

**GENDER DIFFERENCES IN FASTING
SERUM LEPTIN LEVEL AMONG
MALAYSIAN POPULATION**

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OBJECTIVE

- ✘ Serum leptin increases with progressive obesity in both genders. However, for any given measure of obesity, leptin levels are higher in women than men.
- ✘ This research is to study the gender differences of the fasting plasma leptin concentration in Malaysian people from east coast Malaysia with a back ground knowledge of ethnic variation¹
- ✘ So that can establish a baseline for future research, and to consolidate our knowledge regarding leptin and it's correlation with fertility issues and endocrine disorders.

METHOD

This was a cross sectional study included 100 consented Malaysian people (50 male and female) were recruited from Kulliyyah of dentistry, International Islamic University Malaysia and medical department, Hospital Tengku Ampuan Afzan, Kuantan, those with endocrine, diabetic illness, abnormal BMI, chronic illness and any patient on hormonal treatment were excluded from the study. Individual venous blood was taken between 0800–0900 am after an overnight fasting. Determination of serum leptin was done by enzyme linked immunosorbent assay (ELISA) and measured in ng/ml. Data were analyzed using SPSS 18

RESULT

- ✘ Mean age were, 34.5 ± 6.4 and 31.2 ± 4.3 for male and female respectively, there was no significant difference between the age of both groups. Mean body mass index for male was 23 ± 1.91 Kg / m² which were not significantly different from the female BMI which was 22 ± 0.87 Kg / m².
- ✘ data were analysed by nonparametric Mann-Whitney U-test, found that serum leptin levels in females are significantly higher ($= 6.0$, $p < 0.001$) than those in males, 7.29 ng/ml vs 3.94 ng/ml respectively. Correlation coefficient of serum leptin level with female body mass index (kg/m²) is 0.693 in a value of $< .0001$

Leptin

Gender	Sample size(N)	Mean	Standard deviation SD	Standard error of the mean(SEM)
Male	50	3.94*	±2.31	±0.33
Female	50	7.29	±2.46	±0.35

Tab1: serum leptin and gender

	leptin
Mann-Whitney U	372.000
Wilcoxon W	1649.000
Z	-6.054
Asymp. Sig. (2-tailed)	.000
Exact Sig. (2-tailed)	.000
Exact Sig. (1-tailed)	.000
Point Probability	.000

Tab 2: Mann-Whitney test

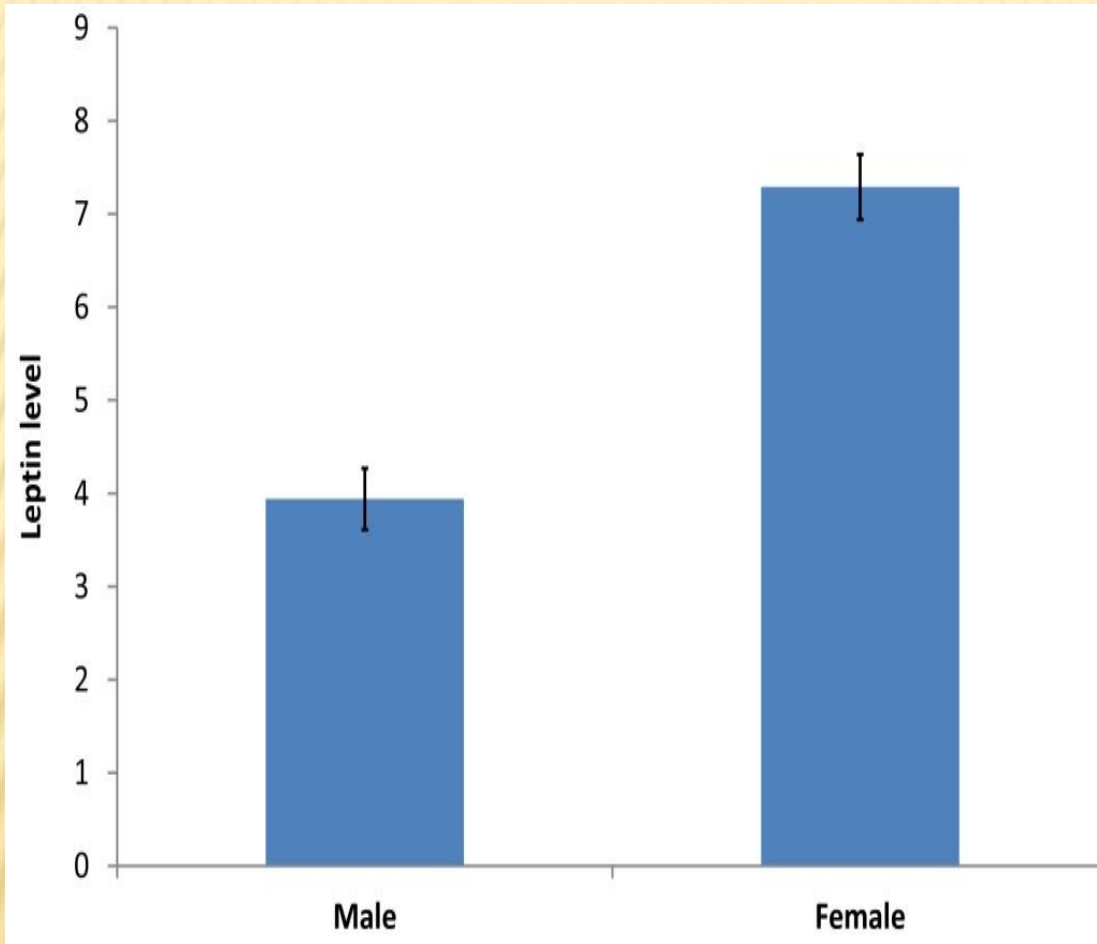


Fig 1: serum leptin level with gender

DISCUSSION

- ✘ Our study showed significantly higher serum leptin level in women compared to man of the same BMI which is agree with results of many studies^{2,3,4}
- ✘ It is known that the percentage of body fat differs between men and women. Adult women have 22-26% fat weight and men have 13-16%⁵
- ✘ Estrogen is responsible for the greater amounts of body weight fats in women and testosterone is responsible for the higher lean weight mass in men⁶.
- ✘ Nicklas BJ et al² found that, despite serum leptin is correlate well with fat mass in both gender, but leptin is higher by three fold in women compared to men of a given fat mass
- ✘ A novel part in a future study is to measure the fat and lean mass and to find if there is another possible hormonal factors play part in this significant difference, and a comparison study of fasting serum leptin between Malaysian and chinese population living in Malaysia to find out is it the ethnic origin with the genetic influence or is it the environmental factors that play the main role?

CONCLUSION

- ✘ Serum leptin is significantly affected by gender, with women have significantly higher serum leptin level than man, further study is required to measure the fat mass and lean mass in addition to serum leptin in both gender to find out hidden factors influencing this difference.
- ✘ Comparison study of serum leptin is required between Malaysian and chinese population settled in Malaysia as it is the second higher race in Malaysia, to study the effect of genetic and environmental factors on the ethnic origin and its relation with serum leptin.

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