



# ELEVATED GROWTH HORMONE AND INSULIN LIKE GROWTH FACTOR-1 LEVELS MAY ASSOCIATED WITH DYSLIPIDEMIA IN ACROMEGALY

Havva Keskin<sup>1</sup>, Kenan Çadırıcı<sup>2</sup>, Yasemin Kaya<sup>3</sup>, Şenay Durmaz<sup>4</sup>, Abdulmuttalip Arslan<sup>2</sup>, Faruk Yıldız<sup>2</sup>, Hakan Gözcü<sup>2</sup>, Hakan Sevimli<sup>2</sup>, Mehmet Emin Budak<sup>2</sup>, Ayşe Çarlıoğlu<sup>2</sup>

<sup>1</sup>Department of Internal Medicine, Göztepe Training and Research Hospital, Istanbul, TURKEY

<sup>2</sup> Department of Internal Medicine, Training and Research Hospital, Erzurum, TURKEY

<sup>3</sup> Department of Internal Medicine, Ordu University Faculty of Medicine, Ordu, TURKEY

<sup>4</sup>Department of Internal Medicine, Kırıkkale University Faculty of Medicine, Kırıkkale, TURKEY

## Introduction

Acromegaly is a disorder characterized by an excess of growth hormone and insulin like growth factor-1(IGF-1) levels. Acromegaly increased risk of cardiovascular disease because of hypertension, glucose intolerance, dyslipidemia, insulin resistance such as with secondary cardiovascular disease risk factors. In this study, we aim to evaluate serum lipid profile in patients newly diagnosed with acromegaly and determine its association with increased growth hormone (GH) and insulin like growth factor-1(IGF-1) levels.

## Material and Methods

This study includes 57 patients newly diagnosed with acromegaly in Erzurum Training and Research Hospital, the department of Endocrinology and Metabolic diseases (mean age 44.1± 13.8 years; mean body mass index (BMI) 29.6± 5.4 kg/m<sup>2</sup>) and 31 healthy subjects in control group who have similar age and BMI (mean age 38.8± 15.4 years; mean BMI 26.9 ± 7.3 kg/m<sup>2</sup>). Respectively p value were determined 0,07 and 0,059. None of the patients were on antilipemic drug. All venous blood sampling were taken for GH, IGF-1, total cholesterol (TC), triglycerides (T) and HDL-C, LDL-C were taken in 12 hours fasting state. All hormonal and biochemical analysis were performed by automatic analyzer.

## Results

In our data, we detected statistically significant differences in LDL-C level (mean LDL-C levels 140.2± 61.3 mg/ dl in acromegaly group vs. 115.6± 30.4 mg/dl in control group, respectively, p=0.029), triglyceride level (mean TG levels 137.6 ± 84.0 mg/dl in acromegaly group vs. 102,9 ± 43.0 mg/ dl control group, respectively, p=0.027) and HDL-C level (mean HDL-C levels 41,5± 10,5 mg/ dl in acromegaly group vs. 50,5±10,6 mg/ dl in control group, respectively, p=0.001).

There were positive correlations between GH and LDL-C (r= 0.375, p=0.02) and also between GH and TG levels (r=0.302, p=0.01). There were also significant positive correlations between IGF-1 and LDL-C (r=0.295, p=0.01) and between IGF-1 and TG (r=0.476, p=0.0001). In addition, there were negative correlations between GH and HDL-C (r=-0.399, p=0.001) and also between IGF-1 and HDL-C (r=-0.310, p= 0.01).

## Discussion

GH and IGF-I have important roles in the maintenance of substrate metabolism and body composition. GH reduces visceral and total body fat mass and enhances whole body insulin resistance. However, when in excess in acromegaly, the lipolytic and insulin antagonistic effects of GH may alter adipose tissue deposition. Growth hormone and IGF-1 increase may be establishing a ground for atherosclerotic heart diseases by leading to proatherogenic lipid profile in patients with acromegaly. Therefore, it might be important to follow this dyslipidemic milieu in terms of atherosclerotic risk in acromegaly

