LIPID PROFILE IN UNCONTROLLED DIABETES MELLITUS

PIR MOHAMMAD KHAN, MOHAMMAD HUMAYUN AND GOHAR ALI KHAN

Department of Medicine,
Hayat Shaheed Teaching Hospital, Peshawar.

SUMMARY

Hypercholesterolaemia was found to be independent of diabetes control level and more associated with diet and body mass index. Current literature regarding reduction in mortality rate in treated hypercholesterolaemia subject does not give favourable results so we do not recommend its treatment in diabetics unless in special circumstances. Hypertriglyceridaemia was found to be closely associated with diabetes mellitus and as its role is doubtful in atherosclerosis and levels fall with good glycemic control, treatment is not recommended.

INTRODUCTION

Diabetes mellitus (DM) and hyperlipidemia are both independent risk factors for atherosclerosis and ischaemic heart disease (IHD), but the two usually occur together in the same patient and their effects are not simply additive but multiply each other. The aim of this study was to know the incidence of two risk factors in the same patient. Majority of patients were suffering from non insulin dependent diabetes mellitus and some had already developed IHD.

MATERIAL AND METHODS

A total of fifty patients were studied in medical ‘A’ unit admitted through out patient department. They were included in the study after fulfilling the WHO diagnostic criteria. Patients who were suffering from other systemic disease or drugs that could alter serum glucose or lipid profile were excluded from the study. Patients with history of abdominal pain or surgery in upper abdomen were not included to avoid bias in favour of pancreatic disease. Smokers and hypertensive patients were also excluded from the study.

Venous plasma was used to determine glucose level after a minimum of 8 hours fast, the blood for serum lipids was taken after a minimum of 48 hours after admission and after 14 hours fast to avoid variability in lipid concentration. Patients who were under recent stress or painful status e.g. surgery, trauma etc. were sampled two weeks later, blood urea was normal in all patients.

Lab system of biochemical analysis was used to determine glucose and lipid levels.

Plain X-ray of abdomen were taken to exclude pancreatic calcification and abdominal ultrasound was done, only patient with normal LFT’s were included. This proceeded by thorough clinical examination.

RESULTS

A total of 50 cases were included 30(60%) females and 20(40%) male. 9(18%) were IDDM cases and 41(82%) were NIDDM. The patients age ranged between 15-60 years with the mean age of 48 years. 25 patients in NIDDM were females and the number was almost equal in IDDM, 4 males and 5 females. The duration of DM ranged from 6-23 years the mean being 13 years.

Only 10% of patients were on relatively high fat diet while other were at normal
diets. Some 8% strictly adhering to diabetic diet, 38(76%) cases were having sedentary life styles and only 14% did take regular walk and only 10% did take regular moderate exercise.

Body mass index was found below normal in 7(14%) cases and all these were IDDM cases. 28(56%) had normal BMI and in remaining 15(30%) BMI was above normal. Most of them were females. None of the patients had well controlled DM. Fasting blood glucose was above 140 mg% in all cases and in 64% above 160 mg%. In remaining 36% it ranged between 141-160 mg/dl. Blood urea was normal in all cases and urinalysis, was normal in all cases.

24(48%) patients were having normal total lipids and 26(52%) had elevated total serum lipid. Out of this 52% had serum lipids between 1001-1500mg/dl and 12% had 1501-2500mg/dl.

39(78%) cases had normal cholesterol (200mg/dl) 8(16%) cases had S. Cholesterol 225mg% only 3 cases had S. Cholesterol in the range of 251-300mg/dl. These patients had also elevated BMI. LDL Cholesterol was also found normal 160mg/dl in 78% cases and raised in 22% of cases.

Surprisingly HDL was found normal (40mg/dl) in 80% cases mostly being females. All IDDM had normal cholesterol parameters.

Hypertiglycerideroemia was found both in IDDM and NIDDM but more in NIDDM cases (65.6%). The severity was more in IDDM group. Male and female were almost equally affected 60% and 63% respectively.

11(22%) cases had IDH on ECG and two of them had silent myocardial infarction. These were the same cases who had increased cholesterol.

DISCUSSION

In our study 78% of patients had normal total cholesterol values and HDL being with in normal limits. As HDL protects against atherosclerosis and IDH, its low levels even with normal LDL levels are more atherogenic than when both are in normal range or HDL elevated.

The eleven (22%) cases in whom the cholesterol was elevated, almost all the a patients were overweight and with no significant family history of IHD or obesity. In these cases the high cholesterol was most probably due to dietary indiscretion rather than diabetes mellitus. All these 22% cases had ischaemic changes in ECG. But in the 78% cases where cholesterol level was within normal limits, ECGs where normal. It is to be noted that diabetes was uncontrolled in all the cases but only those developed IHD who had increase body mass index and increased cholesterol level, which means, at least in our study, that DM without, other risk factors may not be as much of a risk for IHD as thought, although as the number of patients is only fifty any firm final decision is not possible.

Despite the consensus on role of cholesterol in causing atherosclerosis and ID there are some unresolved issues. For example the clinical trials have so far failed to show any impact on the treatment for hypercholesterolemia on total mortality and there may be an excess of non cardiac deaths in the treated group. Further the risk association with cholesterol may also show a U or J shaped relationship (which means that as cholesterol concentrations decreases the incidence of other ailments increases) with carcinoma lung, respiratory and digestive disease, trauma and haemorrhagic stroke at level of cholesterol below 160mg/dl.

A patient with increased cholesterol who is also a diabetic if advised on low cholesterol diets may feel very deprived as he/she is usually on a strict diabetic diet also, and so much food restriction may result in psychological problems giving drugs to such patients will put extra mental and
material burden on them along with side effects of drugs. The question arises whether such patients be treated or not for hypercholesterolemia anaemia. We feel that it depends upon the LDL cholesterol level and its relation with HDL cholesterol. If the ratio is high then treatment is advised provided there are no serious complications of diabetes.

In our study 62% patients had hypertriglyceridaemia. As all the lipid levels were done in fasting state its level almost directly points towards VLDL level. Generally more male diabetics suffer from hypertriglyceridaemia but in our study more female suffered from hypertriglyceridaemia. Most such females had sedentary lifestyle and were obese.

Glycaemic control is directly related to hypertriglyceridaemia, higher the blood glucose higher the triglyceride level but exercise lowers the triglyceride level. The role of triglyceride in atherosclerosis is not certain so it is controversial whether hypertriglyceridaemia should be treated or not. Good glycaemic control definitely reduces triglyceride and also to some extent other lipoproteins, but omega-3 worsens glycaemic control and upto 14% increase in blood glucose level has been reported. Keeping the above discussion in view, hypertriglyceridaemia should not be treated in diabetics, rather good glycaemic control should suffice. Further well planned and longitudinal studies are required to provide definitive answers to this question.

REFERENCES


