



# Title: Pro-Inflammatory cytokines: Leptin and visfatin associated to obesity in young university students

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# Introduction

Obesity has been associated with the development of important degenerative diseases such as hypertension, metabolic syndrome, diabetes mellitus (DM), cardiovascular disease (CVD), cancer, among others. And is also described that the disease severity of infections illnesses such as coronavirus, influenza, parainfluenza, and rhinovirus is increased. Besides, in 2009 was recognized as a risk factor during the pandemic of influenza H1N1. Currently there are several studies which suggest that some adipocytokines as leptin, resistin, plasminogen activator inhibitor-1 (PAI-1), adiponectin, visfatin among others have mediators affects in cardiovascular system.

Some authors had shown plasmatic levels of leptin seem to be one of the best biological markers of obesity, and hyperleptinemia is closely related with several metabolic risk factors on insulin resistance in DM. Some studies reveals that visfatin have mimetic affects with insulin in muscle stimulation and in glucose transport in adipocyte, also inhibit glucose production in liver.

# Methodology

- Cross-sectional study.
- The present study was carried out in the facilities of the Centro Universitario de Ciencias Exactas e Ingenierías of the Universidad de Guadalajara.
- We recruit 171 young students (57.6 % female, 42.4% male) with the following characteristics: age between 18- 25 years old, fasting of 8 to 10 hours to take the blood sample.

# Results

- The results shows that BMI is higher in male and triglycerides also. On the other hand, leptin levels and total cholesterol are higher in women. The group with hyperleptinemia has higher values of BMI, total cholesterol, triglycerides, LDL and visfatina comparing with the group with normal leptin levels.
- We observed that hyperleptinemia is a risk factor for the development of obesity with OR 5.86 ( $p=0.01$ ), in the other hand, visfatina acts as a protector factor with OR 0.2901 (0.02).

# Conclusions

Therapeutic intervention in early stages previous the beginning of the metabolic complications could have a favorable cost-benefit. However, the incorporation of markers such as the size of the particle of LDL, insulin resistance index, adipocytokines pro inflammatory as leptin and visfatin could improve the current predictive capacity.

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