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Phenotype hypertriglyceridemic waist in personal and military family, 2016-2017. Lima - Peru

Abstract

Objective: To know the clinical and laboratory Characteristics of the hypertriglyceridemic waist phenotype in the Patients of a military hospital, 2016-2017.

Material and methods: Observational, descriptive, retrospective cross-sectional study. Non-experimental design. We reviewed the Clinical Histories of Patients Treated in the endocrinology service of a Military Hospital, from January 2016 to March 2017; 82 Patients With complete clinical and laboratory data were included in the medical records.

Results: Mean age 55.4 years (range 22-78 years), higher frequency in evils (59.8%), presence of overweight (46.34%), some degree of obesity (50%), acanthosis nigricans presence of (40.2%) (58.5%), HOMA-IR was 70.7% in ≥2.77, high Total cholesterol (61%) and low HDL (62.2%), high TGP (34.1%).

Conclusions: The hypertriglyceridemic waist phenotype is a good marker of multiple metabolic Alterations, Strengthening STI use for early detection of cardiometabolic risk overall.

Keywords: Insulin resistance, hypertriglyceridemia, acanthosis

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Introduction

Currently obesity is a pandemic begins in early childhood and becomes more prevalent in adulthood, consequently resulting in increased risk of metabolic diseases and increased cardiovascular morbidity and mortality.[1]

2014 the World Health Organization (WHO) reported that 39% of those over 18 years in the world were overweight and 13% were obese.[2] In Peru, according Demographic and Health Survey (DHS 2014), in patients over 15 years of age, the prevalence of overweight and obesity 34.7% 17.5% reported. These alterations of overweight and obesity are higher in Lima (40.2%) and urban (21.3%) compared to rural areas (6.6%).[3]

WHO defines obesity as abnormal or excessive fat accumulation that can be harmful to health, since the 80s, the use of BMI (Body Mass Index) was introduced to define overweight (BMI≥25 kg/m^2) and obesity (IMC≥ 30kg/m^2). Also it determined to be important to consider two subtypes of obesity: the central, visceral or android obesity (waist circumference in men and women≥90cm≥80cm for people of Central and South America) and peripheral gynoid obesity or (abdominal girth in men<90 cm and in women<80 cm).[4] From this definition, studies have been showing that the amount of visceral adipose tissue is directly correlated with abnormal metabolic profile and increased cardiovascular risk.

The components of central obesity and metabolic alterations are part of the so-called Metabolic Syndrome (MS), 2005 the International Diabetes Federation (IDF), proposed as a prerequisite for this syndrome increased abdominal girth (values according to ethnicity) to which you add one or more of the following criteria: increased triglycerides with low HDL, hypertension, associated with insulin resistance and/or reduced glucose metabolism, thus giving the great importance of central obesity risk of metabolic and cardiovascular diseases.[5]

Since 2000 the concept of "Waist hypertriglyceridemic" is released as a single phenotype to detect patients with cardiometabolic risk; hypertriglyceridemia (≥177mg/dl) and the increase in abdominal circumference (males ≥90cm) is associated with a metabolic triad unconventional risk variables as hyperinsulinemia, hiperapolipoproteína B and small, dense LDL. This atherogenic metabolic triad is associated with an increase of over 20 times of risk of ischemic heart disease in middle-aged men - Cardiovascular Quebec study - beyond the presence of traditional risk factors.[6]

For this increasing prevalence of obesity in our country and the world, must be sought an affordable cost and simple clinical tool to identify cardiometabolic risk for developing cardiovascular disease and type 2 diabetes mellitus in our population, ideally this identification must be made from the first level of care. Hypertriglyceridemic waist phenotype is described in many populations as an ideal and inexpensive tool to identify those patients at risk; in Peru there are few studies regarding the phenotype hypertriglyceridemic waist.

The aim of this work is to determine the clinical - laboratorial hypertriglyceridemic waist phenotype in military personnel, it is important for early detection of patients at risk for cardio metabolic diseases.

