Study on Prevalence of Hyperlipidemia among Medical Students in Wardha District – A study Protocol

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Study Protocol

ABSTRACT

Background: Hyperlipidemia is a therapeutic word that indicates unusually increased levels of lipids in the blood, which is generally termed as increased cholesterol. There are mainly 2categories of cholesterol known as high-density lipoprotein, also known as good cholesterol and low-density lipoprotein, also called as bad cholesterol. However, hyperlipidemia can be inherited, resulting in an unhealthy lifestyle and sedentary lifestyle and regular intake of oily food, junk food, fatty food rich in cholesterol, etc.
Aim: Aim is to study the Prevalence of hyperlipidemia among medical students in Wardha District.
Objectives: To determine the dietary pattern among medical students and evaluate the level of lipid profile among medical students.
Methodology: Cross-sectional observational study will be done on medical students of the Wardha

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district. Based on a well-structured questionnaire on each student's dietary schedule and by collecting fasting blood sample for lipid profile test to observe the level of HDL and LDL in the blood and to observe the Prevalence of hyperlipidemia among medical students in Wardha district of 18 and above years of age group. Written consent of the subject will be taken before collecting their blood samples.

Results: The result will be analyzed statistically based on the study.

Conclusion: Conclusion will be based on observation and analyzed data.

Keywords: Hyperlipidemia; medical students; prevalence; obesity; sedentary lifestyle.

1. INTRODUCTION

Hyperlipidemia is known as one of the supreme dangerous factors intended for coronary artery diseases in addition to ischemic heart disease (IHD). These are the foremost reason for the morbidity and mortality in developed and developing countries and top health complications in India. Hyperlipidemia is also a significant cause of obesity, a metabolic illness, usually occurring in affluent cultures, because of imbalance between energy intake and energy expenditure. It is also associated with mortality and influences the growth of mortal illnesses to like- Diabetes, Hypertension, M .I, etc. This is a nutritional and metabolic disorder. Numerous factors like physical, behavioural, cultural, metabolic, genetic factors are also linked to obesity. It is also stated in the term of bodies mass Index. Body Mass Index of 30 or more in males and 28.6 or more in female denotes obesity [1]. In Ayurveda text, the etiological factors that increase kapha increase the fat (*Medovriddhi*) thereby it reflects as hyperlipidemia in blood. The body lipids have the function of unction (binding the tissue), but when vitiated, lipids deposited as adipose (durmedas) [2].

Hyperlipidemia is a therapeutic term used for an abnormally increased level of the lipids in the blood, which is usually called increased cholesterol level. There are two main type of lipids which are found in the blood they are cholesterol & triglycerides. Though hyperlipidemia can be inherited, its more commonly caused due to an unhealthy lifestyle. The Triglycerides are formed once the body stores extra calories that are not required for energy. They also come directly from your diet e.g. animal products like red meat and dairy. Diet which is rich in sugar, alcohol and fructose increases triglyceride. Cholesterol is also produce naturally in the liver and every cell of the body uses it. "Similar to triglycerides, cholesterol is also found in the foods like cheese, egg, and red meat. Elevated cholesterol level upsurges the risk of heart diseases and stroke. Worldwide, one-third of ischemic heart disease is attributable to the level of high cholesterol. Overall, raised cholesterol is estimated to cause about 2.6 million deaths (4.5 per cent of total) and 29.7 million disability-adjusted life years (DALYs), or 2.0% of total DALYS. Increased total cholesterol level is a major cause of the disease in both the developed and developing world as a risk factor for stroke and ischemic heart disease" [2].

