

PREVALENCE OF HYPERCHOLESTEROLEMIA AMONG PATIENTS IN MISSAN GOVERNORATE

Yaseen Obied Yaseen

ABSTRACT

In this study, the prevalence of hypercholesterolemia among people in Missan province was assessed through the analysis of total serum cholesterol level of patients tested for this metabolic disorder during the years 1998, 1999, 2000, and 2001. Out of 5870 patients investigated for hypercholesterolemia, 764(13%) were found to have abnormally high total serum cholesterol.

INTRODUCTION

Hyperlipidemia, abnormal elevation of plasma cholesterol and/or triglyceride level, is one of the most common clinical problems that confront physicians in the daily practice.^[1] Lipids are relatively insoluble in water but are carried in the body fluids as soluble protein complexes, known as lipoproteins.^[2] Lipoprotein disorders are important because they may lead to a number of sequels including heart disease, dermatological manifestations, pancreatitis, and (more rarely) neurological & ocular anomalies.^[3] Total serum cholesterol level represents the sum of LDL cholesterol level, HDL cholesterol level and one-fifth of triglyceride level.^[4] Hyperlipidemia may account for the increased incidence of coronary heart disease together with other risk factors (smoking, stress...etc) through its role in the etiology of atherosclerosis.^[5] Many people are now trying to lower their serum cholesterol concentration in order to prevent coronary heart disease. Two decades ago, evidences supporting the efficacy of lowering cholesterol concentration in prevention of coronary heart disease were beginning just to accumulate.^[6] The major atherogenic influence of serum total cholesterol appears to be mediated by the low-density lipoprotein cholesterol.^[7] Hypercholesterolemia also increases the viscosity of the blood as well as producing increased adhesiveness and aggregation of red cells.^[8] It is said that 50- 60% of patients with ischemic heart disease have hyperlipidemia.^[9]

Aims of study

1.To shed light on the prevalence of hypercholesterolemia, as a metabolic disease, among patients in the province of Missan.

2.To consider the preventive measures for such metabolic disorder so that we may lessen its detrimental effect as a risk factor for important diseases like ischemic heart disease.

PATIENTS AND METHODS

The results of total serum cholesterol level of patients screened for hypercholesterolemia, during the years 1998, 1999, 2000 and 2001 were analyzed. Serum total cholesterol was measured by using an enzymatic colorimetric method through out the years mentioned above. The patients involved in the study were those with provisional diagnosis of cardiovascular diseases from the outpatient and inpatient departments in Al-Sadder General Hospital in Al-Ammara. Total serum cholesterol level less than 5.2 mol/L (200 mg/dl) was considered normal for the sake of this study. The degree of hypercholesterolemia is reflected through the total serum cholesterol level. Mild hypercholesterolemia was recognized with total serum cholesterol of (5.2-6.5) mol/L, moderate hypercholesterolemia when the total serum cholesterol level was (6.5-7.8) mol/L and severe hypercholesterolemia when the total serum cholesterol was more than (7.8) mol/L (as defined by the European Atherosclerosis Society). Total serum cholesterol level estimation was considered as an index of hyperlipidemia in this study because the laboratory tests for other lipoproteins (LDL, HDL, and VLDL) were not available all the time in our hospital. Parameters taken into consideration were; total serum cholesterol, degree of hypercholesterolemia and sex distribution of such metabolic disorder.

RESULTS

Out of the 5870 patients investigated for total serum cholesterol level in Al-Sadder General Hospital in Missan, 5106(87%) patients had normal total serum cholesterol level while the

remaining 764 (13%) patients were found to have abnormally high total serum cholesterol. (Table-1).

Table 1. Total serum cholesterol level among patients investigated for hypercholesterolemia.

Total S. Cholesterol	No. of patients	%
Normal	5106	87
High S. Cholesterol	764	13
Total	5870	100

Out of the 764 patients recognized to have hypercholesterolemia, 525 (68.7%) were males and 239 (31.3%) females. Females showed

a higher proportion of severe hypercholesterolemia than males. (Table-2)

Table 2. Degree of severity hypercholesterolemia according to sex.

Degree of hypercholesterolemia	Male	%	Female	%	Total
Mild	253	48.2	98	41.0	351
Moderate	181	34.5	79	33.0	260
Sever	91	17.3	62	26.0	153
Total	525	100	239	100	764

Out of those with hypercholesterolemia, 46% were with mild, 34% with moderate and the remaining 20% of patients with severe hypercholesterolemia. (Table-3)

Table 3. Degree of severity of hypercholesterolemia.

