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DRAIN VERSUS NO DRAIN AFTER LAPAROSCOPIC CHOLECYSTECTOMY-A COMPARATIVE STUDY.

General Surgery

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ABSTRACT

INTRODUCTION Gallstones are the most common conditions encountered in surgical OPD. The prevalence rose with age, except in women of 40-49 years, so that at 60-69 years, 22.4% of women and 11.5% of men had gall stones or had undergone cholecystectomy. With the help of this study, best treatment option for cholecystectomy patient (whether to insert drain or not), was ensured in terms of post lap cholecystectomy collections of bile or blood, drain site pain. The study was provide knowledge whether drain insertion was beneficial or harmful to patient.

MATERIALS AND METHODS This comparative study was presented to the surgery OPD and emergency department with cholelithiasis within a period of 1 year from the approval of Research committee and Ethics Committee, Adesh institute of medical sciences and research, Bathinda. The primary outcome variable used to calculate sample size is amount of collection on post-operative day 3(Quantitative Variable) in both groups. Total 100 patients were present in this study.

RESULT In this present study VAS median grade in patients with drain was G4 (48%), followed by G3(47%) then G2(5%). VAS median grade in without drain group was G2 (48%), followed by G3(31%) and G1(16%).

CONCLUSION There is no significant difference as far as post operative wound infection in laparoscopic Cholecystectomy with drain or without drain. Therefore in patients undergoing laparoscopic cholecystectomy keeping drain can be avoided as it does not provide any additional benefit.

KEYWORDS

Laparoscopic Cholecystectomy, Gallstones, Drain.

INTRODUCTION

Gallstones are the most common conditions encountered in surgical OPD. The prevalence rose with age, except in women of 40-49 years, so that at 60-69 years, 22.4% of women and 11.5% of men had gall stones or had undergone cholecystectomy. The cholecystectomy rate of people with gall stone disease was higher in women than in men (43.5% v 24%).[1] About 10-15% of the adult Western population will develop gallstones, with between 1% and 4% a year developing symptoms.[2]

Gallstones occur when there is an imbalance in the chemical constituents of bile that results in precipitation of one or more of the components. Why this occurs is unclear, although certain risk factors are known.[3] The old adage "fat and fertile, female and forty" tells only part of the story. Oestrogen does cause more cholesterol to be excreted into bile, and obesity (body mass index >30) is a risk factor.[4]

For persons with symptomatic gallstones, (that is, that have caused an episode of biliary pain), the rate for subsequent pain is high so that many persons probably choose cholecystectomy to avoid pain.[5]

Cholecystectomy remains the primary procedure for the management of symptomatic gallstone disease. It is safe, has the lowest risk of recurrence, and provides 92 percent of patients with complete relief of their biliary pain.[6] Laparoscopic cholecystectomy is the most effective surgical treatment of the Cholelithiasis. The procedure offers the patient reduced hospital stay, faster return to work, less pain, and improved cosmetic results. [7]

Complications faced by surgeon during laparoscopic cholecystectomy are bleeding, infection, damage to surrounding structure, common bile duct injury, hepatic duct injury, laparoscopic to open conversion.

Most of the surgeons are performing laparoscopic cholecystectomy in their practice and this method is preferred over open cholecystectomy. Some surgeons prefer to put sub hepatic drain to avoid any collection in case of bleeding, bile leakage, bile duct injury. The notion whether to insert sub hepatic drain or not is controversial in clean uncomplicated cases in which there is no bleeding and bile leak. With the help of this study, best treatment option for cholecystectomy patient (whether to insert drain or not), was ensured in terms of post lap cholecystectomy collections of bile or blood, drain site pain. The study was provide knowledge whether drain insertion was beneficial or harmful to patient.

AIM AND OBJECTIVES

Aim: To study efficacy of drain insertion after laparoscopic cholecystectomy.

OBJECTIVES:

1. To assess amount of drainage/collection in post operative period.
2. To assess type of drainage/collection in post operative period.
3. To analyse whether drain insertion was useful or not.
4. To analyse whether drain insertion decreases the risk of abdominal infection in patient.
6. To analyse the pain score in post-operative patients with drain with the help of VAS (Visual Analogue) score.

MATERIAL AND METHODS

Setting: Adesh Institute of Medical Sciences and Research, Bathinda.

Duration: 1year 6 months (1 year of data collection and 6 months of follow up) from approval of the Research Committee, Adesh institute of medical sciences and research, Bathinda.

Type of study: comparative study.

Subject: All the patients presenting to surgery OPD and Emergency Department at AIMSR with cholelithiasis. (meeting the inclusion criteria)

Sample Size: All the patients presenting to surgery OPD and emergency department with cholelithiasis within a period of 1 year from the approval of Research committee and Ethics Committee, Adesh University, Bathinda.

The primary outcome variable used to calculate sample size is amount of collection on post-operative day 3(Quantitative Variable) in both groups.

Place: Department of surgery, Adesh Institute of Medical Sciences and Research, Bathinda.

INCLUSION CRITERIA:

Patients presenting to SURGERY OPD and emergency department at AIMSR, BATHINDA with

1. Definitive diagnosis of cholelithiasis.
2. Patients of both sexes and any age category.
3. Willing to participate in study.

