

Comparison of Serum Leptin Level in Preeclamptic and Normotensive Pregnant Women

MUHAMMAD ASIF, IMTIAZ AHMAD*, WASIL KHAN**, SANIA KHATTAK***

ABSTRACT

Aim: To compare the serum leptin levels in normotensive pre-eclamptic pregnant women and to investigate the possibility of leptin being a marker of severity of pre-eclampsia.

Study Design: Comparative cross-sectional

Place of Study: Pathology, Gynaecology/obs and medicine department Saidu teaching hospital swat.

Methodology: This was a comparative cross-sectional study 45 primigravidas with normal and 45 primigravidas with pre-eclamptic pregnancy were chosen in third trimester. Serum leptin levels were determined by immunoenzymometric assay.

Results: Blood leptin levels were elevated in pre-eclamptics as compared to normal pregnancy. Serum leptin were increased in severe group of preeclamptics.

Conclusion: Blood leptin were raised in pre-eclamptic group in third trimester and used as a marker of pre-eclamptic condition.

Keywords: Leptin, pre-eclampsia

INTRODUCTION

Fatty tissue is rich in leptins. Placental leptin is raised in pregnancy when comparing with non-pregnant ladies. Deregulation in leptin levels may prompt maternal ailment. Preeclampsia is consisted of hypertension and proteinuria following 20th week of gestation¹. Lep b gene on chromosome 7 is responsible for leptin expression. Preeclampsia is the most dangerous condition pregnancy. It is common cause for mother and fetus death^{2,3}.

METHODOLOGY

Conducted at pathology section Saidu Medical College, Swat. 90 pregnant women with 17–34 years age were included and gestational age was 28–38 weeks.

Inclusion Criteria: 45 normotensive primigravidas in third trimester with 45 pre-eclamptic primigravidas of 3rd trimester.

Exclusion Criteria: H/O hypertension, diabetes mellitus, gestational diabetes and chronic renal disease. The blood samples were collected and Serum leptins were analysed by immunoenzymometric assay. Data was analysed using SPSS 15.

*Pathology Department, Saidu Medical College, Swat

**Medicine Department Saidu teaching Hospital Swat.

***Gynaecology and obstetrics department, Saidu teaching Hospital Swat.

Correspondence to Dr. Muhammad Asif, Assistant Professor Pathology, Saidu Medical College, Swat: drasif555@yahoo.com

RESULTS

The detail of results is given in tables 1,2,3 and 4. Serum leptin levels were statistically significant ($p < 0.01$) in severe group i.e., 85.7 ± 13.3 A significantly positive correlation ($p < 0.01$) was observed between serum leptin and systolic and diastolic blood pressure in pre-eclamptic group B cases

Table 1: Serum leptin in Groups A & B

Serum Leptin (ng/ml)	Mean \pm SD	n
GroupA (Control)	26.8 \pm 6.47	45
GroupB(Pre-Eclamptic)	62.1 \pm 23.8	45

A vs B = $p < 0.01$ (HS)

Table-2: Serum leptins in Groups B1 & B2

Serum leptins	Group B (Pre-Eclamptics)	
	B1 (Severe)	B2 (Mild)
Mean \pm SD	85.7 \pm 13.3*	47.7 \pm 15.9
Total subjects	17	28

B1 vs B2= $p < 0.01$ (HS)

Table 3: Serum leptins and proteinuria in pre-eclampsia

Proteinuria	Serum Leptins in Group B
+ (18)	52.1 \pm 4.23
++ (13)	52.0 \pm 5.56
+++ (11)	86.1 \pm 5.58*
++++ (03)	77.6 \pm 13.38

* $p < 0.01$ (HS)

Table-4: Correlation of serum leptin and BP in A & B

Blood pressure(mmHg)	Group A	Group B
Systolic vs Leptons level	r= -0.14	r= 0.69*
Diastolic vs leptons level	r= -0.02	r= 0.76*

* $p < 0.01$ (HS)

DISCUSSION

In this study, serum leptins are raised in preeclampsics when comparing with normotensive pregnant ladies. This is consistent with Haugen⁴, Kocyigit⁵ and Sebiha Ozkan⁶, who examined leptin levels in PE. Exceedingly noteworthy distinction was found between mild and severe types of PE and favors the finding of Atamer⁷. When proteinuria was checked, protein increases with raised leptin level.

In a study by Anim- Nyame in 2000, plasma leptin were raised in PE⁸. Other studies by Hytinantti showed that PE was related with raised leptin levels⁹. Ischemia of placental tissue rapidly increased leptin level in third trimester in PE. Hypoperfusion of placenta causes decreased oxygen thus augmenting leptin gene expression in the placenta resulting increased leptins⁵.

CONCLUSION

Serum leptins are higher in pre-eclampsia pregnant ladies in 3rd trimester with raised proteinuria

REFERENCES

1. Taylor DB, Ness BR, Olsen J et al. Serum leptin measured in early pregnancy is higher in women with

2. El shahat AM, Ahmed AB, Ahmed MR et al. Maternal serum leptin as a marker of preeclampsia. Arch Gynecol Obstet 2013; 288:1317–1322.
3. Rahman S, Zahoor, Ahmed S. Serum leptin levels as a marker for severity of pre-eclampsia. KJMS J 2015; 8 (1):85-88.
4. Singh HJ, Asiah AB, Aminah CR et al. Raised leptin concentration in feto-placental tissues from women with preeclampsia. Hyperten Preg 2005; 24:191–9.
5. Hytinantti T, Koistinen HA, Koivisto VA et al. Increased leptin concentration in preterm infants of pre-eclamptic mothers. Arch Dis Child Fetal Neonat Ed 2000;83:F13–F16.
6. Kocygit Y, Atamer Y, Atamer A et al. Changes in serum levels of leptin, cytokines and lipoprotein in preeclamptic and normotensive pregnant women. Gynecol Endocrinol 2004; 19:267–73.
7. Kharb S, Panjeta P, Ghalaut VS et al. Maternal Factors Affecting Serum Leptin Levels in Preeclampsia and Normotensive Pregnant Women and Outcome of Pregnancy. J Preg Child Health 2016; 3:223
8. Williams MA, Haver PJ, Schwartz MW et al. Pre-eclampsia disrupts the normal relationship between serum leptin concentrations and adiposity in pregnant women. Paediatr Perinat Epidemiol 1999; 13:190–204.
9. Anim-Nyame N, Sooranna SR, Steer PJ et al. Longitudinal analysis of maternal plasma leptin concentrations during normal pregnancy and pre-eclampsia. Human Reproduction 2000; 15:2033–6.