



A STUDY ON FASTING LIPID PROFILE IN NON-DIABETIC STROKE PATIENTS

KEY WORDS

Lipid Profile, Ischemic Stroke,

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ABSTRACT

To study serum fasting lipid profile in patients with acute ischaemic stroke & to determine significant correlation between them. To assess the role of aggressive control of dyslipidemia on recovery of stroke. This study shows that higher levels of S.T.C, TG, LDL, HDL, VLDL is not a risk factor for occurrence of ischaemic CVD. Decrease in LDL levels shows significant improvement in clinical outcome.

INTRODUCTION:

Stroke is a cerebrovascular disease which is divided into Ischemic and Haemorrhagic stroke. They cause 2 lakhs deaths each year and are a major cause of disability. A stroke is defined by an abrupt onset of neurologic deficit that is attributable to a focal vascular cause. Cerebral ischemia is caused by a reduction in a blood flow that last longer than several seconds. If the cessation of flow lasts for more than a few minutes, infarction or death of brain tissue results. The relation between atherosclerosis and elevated serum lipids is well established and aggressive treatment of dyslipidemia decreased the risk of stroke. Recent studies have shown that distribution of triglycerides and cholesterol within major lipoprotein classes are of importance for the development of atherosclerosis, which is precursor for stroke. Elevated plasma concentration of low density lipoprotein (LDL) and high density lipoprotein (HDL) concentration are associated with an increased risk of atherosclerosis.

Aims and Objectives of the study

1. To study serum fasting lipid profile in patient with acute ischemic stroke and to determine significant correlation between them.
2. To assess the role of aggressive control of dyslipidemia on recovery of stroke.

Materials and methods

All patients older than 50 years present with features of stroke like hemiparesis, hemianaesthesia, language dysfunction were enrolled in the study. The study will be performed in Kurnool Medical College and Government General Hospital admitted with ischemic stroke. They were divided into two categories: Patients with ischemic stroke, patients with haemorrhagic stroke selected patients will be subjected to following protocol 1. Detailed history 2. Detailed neurological examination 3. Blood sampling after 12 hrs fasting for: Serum total cholesterol Serum triglycerides Serum HDL Serum VLDL Serum LDL 4. CT Scan (plain). blood sugar (FBS/PPBS)

Inclusion criteria:

1. All the patients of ischemic stroke 2. TIA patients

Exclusion criteria:

1. Haemorrhagic strokes
2. Embolic strokes
3. Past/Present Diabetes mellitus
4. Patients with the history of head injury or usage of anti coagulant drugs.

Follow –up: At 12 weeks to recheck the fasting lipid profile and correlate recovery of stroke

Follow –up period: June 2015 to December 2016. Sample size: Total

cases-50 cases

RESULTS

As a part of this prospective study conducted over one and half year in Kurnool Medical College and Hospital, Kurnool a total of 50 patients of non Diabetic stroke patients were evaluated. All the patients fasting lipid was available and fulfilling the inclusion criteria. Majority of the patients were inpatients and remaining patients were evaluated at the ICU of Kurnool Medical College and Hospital. In all cases fasting lipid profile was done within 1 day of admission. CT scan reports were available in all cases. NIHSS scale was assessed on the day of admission. Functional outcome of a patient was assessed by modified ranking scale after 3 months of stroke. In order to obtain a report of 50 cases, I was supposed to take 72 cases, as the rest of 22 cases haven't come for follow up after 3 months. Stroke in non diabetic patients having male female sex distribution out of 0 patients; 33:17 i.e., 66% male and female 34%. And having positive family history of 1 patient i.e., 2% of the non diabetic stroke patient having family history. Previous history of IHD is noted in 8 patients i.e., 16% of patients have previous IHD. Previous history of TIA/ stroke are 7 patients i.e., 14% of patients. Lipid level was estimated in ischemic stroke patients at the onset of stroke & after 3 months. The minimum serum Total Cholesterol at onset is 145 mg/dl. And maximum is 440 mg/dl. An mean serum Total Cholesterol is 195.8mg/dl. ± 50.8 mg/dl. The minimum S. Total cholesterol after 3 months is 140mg/dl. And maximum is 380mg/dl. And mean is 182.6 mg/dl ± 38.8 mg/dl. The minimum triglyceride level at onset is 95mg/dl i.e., maximum TG is 310 and mean is 210 mg/dl ± 50.9 mg/dl. The minimum TG after 3 months is 92mg/dl and maximum is 270 mg/dl and mean is 186.5 mg/dl ± 50.9 mg/dl.

