ORIGINAL RESEARCH

Analysis of preoperative and postoperative Serum Lipid Profile in Patients with Cholelithiasis undergoing laparoscopic cholecystectomy

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ABSTRACT

Background: The present study was conducted for analysing and comparing preoperative and postoperative Serum Lipid Profile in Patients with Cholelithiasis undergoing laparoscopic cholecystectomy.

Materials & methods: A total of 200 patients were enrolled. Complete demographic and clinical details were recorded. Preoperative radiographic findings were evaluated separately. Blood samples were obtained and preoperative serum lipid profile was assessed. All the patients underwent laparoscopic cholecystectomy. Follow-up was done and lipid profile was evaluated again. All the results were recorded in Microsoft excel sheet followed by subjected to statistical analysis using SPSS software.

Results: Mean total cholesterol, triglycerides, HDL and LDL during preoperative time interval was 184 mg%, 186.5 mg%, 41.3 mg% and 105.4 mg% respectively. Mean total cholesterol, triglycerides, HDL and LDL during postoperative time interval was 195.8 mg%, 215.8 mg%, 43.8 mg% and 108.9 mg% respectively.

Conclusion: Lipid profile is significantly altered among cholelithiasis patients undergoing laparoscopic cholecystectomy.

Key words: Laparoscopic cholecystectomy, Lipid.

INTRODUCTION

Gallstones (GS) are formed in the gall bladder and biliary tract and are of two types: namely cholesterol and pigment stones. GS is one of the main causes for number of upper gastrointestinal surgical casualties. Impaired lipid homeostasis can give rise to cholesterol hypersecretion from biliary canaliculi. Therefore high incidence of cholesterol GS compared to pigment GS can be expected in patients with impaired lipid homeostasis.[1- 3]

Many studies have shown an association between gallstones and abnormal lipids. Most of the gallstones patients present with severe abdominal pain requiring investigations and treatment. Many of them need surgical intervention by the time they are symptomatic. If the gallbladder is removed, the bile in the liver will directly enter the upper part of the intestine. As a result, BA circulate faster, thus exposing the enterohepatic system to a greater BA flux. Lipid and BA metabolisms are functionally interrelated. Even though lipid and BA metabolisms are functionally related, how gallbladder removal affects lipids is not well understood.[3- 6] Hence; the present study was conducted for analysing and comparing preoperative and postoperative Serum Lipid Profile in Patients with Cholelithiasis undergoing laparoscopic cholecystectomy.

MATERIALS & METHODS

The present study was conducted for analysing and comparing preoperative and postoperative Serum Lipid Profile in Patients with Cholelithiasis

undergoing laparoscopic cholecystectomy. A total of 200 patients were enrolled. Complete demographic and clinical details were recorded. Preoperative radiographic findings were evaluated separately. Blood samples were obtained and preoperative serum lipid profile was assessed. All the patients underwent laparoscopic cholecystectomy. Follow-up was done and lipid profile was evaluated again. All the results were recorded in Microsoft excel sheet followed by subjected to statistical analysis using SPSS software.

Results

Mean age of the patients was 47.3 years. Majority proportion of patients were females and were of urban residence. Mean total cholesterol, triglycerides, HDL and LDL during preoperative time interval was 184 mg%, 186.5 mg%, 41.3 mg% and 105.4 mg% respectively. Mean total cholesterol, triglycerides, HDL and LDL during postoperative time interval was 195.8 mg%, 215.8 mg%, 43.8 mg% and 108.9 mg% respectively. While comparing the preoperative and postoperative lipid profile, significant results were obtained.

Table 1: Comparison of lipid profile

Lipid profile	Preoperative	One week postoperative	p-value
Total cholesterol (mg%)	184	195.8	0.001*
Triglycerides (mg%)	186.5	215.8	0.000*
High density lipoproteins (mg%)	41.3	43.8	0.774
Low density lipoproteins (mg%)	105.4	108.9	0.157

*: Significant

Discussion

Gallstone disease is one of the most common gastrointestinal disorders, prevalent in about 10–15% of adults in the developed countries. Most of the patients with this disease are asymptomatic. The role of serum lipids in the aetiology of cholelithiasis is very important and in cholesterol gallstones serum lipids are altered which is suggestive of metabolic syndrome. Even though a positive correlation between serum triglycerides (TG) and nucleation time of cholesterol in bile is identified, a relationship between serum lipids and biliary cholesterol saturation index has not been identified. Moreover, controversial results have been obtained for the serum lipid profiles of patients with GS. In some case control studies, serum hypertriglyceridemia and low HDL-cholesterol (HDL-C) have shown a significant association with GS disease. However it has not been a common observation.[6-9] Hence; the present study was conducted for analysing and comparing preoperative and postoperative Serum Lipid Profile in Patients with Cholelithiasis undergoing laparoscopic cholecystectomy.

Mean age of the patients was 47.3 years. Majority proportion of patients were females and were of urban residence. Mean total cholesterol, triglycerides, HDL and LDL during preoperative time interval was 184 mg%, 186.5 mg%, 41.3 mg% and 105.4 mg% respectively. Mean total cholesterol, triglycerides, HDL and LDL during postoperative time interval was 195.8 mg%, 215.8 mg%, 43.8 mg% and 108.9 mg% respectively. While comparing the preoperative and postoperative lipid profile, significant results were obtained. Batajoo H et al compared the serum lipid abnormalities in females who have cholelithiasis with controls. A total of 133 patients were divided into two age groups $\leq$ 40 and >40 years. In age group $\leq$ 40 years, there were 72 cases with no controls, whereas, in >40 years, 61 cases were compared with 67 controls. The serum lipid profile were collected and compared according to the age groups. In age group >40 years serum LDL of gallstone patients were statistically significantly raised ($P<0.05$) (95% CI -22.077; -850) compared with controls and serum total cholesterol and triglycerides were not statistically significantly high ($P >0.05$). Serum HDL and VLDL were lower in gallstone patients but not statistically significant ($P >0.05$) compared to control group. The study showed that serum LDL level was statistically significant in females >40 years of age, whereas other parameters were not statistically significantly different.[10] Bernard C et al assessed association of serum lipids to cholelithiasis All patients with GSD coming to the general surgery OPD above 18years were included in the study with few exclusion criteria. The diagnoses of gallstones were confirmed by ultrasound (USG) and venous blood sample was used to estimate lipid profile. In their study of 312 patients, mean difference of the lipid profile had a statistically significantly association with the weight of the stone. Serum SGOT, SGPT & TGL had a statistical significant association with average weight of stone. Biochemical parameters like SGOT, SGPT, and ALP influenced the type and weight of stone significantly. Similarly, while comparing the weight of the stone with lipid profile, a significant association was observed.[11]

Conclusion

Lipid profile is significantly altered among cholelithiasis patients undergoing laparoscopic cholecystectomy.

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