Materials and methods

Observational, descriptive, retrospective cross-sectional study. No experimental. Medical records of patients treated at the Endocrinology Service of Military Hospital between January 2016 and March 2017. Patients were reviewed over 18 years, with the presence of hypertriglyceridemia, elevated waist circumference are included according to sex and have clinical and laboratory data complete; pregnant patients were excluded, diagnosed Diabetes Mellitus, decompensated and lipid-lowering therapy at the time of the first evaluation Hypothyroidism. The research included the variables age, sex, weight, height, BMI, waist circumference, blood pressure, presence of acanthosis, basal glycemia, basal insulin, HOMA IR calculation, cholesterol and fractions and TGP,

The data are presented using descriptive statistics, software used in Statistical Package for Social Sciences (SPSS) version 24. The

type and design of the research study was exempted from the need to review institutional or national ethics committees of yet have scrupulously respected the principles of the Declaration of Helsinki.

Results

Mean age 55.4 years more frequently in males (59.8%), overweight (46.34%) and some degree of obesity (50%): hypertriglyceridemic waist phenotype in the following characteristics were found (Table 1).

Table 1 Clinical laboratory characteristics of patients with hypertriglyceridemic waist phenotype

Characteristics	Results
Middle Ages)	22-78 (55.4 years)
Sex	Male: 49 (59.8%)
	Female: 33 (40.2%)
IMC	Eutrophic: 3 (3.66%)
	Overweight: 38 (46.34%)
	Obesity I: 31 (37.8%)
	Obesity II: 9 (10.98%)
	Obesity III: 1 (1.22%)
Acanthosis nigricans	Present: 33 (40.2%)
	Absent: 49 (59.8%)
Arterial hypertension	Normotensive: 63 (76.8%)
	Hypertensive: 19 (23.2%)
Fasting altered glucose	Absent: 34 (41.5%)
	Present: 48 (58.5%)
Insulin resistance according to HOMA-IR	<2.77: 24 (29.3%)
	≥2.77: 58 (70.7%)
Total cholesterol	Normal: 32 (39%)
	Elevated: 50 (61%)
HDL cholesterol (HDL low♂<40,♀<50)	Normal: 31 (37.8%)
	Low: 51 (62.2%)
TGP (high TGP♂≥40,♀≥30)	Normal: 54 (65.9%)
	High: 28 (34.1%)

Acanthosis nigricans, as clinical signs of insulin resistance, occurred in 40.2% of patients and HOMA IR elevated in 90.9% of patients with acanthosis nigricans (Table 2).

Table 2 Insulin resistance according to HOMA IR in relation to the presence of acanthosis nigricans

Presence of acanthosis nigricans	HOMA-IR		Total
	<2.77	≥2.77	
I presented	3	30	33
Absent	21	28	49
Total	24	58	82

Normotensive in 76.8% of patients, impaired fasting glucose in 58.5%. 70.7% of the evaluated patients presented insulin resistance by HOMA IR calculation. A higher BMI greater insulin resistance measured by HOMA IR (Figures 1) (Figure 2).

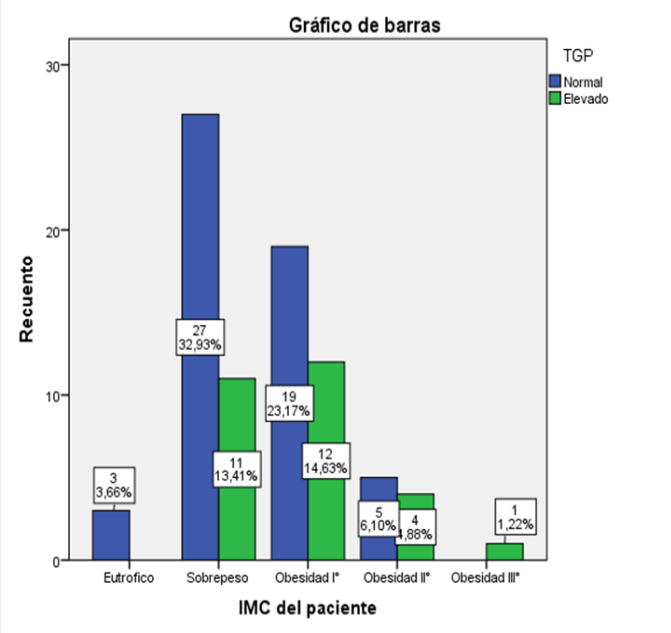

Figure 1 Acanthosis nigricans and its relationship with impaired fasting glucose.

