

Assessment of Triglyceride Level and Its Relation with Some Parameters in Hypertensive Women in AL-Najaf Al-Ashraf City, Iraq

Hadeel Haider Aldujaili

Department of Faculty of Medical Sciences, Jabir ibn Hayyan University for Medical Sciences, Iraq.

Corresponding Author Email: hadeel.h.salih@jmu.edu.iq

ABSTRACT

Objective: It is well known that the maximum standard kind of cardiovascular sickness and a big contributor to morbidity and demise in each advanced and growing countries is high blood pressure. **Methods:** The most common form of dyslipidaemia in adults hypertensives which is now seen as an unbiased predictor of CVD, is characterised by way of derangements in triglyceride levels. Ten healthy girls and twenty-six women with excessive blood stress who have been sent to AL-Saddar School Hospital in Najaf for diagnosis and treatment made up the 36 women who took part on this research. January 3, 2021, to December 2, 2021 become the research period. The purpose of this look at turned into to determine the affiliation between blood triglyceride tiers and other variables, which include body mass index, blood stress systolic and diastolic, and smoking or nonsmoking status, in women with high blood pressure. **The results** showed that the hypertensive women' triglyceride levels had been a great deal extra than the controls' ($p < 0.05$). Additionally, it became proven that patients who smoke had a far better upward push ($p < 0.05$) than their opposite numbers who do not smoke. Among different ladies with high blood pressure, triglycerides were undoubtedly correlated with accelerated BMI similarly to elevations in both diastolic and systolic blood pressure.

Keyword: Triglyceride, Hypertensive Women, Parameters.

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INTRODUCTION

This increases the risk of heart attacks, cardiac failures, renal failure, and eyesight loss[1,2]. The occurrence of high blood strain is increasing, in particular in low-earnings nations due to elements which include poverty, urbanization, and the horrific lifestyles that go together with it. In Southeast Asia, the prevalence of cardiovascular ailment has increased in conjunction with this trend[3,6]. According to estimates from the World Health Organization (WHO), cardiovascular disease would be India's leading cause of death and disability by 2020. Projections. Worldwide, dyslipidemia and excessive blood strain are linked to a number of cardiovascular illnesses. As a result, the probability of developing arteriosclerosis is quite enormous. [7, 8]. Serum lipid profiles range substantially at some stage in

people globally. Significant chance factors for CVDs consist of decreased total ldl cholesterol (TC), reduced stages of excessive-density lipoprotein (LDL) and coffee-density lipoprotein (LDL), and multiplied blood triglycerides (TG) [9]. This includes triglycerides as one of the categories of fat. When it involves body fats, that is the most widespread type.

For instance, in which do they originate from in terms of what they devour? That triglycerides are the source of extra fats observed in meals like butter and oil [10]. Triglycerides also are constituted of excess energy. Although those nutrients are fed on, the frame does now not want them right away. The extra calories are then pressured to be converted through the body into triglycerides, which it stores as electricity for later

use[11]. Triglycerides enter tissues by way of very low-density lipoprotein (LDL) cholesterol debris. Elevated blood triglyceride levels are related to heart ailment, inclusive of coronary artery heart disease. [12] Dyslipidemia is a lipid metabolic circumstance that outcomes in a chronic upward thrust of plasma concentrations of LDL cholesterol and triglycerides (TG) [13]. In the bulk of countries, it's far appeared as the main reason of illness and mortality. [15,16] It is a serious risk to the health and economies of countries all around the world. [14] Triglyceride stages are extended in dyslipidemia, additionally called hypertriglyceridemia; that is a normal characteristic of the contamination. Diastolic blood stress (DBP) of extra than 80 mmHg and systolic blood stress (SBP) of 130–200 mmHg at the moment are taken into consideration to be signs of high blood pressure (HTN).

