Original Research Paper

Volume-10 | Issue-1 | January - 2020 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

General Surgery

A STUDY ON CHANGES IN LIVER ENZYMES POST LAPAROSCOPIC CHOLECYSTECTOMY

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ABSTRACT

Background: Cholelithiasis is one of the most commonest disease in our country. Laparoscopic cholecystectomy is the preferred mode of surgical management. In the procedures there is high chances of alterations in liver enzymes. This study was done to know the effect of laparoscopy on liver enzymes.

Materials and Methods: This comparative study includes two groups. Group 1 had undergone laparoscopic cholecystectomy and Group 2 who underwent open cholecystectomy. The study was done in Department of Surgery, Jawaharlal medical college Bhagalpur Bihar, from January 2019 to November 2019. In this study, 50 cases taken in Group 1 and 50 in Group 2. The group included both males and females. The LFT was done pre-op and post op in all the patients. Reports analysed.

Results: The study shows that the liver enzymes mainly SGOT, SGPT, GGT are very much raised in laparoscopic cholecystectomy than open surgery. Pneumoperitoneum happens to be the main reason for the elevated liver enzymes.

Conclusion- It was found that the liver enzymes were raised in laparoscopic cholecystectomy as compared to open cholecystectomy, so we have to be cautious in selecting patients for laparoscopy and we have to look for hepatic insufficiency.

KEYWORDS : Laparoscopy, Cholecystectomy, liver function tests, Pneumo-peritoneum.

INTRODUCTION-

Gallstone disease is very common in our country. Earlier days open surgeries were done. As the laparoscopic advancement have come, laparoscopic cholecystectomy (LC) has become the standard surgical mode of management of gallstone disease. LC has many advantages as compared to open cholecystectomy. There are some effects of laparoscopic surgery on liver functions tests. There is alteration in liver enzymes after LC mainly due to the pneumoperitoneum. Increase in intra abdominal pressure causes pressure over hepatic blood flow and can cause hepatic ischaemia which leads to increase in liver enzymes. It seems the free radicals are generated at the end of laparoscopic procedures, possibly as result of an ischaemia reperfusion phenomenon induced by inflation and deflation of pneumoperitoneum. Our study is mainly to see whether there are some variations in liver enzymes and the reasons behind it.

MATERIALS AND METHODS:

This comparative study includes two groups. Group 1 had undergone laparoscopic cholecystectomy and Group 2 who underwent open cholecystectomy. The study was done in Department of Surgery, Jawaharlal medical college Bhagalpur Bihar, from January 2019 to November 2019. In this study, 50 cases taken in Group 1 and 50 in Group 2. The group included both males and females. Patients who opted for open cholecystectomy were chosen and the consent obtained for the study.

Inclusion criteria- Symptomatic gallstones, Acute cholecystitis, Both gender, age group 25-50years

Exclusion criteria- Patients with
1- Deranged liver function tests
2- Chronic cholecystitis
3- Choledocholithiasis
4- Chronic liver disease

Laparoscopic cholecystectomy was performed with four standard ports with pneumoperitoneum created using the open Hassan's technique and the pressure was kept at 12 mmhg.

Open cholecystectomy was performed using an approximately 6 cm long subcostal incision two finger distance below the costal margin from the midline running laterally. The LFT was done pre-op and post op in all the patients. Reports analysed.

RESULTS-

The study included 100 cases which were divided 50 in each group.
The number of female patients were more in both the group than males.

The average age group was 35years. Patients were taken between age group 25-50years of age.

The average time taken for the surgery in Open cholecystectomy was 40minutes, where as in laparoscopic cholecystectomy it was around 35 minutes.

The average duration of pneumoperitoneum done during laparoscopic cholecystectomy was 30minutes.

The liver enzymes post op SGOT level was increased in 90% of the patients who underwent LC, where as it increased in only 10% cases of open cholecystectomy(OC).

SGPT post op was markedly raised in all cases of LC, whereas in OC, it was raised in only 5% of cases.

GGT post op was raised in 85% of cases with LC, where as it was raised in only 5% cases in OC.

Serum bilirubin was not much affected in both the group cases post op. Liver function tests were done post op day 7, which showed 75% of patients in both the groups, the liver enzymes had come back to normal level.

DISCUSSION-

laparoscopic cholecystectomy has now become the most common surgery performed with very few side effects. Laparoscopic procedures have reduced patient morbidity, shortened the hospital stay and early return to normal activity. This study was done to assess the clinical significance of unexplained disturbances in liver enzymes following laparoscopic surgeries. The altered liver function is not always because of biliary injury but might be because of pneumoperitoneal pressure resulting in hepatic dysfunction. A study in 1994 first showed that laparoscopic cholecystectomy can cause amendment of liver enzymes. Tan et al. (17) found statistically significant increased levels of hepatic transaminases during the first 48 hours post operation in patients undergoing LC and laparoscopic colonic resection compared to patients having open procedures. The degree of change in ALT following the operations was greater in LC patients than that in OC patients ($P<0.05$, D1; $P<0.01$, D2). Omari and Bani-Hani (18) investigated the serum levels of eight parameters of liver function both before and 24 hrs after surgery in 142 consecutive patients who underwent LC, 23 patients who underwent OC and in 25 patients who underwent a conventional hernia repair. The intra abdominal pressure was maintained at 12 mmHg of carbon dioxide. It appears that the pneumoperitoneum plays a major role in these

changes. It seems that free radicals are generated at the end of laparoscopic procedure, possibly as a result of ischemia-reperfusion phenomenon induced by the inflation and deflation of the pneumoperitoneum Other factors that can lead to disturbed liver functions are pressure effect on the liver, extreme use of diathermy or pushing of small calculi in the bile duct are usually restricted in open cholecystectomy. It was found that very few cases in Open cholecystectomies had raised in liver enzymes, which came to normal in a week.

CONCLUSION-

It was found that the liver enzymes were raised in laparoscopic cholecystectomy as compared to open cholecystectomy, so we have to be cautious in selecting patients for laparoscopy and we have to look for hepatic insufficiency. AST, ALT, GGT elevations could occur after LC. Even three-fold increases could be noted in AST and ALT levels. All this is mainly because of pneumoperitoneum, which causes pressure over hepatic flow, which leads to hepatic insufficiency and causes alterations in liver enzymes. Monitoring of liver enzymes post op is a very important work to do.

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