EXCLUSION CRITERIA:

1. Patients with existing co-morbidity.
2. Patients who are not giving consent to participate in the study.

STATISTICAL ANALYSIS:

For statistical analysis data were entered into a Microsoft excel

spreadsheet and then analyzed by SPSS (version 27.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism version 5. Data had been summarized as meanand standard deviation for numerical variables and count and percentages for categorical variables. Two-sample t-tests for a difference in mean involved independent samples or unpaired samples. Paired t-tests were a form of blocking and had greater power than unpaired tests. One-way analysis of variance (one-way ANOVA) was a technique used to compare means of three or more samples for numerical data (using the F distribution). A chi-squared test ($\chi 2$ test) was any statistical hypothesis test wherein the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Without other qualification, 'chi-squared test' often is used as short for Pearson's chi-squared test. Unpaired proportions were compared by Chi-square test or Fischer's exact test, as appropriate.

The Mann–Whitney U test is a nonparametric test of the null hypothesis that it is equally likely that a randomly selected value from one sample is less than or greater than a randomly selected value from a second sample. This test can be used to determine whether two independent samples were selected from populations having the same distribution; a similar nonparametric test used on dependent samples is the Wilcoxon signed-rank test.

Z-test (Standard Normal Deviate) was used to test the significant difference of proportions. Correlation was calculated by Pearson correlation analysis. The Pearson product-moment correlation coefficient was a measure of the linear dependence between two variables X and Y. Multivariate analysis was performed by logistic regression method for calculation of risk factors. The Kaplan–Meier estimator (Kaplan-Meier survival analysis) was a non-parametricstatistic used to estimate the survival function from time data.

Explicit expressions that can be used to carry out various *t*-tests are given below. In each case, the formula for a test statistic that either exactly follows or closely approximates a *t*-distribution under the null hypothesis is given. Also, the appropriate degrees of freedom are given in each case. Each of these statistics can be used to carry out either a one-tailed test or a two-tailed test.

Once a *t* value is determined, a *p*-value can be found using a table of values from Student's t-distribution. If the calculated *p*-value is below the threshold chosen for statistical significance (usually the 0.10, the 0.05, or 0.01 level), then the null hypothesis is rejected in favour of the alternative hypothesis.

p-value ≤ 0.05 was considered for statistically significant.

RESULT AND DISCUSSION

Cholecystectomy is the treatment of choice for symptomatic cholelithiasis. In the present prospective study 100 cases with symptomatic & asymptomatic cholelithiasis were subjected for laparoscopic cholecystectomy. These cases were randomly divided into drain and without drain group.

In this present study VAS median grade in patients with drain was G4 (48%), followed by G3(47%) then G2(5%). VAS median grade in without drain group was G2 (48%), followed by G3(31%) and G1(16%).

In the present study 01(0.5%) patient in without drain group and 7(3.5%) patients in drain group developed postoperative wound infection. In Bawahab study, 1(2.6%) patient in with drain group and 1(1.54%) patient in without drain group developed wound infection.[8] In Lewis study 6(2.4%) patients in without drain group and 8(3.2%) patients with drain group developed wound infection.[9]

In the study conducted by Lucarelli, mean subhepatic collection on 7th day was 55+/-23.2ml in drain group and 77+/-26.02ml in without drain group.[10] In study conducted by Picchio[11] mean sub hepatic collection was 30+/-5ml in drain and in without drain group. In the Study conducted by Shamim showed mean subhepatic collection of 3.13+/-3.6 ml in drain group and 2.85+/-3.6 ml collection in without drain group[12].

In this study drain was removed when there is very minimal amount of subhepatic collection (<25 ml) measured by ultrasonography abdomen plus colleen drainage bag.

In the present study mean subhepatic collection noted in patients with drain on 1st day was 26.3+/- 12.7ml and 3rd Day was 37.85+/-12.65 ml and on 7th day was 22.83+/-9.88 ml. Mean subhepatic collection in patients without drain on1st day was 20+/-7.84 ml and on 3rd day was 24+/-9.34 ml and on 7thday 15.35+/-7.48 ml. P<0.001, there was statistically significant difference noted between the two study groups.

In Bawahab study showed hospital stay of 4.48+/-2.18 days in patients with drain group and of 2.5+/- 2.2 days in patients of without drain group[8]. In the study conducted by Lewis subgroup post operative hospital stay was 5.9+/-2 days in drain group and 5.5+/-2 days in without drain group.[9]

CONCLUSION

Cholelithiasis is a common digestive disorder worldwide, with occurrence varying from 6-20%. In India it is estimated to be around 4%.

In the present study 100 cases with primary diagnosis of symptomatic and asymptomatic calculous cholecystitis were subjected to elective cholecystectomy and were randomly divided into drain and without drain group. The following conclusions can be made from the study:

Patients in “without drain” group have noted lesser post-operative pain, lesser subhepatic collection and shorter hospital stay in laparoscopic Cholecystectomy compare to “with drain” group.

There is no significant difference as far as post operative wound infection in laparoscopic Cholecystectomy with drain or without drain. Therefore in patients undergoing laparoscopic cholecystectomy keeping drain can be avoided as it does not provide any additional benefit.

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