Aim for a blood stress analyzing of 130/80 mmHg or less if it stays excessive, at 140/90 mmHg or above.[17] One of the maximum crippling situations, high blood pressure is characterised by way of a persistently excessive blood strain. One of the most studied disorders of the 20th century is high blood pressure, which impacts renal failure, bypass surgery, and the improvement of heart sickness[18]. Hypertension is a worldwide condition that differs from area to continent. Therefore, finding novel biomarkers in people at high risk might assist assure early diagnosis and correct therapy of issues associated to better blood strain. It is nicely hooked up that chemical hazard elements are connected to high blood pressure. Most studies on this place have centered on the hyperlink between the lipid profile and high blood pressure, in addition to how this relationship is motivated by using the severity of clinical signs of heart disorder. Modifiable hazard factors for excessive blood pressure include being obese or obese, smoking, drinking alcohol, having a diet rich in trans fat and saturated fats, and now not ingesting sufficient end result and greens [19,20,21].

Symptoms and Indication

Hypertension is the silent killer. Usually, a person with high blood pressure does not exhibit any overt symptoms or warning indicators[22]. When symptoms do appear, they might include headaches in the morning, nosebleeds, irregular heartbeats, and vision issues. Disorientation, restlessness, nausea, spasms in the muscles, exhaustion, and vomiting are some of the extreme signs of high blood pressure. Blood pressure has to be properly evaluated by a medical practitioner in order to identify dangers and associated problems.

Epidemiology

Approximately 1 billion people international suffer with excessive blood pressure, which impacts half of the populace. All demographic and socioeconomic categories have pretty high occurrence, which rises with age to impact as much as 60% of those over 60[23]. According to the 2010 World Health Survey, high blood stress was the leading reason of dying and mortality starting in 1990 (with data from sixty seven additional countries). [24]. Pathophysiology: High blood pressure is associated with multiplied sympathetic fearful machine pastime, multiplied quantity (on account of better salt ingestion), and faded Angiotensin II responses. Elevated peripheral resistance and load because of the changes subsequently bring about high blood pressure. [25] Triglycerides are the call for the fats determined in weight-reduction plan which are transported to our brains. Lipids, such as butter, margarine, and oils, make up the bulk of the fats that people devour. Triglycerides are created whilst the body consumes immoderate quantities of sugar, alcohol, or energy; this additionally reasons the frame to build up extra fat on different parts of the frame [26]. Individuals who exceed the two hundred milligram threshold are much more likely to skip away, have a heart assault, and increase heart sickness[27]. People with especially high triglyceride levels were proven to have a higher risk of pancreatic and liver diseases. Studies specializing in the relationship among high levels

and heightened chance of coronary heart disorder have yielded various conclusions. For this cause, clinical specialists can also disagree or concur that triglycerides are a considerable thing in coronary heart ailment. Obesity, kind 2 diabetes mellitus, high blood pressure, low degrees of "desirable" HDL (excessive "horrific" comes with portion of LDL too).

Elevated levels of triglycerides may give rise to non-health-related issues. As a result, determining the precise reason of elevated triglyceride levels becomes very difficult[28]. You have high triglyceride levels, while this might be discouraging. This article will provide you with a variety of strategies to lower your triglyceride levels. Adjusting one's lifestyle may be beneficial. Here are some suggestions: 1. Boost the number of times you work out. Triglycerides may be better regulated with increased activity. Health experts urge at least five days of exercise half an hour each day[29]. If you do not experience well, start out carefully. Start out every week with three brief visits and gradually amplify the duration of each 1.2 Reduce your body mass. If you are obese, take some time to drop some weight and maintain it off. Exercise is beneficial on your fitness, however so is ingesting a healthful eating regimen. Cut down for your calorie consumption, whether or not it comes from fats, proteins, or carbs. Targeting ingesting a food plan wealthy in culmination, greens, lean meat, and low-fats food. Reducing your intake of sugary meals and drinks, which include soda, will also be beneficial[30].