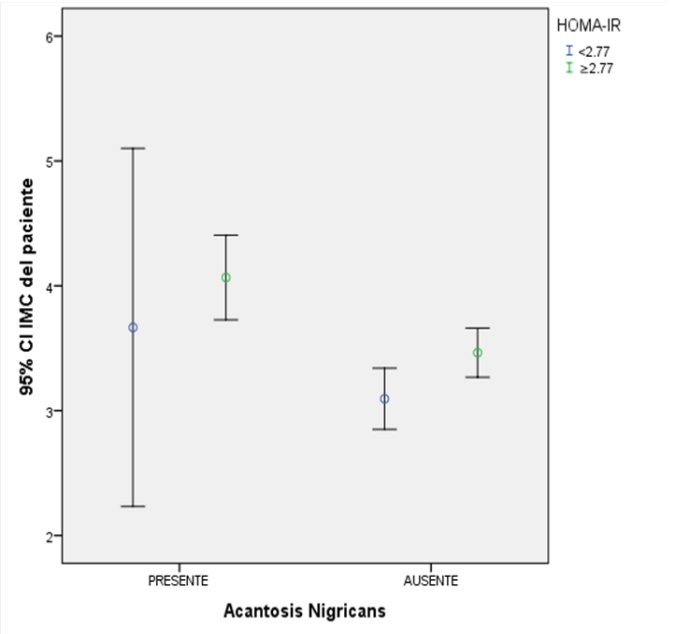

Figure 2 BMI, acanthosis nigricans and index of insulin resistance by HOMA IR.

61% of those tested showed elevated total cholesterol (≥200mg / dl) and low HDL in 62.2% of cases. TGP value was elevated in 34.1% of patients with hypertriglyceridemic waist phenotype. TGP greater value greater body mass index was determined (Figure 3).

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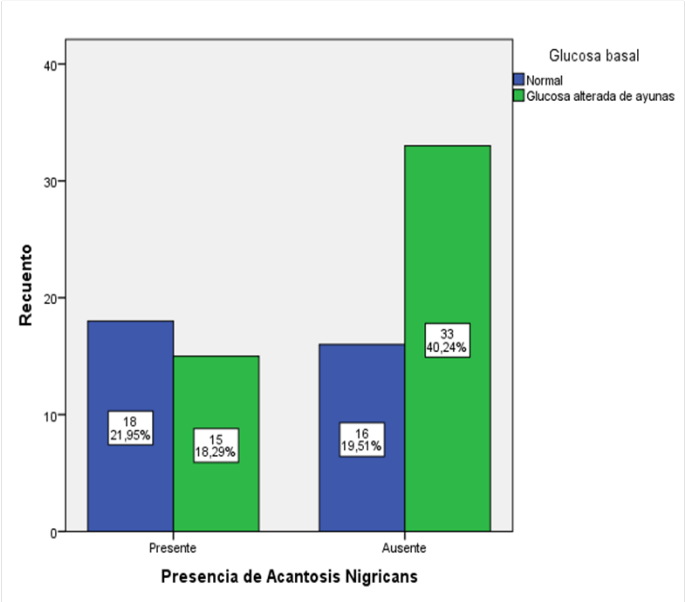

Figure 3 Glutamic pyruvic transaminase in relation to the Body Mass Index.

Discussion

Cases Phenotype Waist hypertriglyceridemic correspond to 30% of the total population of care in the endocrinology, similar figures have been reported in studies describing the frequency of Phenotype Waist hypertriglyceridemic (Linares, 30%), however, in Brazil, 17.32% prevalence described.[7,8] Probably this difference with other populations are due to different cut-offs for clinical and biochemical work evaluated mainly by ethnic differences variables.

Age is important in the presentation of Phenotype hypertriglyceridemic waist, the average age of the study population who introduced was 55.4 years, men had the syndrome in younger women, in contrast with published age Linares[7] they find it earlier in women aged 40 years and men from 60 years.

Males were more prevalent (59.8%), other national studies in 2010 described a prevalence of 90% in females,[9] this variation may be related to population differences, military population in this study population vs overall in this study. In Brazil, Cabral Da Rocha is no difference between sexes for the presentation of this phenotype.[8]

Phenotype occurs in patients with higher body mass index, showing that the 96.34% presented BMI>25, similar results are evident in the scientific literature.[7–10]

Acanthosis nigricans is considered almost pathognomonic of insulin resistance, interacting with high prevalence and association with diabetes,[11] however, the study found that 59.8% of patients a showed no sign; a relationship can be seen in the presentation of acanthosis nigricans and findings of Insulin - resistance - as HOMA IR-.90.9% of patients with elevated HOMA IR showed acanthosis; in the group of patients without acanthosis nigricans, under consideration phenotype hypertriglyceridemic waist, evidence for earlier intervention is generated.