Hypercholesterolemia	No. of patients	%
Mild	351	46
Moderate	260	34
Severe	153	20
Total	764	100

DISCUSSION

Through this study, we try to shed light on the prevalence of hypercholesterolemia as a health problem among people referred to the main hospital with suspicion of cardiovascular disease. Out of all patients investigated, 13% of them were found to have higher serum cholesterol than normal. We don't have statistic regarding the prevalence of hypercholesterolemia among patients in this province to compare the results of our study with. In a study in USA, the percentage of public who were told that their s. cholesterol

was high was 22%. [10] Human studies have shown that those on diets rich in milk and butter were hypercholesterolemic, in contrast with diets with a high content of polyunsaturated fatty acids. [11] It is quite obvious through our study that more males were found to have hypercholesterolemia than females. In a study, performed in 1982 among Iraqi people in Al-Kufa city, there were no statically significant variations in serum cholesterol in relation to sex. [8] Such higher number of males with hypercholesterolemia as revealed in our study may reflect the fact that hypercholesterolemia is actually more prevalent among males than females or it may be due to the fact that more males were investigated for hypercholesterolemia while they were evaluated for coronary heart disease or cerebrovascular disease for which they are more vulnerable than females. In our study, most of the patients with hypercholesterolemia had mild (46%), followed by moderate (34%) and then severe hypercholesterolemia in (20%). Epidemiological data demonstrate that the risk for coronary heart disease is directly related to the level of blood cholesterol. [10] A study, found that coronary heart disease risk rised

slowly and continuously as total cholesterol level increased from 150 to 200 mg/dl (3.9-5.2 mol/L) and coronary heart disease risk increased more rapidly past that point. At a level of 240 mg/dl (6.2 mol/L) the risk for CHD was twice as high as that at 150-200 mg/dl (3.9-5.2 mol/L), and at levels of 240-300 mg/dl (6.2-7.8 mol/L), the likelihood of CHD was more than 4-folds as high as at 150-200 mg/dl (3.9-5.2 mol/L).^[10] It was suggested that dietary modification is indicated for that patients whose hypercholesterolemia puts them at risk of cardiovascular morbidity and mortality and cholesterol lowering drugs should be used only if 3-6 months of diet therapy has been ineffective in reaching target lipid levels.^[12] In 1983, the median range of cholesterol level at which physicians reported initiating dietary therapy for high serum cholesterol was 260-279 mg/dl (6.7-7.2 mol/L), in 1995, it had dropped to 200-219 mg/dl (5.2-5.7 mol/L).^[10] It is said that most of moderate hypercholesterolemia is polygenic in origin.^[13]

In conclusion, through this study, it is quite obvious that hypercholesterolemia is common public health problem among patients in Missan province. Health education regarding the type of diet which is appropriate to prevent increase in the serum cholesterol or contribute to lowering of cholesterol level in hypercholesterolemia is to be considered in dealing with such metabolic problem. Because it is potentially modifiable risk factor for cardiovascular disease, mainly coronary heart disease, hypercholesterolemia should be detected and corrected by diet modification or by cholesterol lowering drugs to decrease the incidence of potentially fatal disease like coronary heart disease (*primary prevention*) or to decrease the incidence of complications in established CHD (*secondary prevention*).

REFERENCES

1. Witztum LJ, Steinberg D. The hyperlipidemias. In: Bennett and Plum, eds. Cecil textbook of medicine. 20 editions. Philadelphia: W.B. Saunders Company, 1997; 1086.
2. Zilva FJ, Pannail PR. Plasma lipids and lipoprotein. In: Zilva JF, Pannail PR eds. Clinical chemistry in diagnosis & treatment. Fourth edition. London: Lloyd-Luke LTD, 1984: 233.
3. Frier BM, Truswell AS, Shepherd J, Delooy A, Jung R. Lipoprotein disorders. In: Haslett C, Chilvers ER, Hunter JAA, Boon NA eds. Davidson principles and practice of medicine. 18th edition Edinburgh, London, New York: Churchill Livingstone, 1999: 533.
4. Herbert NP, Donald Hercik: Disorders of lipid metabolism. Cecil essentials of medicine. 12th edition. 1990; 432.
5. Al-Hamdani R, Al-Sabbagh SM, Akram JA, Zuhair K. Lipid profile in hyperlipidemic patients. Iraqi medical journal 1988; 37(2): 102.
6. Muldoon MF, Manuck SB, Mendelsom AB, Kaplan JR, Belle SH. Cholesterol reduction and non-illness mortality. BMJ 2001; 7277 (6): 11.
7. Shaper A. Epidemiology of ischemic heart disease. Medicine international 1989; 68: 2811.
8. Al-Essa RJ, Sharma PK, Kadhum SHJ, Basim SK. Serum total lipids and cholesterol in Iraqi individuals of Kufa. Iraqi medical journal. 1982; 29(30): 16.
9. Lewis B. Disorders of plasma lipid transport. In Sir Ronald, Bodley Scott ed. Price textbook of the practice of medicine. 12th edition. London: Oxford University Press 1977: 431.
10. Cleerman JI, Claude The national cholesterol education program. JAMA. 1999; 3: 68.
11. Annika EMS, Inga-Britt, Lars GT, Bengt OH. Pentadecanoic acid in serum as a marker for intake of milk fat; relations between intake of milk fat and metabolic risk factors. The American Journal of clinical nutrition. 1999; 69(1): 22.
12. Hoeg JM. New guidelines for the evaluation and treatment of hypercholesterolemia. Modern Medicine. 1989; 6(6): 77.
13. Bierman EL. Atherosclerosis and other forms of arteriosclerosis. In: Braunwald, Isselbacher, Petersdorf, Wilson, Martin, Fauci. Eds. Harrison's Principles of Internal Medicine. 11th edition. New York: McGraw-Hill Book Company, 1987: 1020.