Choose more healthy oil alternatives; reduce your intake of cholesterol, trans fats (observed in margarine and prepackaged foods), and terrible fats (discovered in animal products, butter, and cheese). Increase your weight-reduction plan of sure seafood, almonds, and further virgin olive oil to boom your intake of beneficial monounsaturated and polyunsaturated fat. Studies have shown the effectiveness of omega-3 fatty acids—discovered in foods which includes sardines, tuna, salmon, and mackerel—in lowering triglyceride tiers. Because they are heavy in

calories, wholesome fats have to additionally be ingested in moderation. Restrict the amount of alcohol you devour. Even in tiny doses, alcohol appears to have a good sized effect on triglyceride levels. Utilize little quantities one at a time[31].

METHODS

The 36 women who participated in the research were split into two groups: 16 non-smokers who were receiving treatment and investigation at AL-Sadder Teaching Hospital in AL-Najaf City, and 10 healthy women who were designated as a control group. There were 26 ladies in each group. Each of the sixteen hypertensive and ten normal women received a mercury sphygmomanometer and were instructed to take two identical self-measurements of their blood pressure. The left arm was used for this after the body had been at rest for fifteen minutes. After taking a third reading and averaging the results together, the highest and lowest numbers were discarded. The diastolic pressure was more than 15 mmHg or the systolic pressure was greater than 25 mmHg if the first two readings differed [32]. The manufacturer of the unique kit for testing triglycerides in human blood is Bio LABO SAS, with its headquarters situated in Les Hautes Rives, Maizy, 02160 in France..

The taking of blood samples

5 ml of blood turned into drawn from sufferers and healthful men and women between the hours of nine a.M. And 12 p.M. The usage of antecubital method. Ten mins have been given for the blood inside the gel tube to coagulate at room temperature. After 15 minutes of centrifugation at 3000 rpm, the serum became separated. Placed in fresh, non-recycling Eppendorf tubes upon separation, and kept cold (-20°C).

Body Mass Index computation

The calculation of a person's BMI involves taking their weight in kilograms and dividing it by way of their top in meters squared. An character's top in meters and weight in kilograms decide their BMI. When someone's Body Mass Index falls among 18.5 and 24.9, they're taken into consideration to be everyday weight; while it falls

among 25 and 29.9, they're taken into consideration overweight; and when it falls between 30 and better, they're taken into consideration overweight.

Statistical analysis

The IBM SPSS Statistics v23 software tool for Windows (version 23.01, 2016) was used to

analyze the data for this study. Two populations were tested by t as an independent sample, and the results are shown as mean SE (standard error). Microsoft Office 2010 EXCEL was used to create each graph. In cases where m_2 is equal to or higher than 0.05, P values were deemed significant.

RESULTS

Triglyceride levels in patients and the healthy group of women are compared

The results demonstrated that the TG level in hypertensive women was significantly greater than that in controls (119.3 ± 7.291 mg/dL in the figure) ($P < 0.05$) (1).

