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ANALYSIS OF ROLE OF PLASMA OBESTATIN LEVELS IN OBESITY ASSOCIATED WITH DAILY LIFE STYLE IN PAKISTAN

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Abstract:
Introduction: *Obesity is a pathological condition, which results from an imbalance between caloric intake and expenditure, and is characterized by excessive body fat accumulation, that has severe impact on life quality and life expectance due to the burden of associated co-morbidities.* ***Aims of the study:*** *The main aim of the present study is to analyze the role of plasma obestatin levels in obesity which is associated with daily life style.* ***Methodology of the study:*** *This study was conducted according to the rules and regulations of ethical committee of the hospital. The data was collected from 50 obese patients which was also suffering from heart and cholesterol diseases. These patients who visited the OPD of the hospitals of Bahawalpur was selected for this study.* ***Results:*** *Mean fasting obestatin levels was 0.450 ± 0.468 and 0.959 ± 0.889 respectively in normal and obese and the difference of mean fasting obestatin levels between the both groups was statistically significant with p value 0.000.* ***Conclusion:*** *Obestatin plays very important role in obesity and it is directly correlated with blood glucose level.*

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INTRODUCTION:

Obesity is a pathological condition, which results from an imbalance between caloric intake and expenditure, and is characterized by excessive body fat accumulation, that has severe impact on life quality and life expectance due to the burden of associated co-morbidities. Recent data from the World Health Organization suggest that 11% of the world population (more than half a billion people) is obese, while 35% is overweighed[1]. Furthermore, the prevalence of obesity is continuously increasing worldwide, so revealing the patho mechanism and finding effective treatments have become urgent and essential. During the past decades much research has highlighted that neurotransmitter systems controlling appetite and feeding behavior, cognitive function, stress and reward behavior are strongly and reciprocally connected[2]. Food intake is normally regulated by a homeostatic drive to restore energy balance, while in certain conditions hedonic or reward-based regulation favors the consumption of highly palatable, energy-dense foods[3].

Obestatin is a 23-acid metabolic peptide, derived from the preproghrelin gene which was isolated first from the rat stomach in 2005[4]. However, obestatin is also expressed in other GI organs (pancreas, liver), adipose tissue, skeletal muscle, lungs, thyroid and mammary glands and testes, suggesting a multifunctional role of it, which can act both centrally and peripherally[5]. It was originally described as a direct antagonist of ghrelin with anorexigenic effect. Both central and peripheral injection decreased food intake in a time and dose-dependent manner, body weight gain, and intestinal motility via the G-protein coupled receptor 39 (GPR39) a member of the GHSR family which was rapidly refuted as a receptor for obestatin by several studies[6]. To note, recent data suggest that obestatin may act through the GPR39 receptor in an autocrine/paracrine manner peripherally, namely as mitogenic factor in myoblasts and GPR39 could mediate the metabolic effects of obestatin in the adipose tissue and GI system[7].

In addition, obestatin has been shown to be positively correlated with ghrelin. This suggests that levels of both obestatin and ghrelin may be altered in obesity and insulin resistance. Obestatin has been reported to decrease vascular cell adhesion molecule-1 expression in endothelial cells when stimulated with tumour necrosis factor-α, and to increase oxidized low-density lipoprotein binding to macrophages. Therefore, it may also have a potential function in the regulation of blood pressure[8].

Aims of the study

The main aim of the present study is to analyze the role of plasma obestatin levels in obesity which is associated with daily life style.

METHODOLOGY OF THE STUDY:

The data was collected from 50 obese patients which was also suffering from heart and cholesterol diseases. Demographic factors were also asked to the student. Body mass index (BMI) and waist circumference (WC) were done for patients and controls as anthropometrical tests, while fasting serum glucose (FSG) measured using spectrophotometric technique. Each serum sample was analyzed for obestatin hormone and fasting insulin using enzyme linked immune sorbent assay (ELISA).

Statistical analysis

SPSS analysis test was used in making a comparison of the two-tailed P value of the two groups with a significance set at $p<0.05$. Results were considered to be of statistical significance if the two-tailed p-value was less than 0.05.

RESULTS:

Mean fasting obestatin levels was 0.450 ± 0.468 and 0.959 ± 0.889 respectively in hypertensive and normotensive obese and the difference of mean fasting obestatin levels between the both groups was statistically significant with p value 0.000.

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

Group	n	Mean	Std. Deviation	P Value
Hypertensive obese	57	0.450	0.468	0.000
Normotensive obese	57	0.959	0.889	

Table 02: Comparison of mean fasting blood cholesterol levels between normal and obese patients

Group	n	Mean	Std. Deviation	P Value
Normal	57	206.42	44.420	0.644
Obese patients	57	202.39	48.344	

Mean fasting blood cholesterol level was 206.42 ± 44.420 and 202.39 ± 48.344 respectively in normal and obese and the difference was not statistically significant with p value 0.644.

DISCUSSION:

Hormones and neuropeptides control and integrate the neuro circuits of metabolism, thirst, thermoregulation, and sleep overlapping in the hypothalamus. Accordingly, besides its peripheral effects, central actions of obestatin were also identified[9]. To note first, when administered ICV this peptide inhibited thirst in fed and fasted male rats, and pretreatment with obestatin also neutralized the dipsogenic effect of angiotensin II. Furthermore, it was also suggested that the anorexigenic effect of this peptide is a consequence of the thirst inhibition, the so called dehydration anorexia[10].

The neurogenesis in the adult hippocampus involves the proliferation, migration and differentiation of progenitor cells. These processes are impaired by different conditions, such as hypoxia, addictive drugs, sustained exposure to stress among others, while certain hormones and growth factors promote the proliferation and survival of the hippocampal neurons[11].

CONCLUSION:

Obestatin plays very important role in obesity and it is directly correlated with blood glucose level. Furthermore, there was a clear relationship between obestatin and both BP and HOMA-IR, suggesting that obestatin might play a role in BP regulation.

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