Saturated fat is a lipophilic molecule that stands crucial for human's existences. It has several roles which donate to normal working cells. For instance, cholesterol is an essential component of the cells membrane. It contributes to the structural makeup of the membranes & on top of this. It also modulates its fluidity. It also functions as a precursor molecules in the synthesis of vitamin D, steroid hormones (Example - testosterone, estrogens, & progesterone). The cholesterol also contains bile salts required to digest and help absorb the fat-soluble vitamin A, D, E, K. Since cholesterols are generally lipophilic. It transferred through blood and the triglyceride inside lipoprotein particles like the HDL, LDL, VLDL, and chylomicrons. The saturated fat can be presented into the blood through the digestion of the dietary fat via chylomicrons. However, since saturated fat has a significant cellular function character, it can also be directly synthesized by each body's cells. The cholesterol synthesis begins from Acetyl-CoA and follows a series of complex liver reactions, which account for most cholesterol synthesis [3].

1.1 Background

Higher lipid value is a therapeutic illness categorized by elevation of one or more of the plasma lipid and cholesterols, cholesterol esters, triglycerides, plasma lipoproteins, and phospholipids with VLDL and LDL along with reduced HDL levels. This rise of plasma lipid is among the chief risks factor related to

cardiovascular disease. In the intervening time, fibrates & satins stay as major anti-hyperlipidemic agents to treat raised plasmas, triglycerides & cholesterol, respectively, with the price of severe side effect on the liver and the muscles.

Hyperlipidaemia usually does not have any noticeable symptom; however, they are often revealed while regular check-up or unless ranges to the vital stage of a heart attack or stroke. People with raised cholesterol levels in blood or people with the familiar form of the disorders can grow exanthemas (deposits of cholesterol formed under the skin, particularly under the eyes). Similarly, patients with raised triglycerides might progress many lesions in different parts of the body [4].

Causes: Fat, a waxy substance, it's a type of cholesterol that the body makes. It also comes from what a person eats. Foods that have saturated fat, trans fats and cholesterol can increase blood cholesterol levels. This includes Read meats, pastries, eggs yolk, processed and fried foods, cheese, pies, ice cream etc [5].

Complications: Increased cholesterol is the utmost vital cause of atherosclerosis, one of the foremost reasons for CVD. Atherosclerosis is a pathologic recognized by the deposition of the lipids, calcium and cholesterol, and fibrous plaques' growth inside the arteries' walls [6]. Atherosclerosis is the foremost cause of CAD, is characterized by the gathering of the lipid and the formation of fibrous plaques inside the walls of the arteries, results in narrowing of the arteries which supplies blood to the myocardium, & result in limiting the flow of blood and insufficient amount of oxygen to travel towards the heart. Raised lipid profile has been associated with the development of coronary atherosclerosis. [7]. MI is a disorder that occurs when oxygen and blood supplies are entirely or partially blocked from flowing in the cardiac arteries, which results in impairment of the heart cells. The blocking may be due to burst atherosclerotic plaque [8]. Ischemic stroke is the 4th foremost reason for death. Usually, strokes occur due to an artery's blockage by a blood clot or a piece of atherosclerotic plaque that breaks loose in a small vessel within the brain [9].

2. AIM AND OBJECTIVES

Aim – to study the prevalence of Hyperlipidemia among Medical Students in Wardha District.

Objectives: 1. To evaluate the level of lipid profile among medical students.

3. MATERIALS AND METHODS

3.1 Study Design

Cross-sectional observational study.

3.2 Study Area and Population

The study will be conducted in an urban field practise area of Private Medical College, Sawangi Meghe, Wardha.

3.3 Methodology

Observational study will be done on medical students of the Wardha district. Based on a well-structured questionnaire on each student's dietary schedule and by collecting fasting blood sample for lipid profile test to observe the level of HDL and LDL in the blood and to observe the Prevalence of hyperlipidemia among medical students in Wardha district of 18 and above years of age group. Written consent of the subject will be taken before collecting their blood samples.

3.4 Study Setting

The study will be conducted among medical students of Wardha District.

Inclusion Criteria:

1. Medical students of Wardha district
2. Age between 18 to 28 yrs.
3. Those who are interested in participating in the study

Exclusion Criteria:

1. Students below 18yrs of age.
2. Nonmedical students.
3. Those that have metabolic disorders
4. Smokers, alcoholics, and who taking the any medicine

3.5 Sample Size

100.