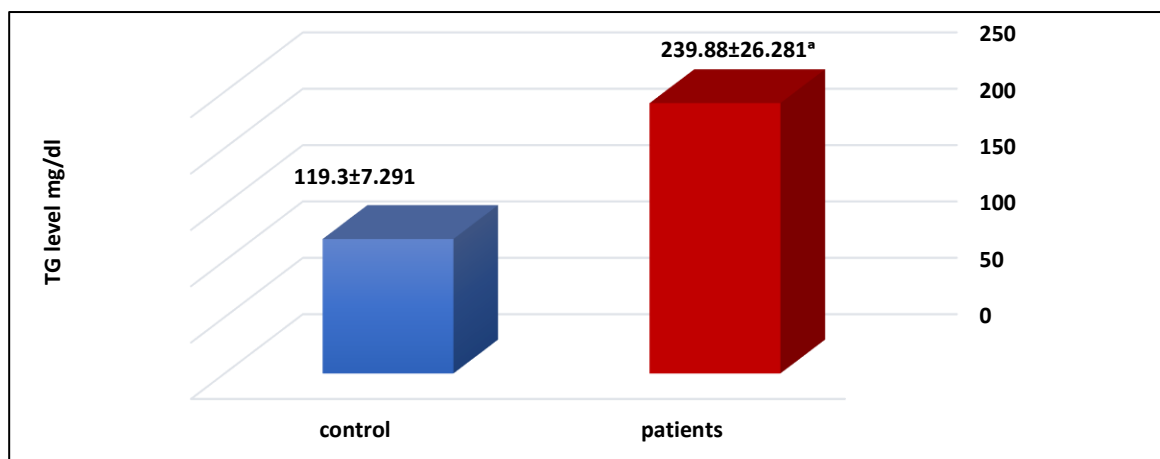


Figure (1): Triglyceride levels in the patients and the control group are compared.

Comparison between triglyceride levels in smoking and nonsmoking women patients

According to the findings, smoking patients' TG levels increased significantly ($P < 0.05$) (322.38 ± 40.477) mg/dl when compared to the non-smoking patient group's (152.46 ± 9.315) mg/dl.

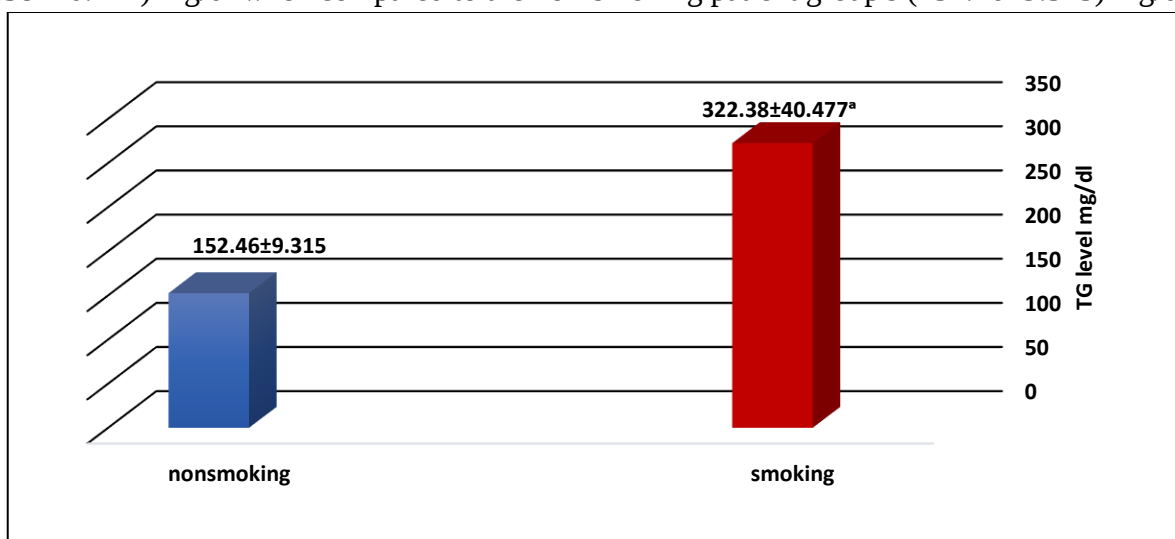


Figure (2) : Comparison of triglyceride level between smoking and nonsmoking groups.

Correlation between triglyceride level and systolic pressure

In hypertensive women, there is a substantial ($p < 0.05$) positive association between triglyceride level and systolic pressure ($r=0.897$, triglyceride= $-12.489+16.48$ systolic pressure) (figure3).