In studies in children and adolescents, it is evident that acanthosis nigricans is associated - between 50-100% - a higher probability of dysglycemia, even after consideration of established risk factors for diabetes.[12] In the present study no further increase of glycemia in patients with acanthosis nigricans presented, could be due to differences in age and selection criteria included patients not acanthosis nigricans presence of inclusion criterion.

In most patients identified with the phenotype waist hypertriglyceridemic hypertension (23.2%) was determined, most patients are normotensive; 2013 states that the finding of this syndrome may be more useful for individuals who do not have hypertension, in theory, can identify patients with cardiovascular risk without the classic signs of metabolic syndrome.[13] In a descriptive study in adolescents an elevation of systolic blood pressure in 3.67mmHg found in another study in adults Chinese, described the phenotype associated with hypertension hypertriglyceridemic waist becomes more sensitive detection of cardiovascular risk.[14–16]

Phenotype waist hypertriglyceridemic is considered as a risk marker for impaired glucose metabolism, a study in adolescents found increased fasting blood glucose levels in this phenotype, 3.87 mg/dL suggesting that the phenotype is Waist hypertriglyceridemic a risk factor for longitudinal changes in glycemia,[10,16] the present study found that 48 of 82 patients (58.5%) with this phenotype showed altered fasting glucose.

In the military population studied, 70.7% of patients presented with hypertriglyceridemic waist phenotype elevation HOMA IR, and it was higher in the population with higher BMI and presence of acanthosis nigricans. In a study Venezuelan low frequency hypertriglyceridemic waist phenotype but high prevalence of insulin resistance was determined according calculated HOMA IR, this study also found relationship between insulin resistance with obesity central or peripheral.[17] Strang in an investigation of insulin resistance in obese adult women found that HOMA IR is higher when the BMI is greater, and refers higher ratio of insulin resistance with high that with age BMI.[18]

The results show that patients with hypertriglyceridemic waist phenotype had high total cholesterol (61%) and low HDL 62.2%, coinciding with several studies finding indicate this variation with lipid abnormalities, abnormal lipid profile characterized, contributing at increased cardiovascular risk as the typical atherogenic profile.[10,19] Multiple studies show that adolescents early phenotype is associated with elevations in total cholesterol and LDL cholesterol with low HDL, even without associated elevation of glycemia.[20] A study in overweight or obese adults conducted in Venezuela found that 85.5% of the study population had a lipid disorder, with low HDL (53, 8%) and the predominant hypertriglyceridemia in individuals with central fat distribution.[21]

Elevating glutamic pyruvic transaminase (SGPT) occurred in 34.1% of cases; in relation to BMI, it was observed that no increase occurred in patients with normal weight, however, in patients with overweight and obesity if present. Studies show that NAFLD is the most common cause of impaired liver biochemistry, affecting 20% of the general population[22,23] and 70-75% of patients with obesity.[24] Measurement of TGP is one of the parameters used to calculate the score NAFLD (non-alcoholic fatty liver disease score), which approximates the diagnosis NAFLD. is I cannot find direct association studies indicate hypertriglyceridemic waist phenotype and liver biochemistry.

Conclusion

Hypertriglyceridemic waist phenotype is a marker of multiple metabolic disorders, should be strengthened use for early detection

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global cardio metabolic risk. It should be given use from primary care, such as practical, inexpensive and easily applicable tool (measured waist circumference and triglycerides) to identify patients at risk of cardio metabolic diseases.

Limitations of liability

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The resources needed for the development of research and writing of scientific article were taken entirely by the authors.

Originality work

The author's state that the article is original and was not forwarded or published in another journal.

Key concepts

It is known about

A beginning of this century concept waist hypertriglyceridemic (high triglycerides, elevated waist circumference), characterized as a simple way of detecting cardio metabolic risk appears.

It brings this work

Peru has a high prevalence of obesity (8.7% and 20% in young adults), the use of available clinical tools for early detection of health risks is a need for low cost. No research on military personnel.

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None

Conflict of interest

The authors declare no conflicts of interest.

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