CT Scan findings: The findings of CT scan in the present study are as follows, Abnormal CT scan in 46 patients (92%), out of which clinic radiological discordance was observed in 2 patients (4%), Normal CT scan in 4 patients (8%), The presentation of the abnormal CT Scan is as follows Anterior cerebral artery infarction was noted in 11 patients (22%), Middle cerebral artery infarction was noted in 26 patients (52%) Posterior circulation infarction was noted in 9 patients (18%), 10 patients CT revealed more than one infarct.

Discussion

Epidemiological studies suggest that patients with elevated lipid levels are at higher risk for atherothrombotic brain infarction than those with normal values and this applies mainly to premature ischaemic cerebrovascular disease. Although serum lipids have been incriminated in the pathogenesis of atherosclerosis, very little is known concerning the possible inter-relationship between abnormal levels of serum lipids and development of vascular complications. Belief in the possibility of such interrelationship

arouse in part from the observation that lipid composition of the intima of the arteries resembles that of serum. Hence Dyslipidemia has emerged clearly as a major risk factor associated with increased risk of atherosclerosis. Agarwal et al¹ in his study of risk factors in non-embolic cerebrovascular disease observed that cholesterol and Triglycerides level are not altered significantly in any of the age groups. Sikandhar hayatkhan et al, study stated that total cholesterol and triglycerides rose till 5th decade of life and then settled/fall from ensuring 6th decade. Framingham study² nor the Honolulu Heart Study demonstrated any association of serum cholesterol with cerebrovascular disease. This lack of association has been observed, showed a positive association between blood pressure and stroke, but no associated between cholesterol and stroke. The study showed no relationship with cholesterol levels and stroke incidence which co-relates with studies conducted by Prospective studies collaboration 1995; Dauber et al, Kagan et al, Harmisen et al³. Several studies such as nubiola et al⁴, sulonen and puska et al, qizildach et al, tanne et al⁵ and iso et al indicated high incidence of ischaemic stroke with hypertriglyceridemia which is contradicted in the present study. Amarenco et al, did a study to find whether statins reduce the risk of incidence of stroke after a recent stroke they found that in patients with recent stroke without any known coronary artery disease, 80mg of atorvastatin perday reduced the overall incidence of strokes and cardiovascular events which was correlated with present study. Middle cerebral artery (52%) is involved most commonly followed by anterior cerebral artery (22%). posterior circulation is involved in 18% of cases. In nirmala et al study among the arterial distribution it is the MCA territory involved in 56.75 of the Ischemic stroke and in hemorrhagic stroke it is only the MCA territory which is involved about 16.7%.

CONCLUSION

A number of clinical studies have demonstrated reduction in stroke incidence and mortality when dyslipidemia is treated with statins. It can be seen that higher levels of S.T.C, triglycerides, LDL, HDL, VLDL wouldn't be risk factor for occurrence of ischemic cerebrovascular disease. In the present study there is a significant change in biochemical values of lipid profile after treating with statins for duration of 3 months, but there is no significant improvement in clinical outcome except for LDL Decrease in LDL levels showed significant improvement in clinical outcome. So it can be concluded that measures to reduce serum LDL levels will be useful in secondary prevention of thrombotic stroke. However we feel that it is too premature to draw definite conclusion in view of 3 rd month end follow up. This may need larger duration of prospective study to draw more definite conclusion and also help us in prevention and treatment of dyslipidemia, which goes a long way in stroke management.

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