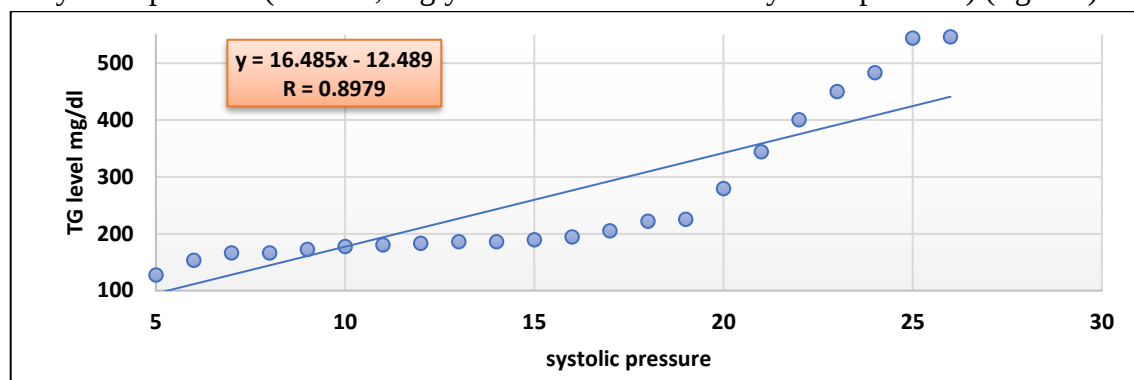


Figure (3): Correlation between triglyceride level and systolic pressure.

Correlation between triglyceride level and diastolic pressure

In hypertensive women, there is a substantial ($p < 0.05$) positive association between triglyceride level and diastolic pressure ($r=0.897$, triglyceride= $-541.93+85.475$ diastolic pressure) (figure 4).

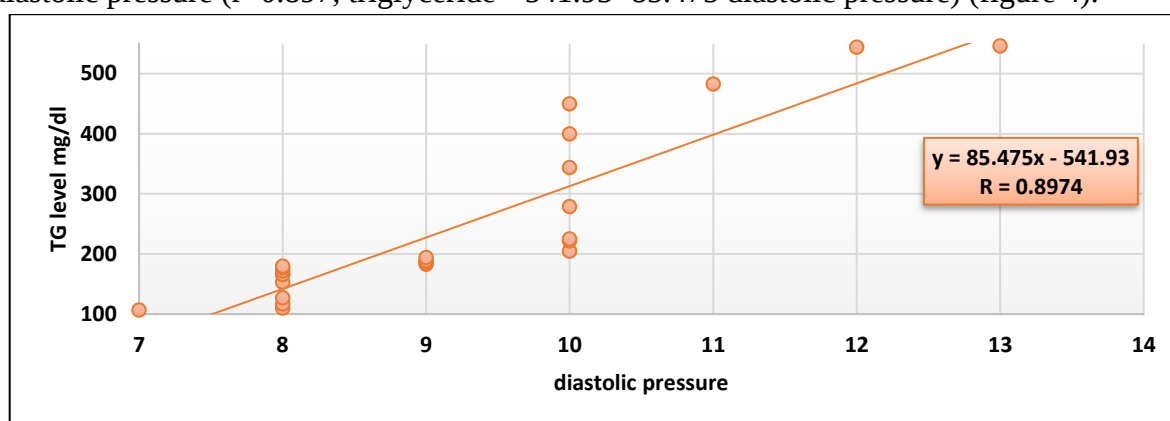
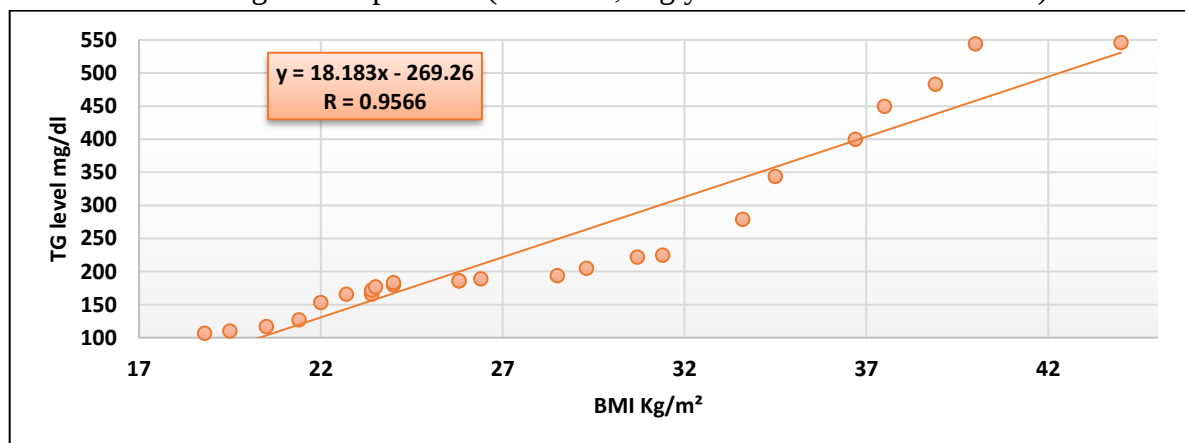