3.6 Study Duration

The study will be carried out From May 2020 to Dec 2020.

3.7 Study Tool and Data Collection

A pre-tested, validated principal investigator will do a structured and self-administered questionnaire based on a study with a co-principal investigator's help. It will consist of socio-demographic details like name, age, and place. The perception of their body weight and eating habits contributing to hyperlipidemia.

3.8 Measurement

After obtaining informed oral consent from the subject, the subjects' height will be measured. The weight of the subject will be measured using a digital weighing Scale. The weight will be measured in kg. The subject will ask to stand still, place arms on the side and face forward.

The height of the subject will measure using a measuring tape. The subject will ask to remove their footwear, headgear and then the subject will stand against a wall with feet together and knees straight, and the subject will ask to look straight. The height of the subject will be measured in meter.

3.9 Ethics and Dissemination

Ethics approval was obtained from Institutional Ethics Committee, Mahatma Gandhi Ayurvedic College, Hospital and Research Center, Salod (H), Wardha442001. (Ref. No. MGACHRC/IEC/2020/10, dated 06/05/2020)

3.10 Consent

Written consent of the subject will be taken before collecting their blood samples.

3.11 Statistical Analysis

Data will be analyzed based on appropriate statistics by using SPSS software.

Subjects will be enrolled for the study after clearance from the Institutional Ethical Committee.

3.12 Methods

Search for Literature review, plan of work, blueprint in the form of flow chart, questioner

preparation, and validation of questioner, data collection and statistical analysis.

Investigation-

- Complete blood count with Erythrocytes Sedimentation Rate (To exclude an infectious condition)
- Lipid profile (To rule out hyperlipidemia)

3.13 Strength and Limitation

The study will help rule out whether the prevalence rate of hyperlipidemia is more in medical students or not, which will help educate them about lifestyle and dietary habits to maintain normal cholesterol level.

4. RESULTS

The Prevalence of hyperlipidemia changes broadly according to the ethnic, socioeconomic, and cultural characteristics of an individual diet and lifestyle. Hence the result will be analyzed statistically based on the study.

5. DISCUSSION

Extensive medical research has identified hyperlipidemia as the dominant heart diseases risk factor. A clinical correlation between hyperlipidemia and the Prevalence of heart disease risk has been established [10]. The goal of the study was to rate the Prevalence of dyslipidemia in a sample of college students in Mahatma Gandhi Ayurved College, Wardha. The findings of our study will show that the overall proportion of dyslipidemia, overweight and obesity. Finally, Feliciano – Alfonso et al., showed that the mean plasma triglyceride and low HDL cholesterol were significantly higher in males than females, and that of low HDL was much bigger in males [11]. The Growing Prevalence of hyperlipidemia is a major global public health problem. Its incidence differs broadly according to the ethnic, socioeconomic, and cultural characteristics of an individual and the leading cause of hyperlipidemia is diet and lifestyle. The study is carried out on medical students who have their lifestyle of very less physical exertions. The medical students even have a stationary lifestyle and excessive intake of junk food, irregular food intake timing, and high social and economic status; these various factors may increase cholesterol levels. Few of the studies were reviewed [12,13]. Wajpeyi reported a study on analysis of etiological factors of dyslipidemia [14]. Kakade et. al. reported a

study on effect of Yavavati in the management of dyslipidemia [15]. Related studies were reported by Ghia et. al. [16], Garg et.al. [17], Zodpey et.al. [18], Khatib et.al. [19] and Dixit et al. [20].

6. CONCLUSION

Conclusion will be drawn by suitable analysis of data. An expected conclusion will be found that the persons who continuously induced a sedentary lifestyle with no physical exercise and those who are regularly habitual of regular intake of fatty food, oily food, and junk food.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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