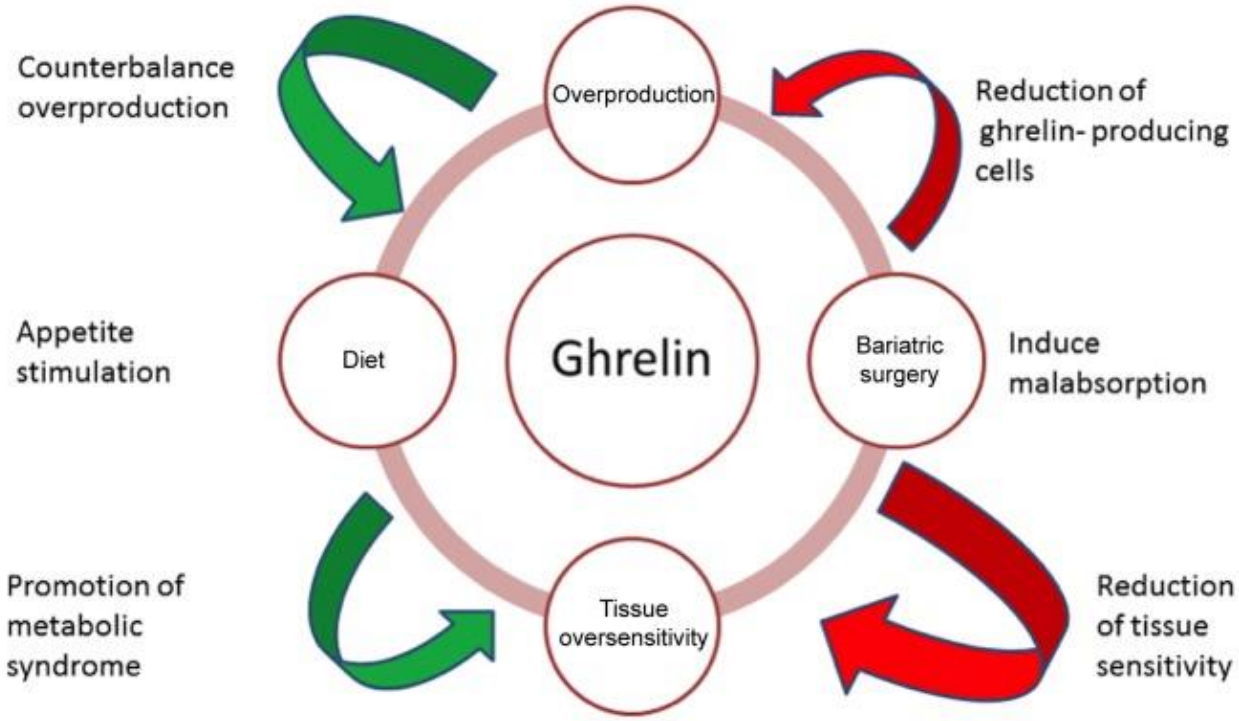
Table 01: Comparison of mean fasting ghrelin levels for age group 10-25 years between hypertensive and normotensive obese

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

Mean fasting ghrelin levels in hypertensive obese was 0.676 ± 0.610 and in normotensive obese was 0.386 ± 0.205 in age group 10-25 years. Statistically significant difference of mean fasting ghrelin levels between hypertensive obese and normotensive obese was detected with p value 0.001.

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 hypertension [7].



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 [8]. 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 [9]. 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 diabetes [10].

CONCLUSION:

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

REFERENCES:

1. Guan, X-M., Yu, H., Palyha, O.C., Sirinathsinhji , D.J., Smith, R.G., Van der Ploeg. L.H., and Howard, A.D .1997. Distribution of mRNA encoding the growth hormone secretagogue receptor in brain and peripheral tissue. Molecular Brain Research. 48: 23 - 29.
2. Hall, J.E., Da, Silva, A.A., Do Carmo, J.M., et al. 2010. Obesity-induced hypertension: role of sympathetic nervous system, leptin, and melanocortins. Journal of Biological Chemistry, 285: 17271–17277.
3. Kojima ,M ., Hosoda ,H ., Date, Y., Nakazato, M ., Matsuo, H . and Kangawa ,K.1999. Ghrelin is a growth-hormone-releasing acylated peptide from stomach. Nature, 402: 656–660.
4. Kojima, M., and Kangawa, K. 2005. Ghrelin; Structure and Function, 85: 495-522.
5. Li, Z.F., Guo, F.L., et al. 2010.Circulating ghrelin and ghrelin to obeststin ratio are low in patient with untreated mild to moderate hypertension, 165: 206-209
6. Nakazato, M., Murakami, N., Date, Y., Kojima , M ., Matsuo, H ., Kangawa , K ., and Matsukura , S. 2001. A role for ghrelin in the central regulation of feeding. Nature, 409: 194–198.
7. Oner-Iyidoğan, Y., Koçak , H ., Gürdöl, F ., et al. 2007. Circulating ghrelin levels in obese women: a possible association with hypertension.

Scandinavian Journal of Clinical Laboratory Investigation, 67: 568–576.
8. Rhéaume , C., Leblanc, M-È. and Poirier ,P . 2011. Adiposity assessment: explaining the association between obesity, hypertension and stroke. Expert Review Cardiovascular Therapy, 9: 1557–1564
9. Sato, T., Nakamura, Y., Shiimura, Y., et al. 2011. Structure, regulation and function of ghrelin. Journal of biochemistry, 151 (2):119-128.
10. Wang,≤W.M., Li, S.M.,et al. 2014. Ghrelin and obestatin levels in hypertensive obese patients. Journal of International Medical Research, 42 (6):1202-1208.