Figure (4) Correlation between triglyceride level and diastolic pressure.

Body mass index and triglyceride levels are connected

Figure 5 shows that there is a substantial ($p < 0.05$) correlation between the BMI and triglyceride levels in women with high blood pressure ($r = 0.956$, triglycerides = $-269.26 + 18183$).



Figure(5) Correlation between triglyceride level and body mass index.

DISCUSSION

Research indicates a notably significant positive correlation exists between levels of triglycerides and blood pressure, encompassing both systolic and diastolic measurements. Supporting this, research [33] demonstrates a link between elevated blood pressure and the mechanism through which dyslipidemia can induce changes in the arterial walls affected by disease, including collagen accumulation and the growth of smooth muscle cells. On the other hand, damage to renal capillaries caused by dyslipidemia may also act as a contributing factor to hypertension [34, 35]. Both vascular tension and hypertension can influence blood lipid levels. Studies reveal that individuals with hypertension exhibit increased sympathetic nervous system activity, which is beneficial for the metabolism of blood lipids[36].

The relationship between arterial stiffness and blood lipids becomes more intricate in individuals with hypertension due to various pathways. A study [37] revealed that patients suffering from high blood pressure exhibited an average triglyceride level significantly elevated compared to those with normal blood pressure [38], as stiffer arteries arise from both lipid disorders and hypertension. Research indicates that dyslipidemia, which can elevate blood pressure, along with an abnormal aortic shape, adversely affects the synthesis, release, and function of nitric oxide, ultimately leading to atherosclerosis and endothelial dysfunction. Results from the study showed a higher prevalence of women with high blood pressure among smokers than non-smokers.

Studies [39, 40] have demonstrated that nicotine increases sympathetic nervous system activity in chronic smokers. The stimulation from nicotine triggers the release of catecholamines, namely norepinephrine and epinephrine [41]. These substances not only enhance the contractile efficiency of myocytes but also contribute to vasoconstriction, which raises blood pressure and

encourages fat loss. Additionally, dyslipidemia may heighten the risk of hypertension by diminishing baroreflex sensitivity [42].

When the baroreflex, a negative feedback mechanism, is activated, the parasympathetic nervous system works to counteract the increase in blood pressure. The efficiency of the major blood vessels is diminished by dyslipidemia, which also reduces the Windsor effect that typically elevates blood pressure, especially in the systolic range. Findings from the study revealed a statistically significant positive relationship between triglyceride (TG) levels and body mass index (BMI), except for female participants, who only showed a significant correlation in the "elevated" BMI category. This indicates that higher body mass index is likely associated with increased triglyceride levels [43,46,47,48].].

CONCLUSION

The research suggests that women with elevated triglyceride levels should focus on and consistently follow weight management and weight loss strategies. The established connection between dyslipidemia and abdominal obesity is well recognized. The obesity would decrease the effectiveness of TG clearance due to insulin resistance

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