

INCIDENT OF GALL STONE IN DIFFERENT GENDER AND SEX

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Abstract:

Aims and Objective:

To study the incident of gallstone stone in different age and sex.

STUDY DESIGN:

Cross-sectional observational study,

Place and duration of study:

Mamata Medical College and General Hospital, Khammam from October 2018 to September 2020.

RESULTS: In the present study, among 50 cases, 41 (82%) were females and 9 (18%) were males with male to female ratio of 1:4.5. Representing the majority of the study population were females.

Out of these 3 cases two were pigmented, one was cholesterol stone. But Chi-square statistic at 0.866 with P value of 0.64. Out of 41 female patients in the present study, 10 had a history of OCP use at some point in their life. Among them 5, 4, 1 patients had pigment, cholesterol and mixed stones. Mean serum bilirubin value was more among pigmented stone group (1.069 mg/dl) as compared to mixed (0.850 mg/dl) and cholesterol group (0.6 mg/dl). Mean serum cholesterol group (3.382 mg/dl).

CONCLUSION: On the basis of the above observations, it is possible to say that pigment gallstone patients have high serum bilirubin, calcium and phosphate levels and the type of gallstone doesn't depend on age, sex, BMI status and OCP usage.

Keywords: Gallstone, Bilirubin, Cholesterol, Calcium, Phosphorous.

INTRODUCTION

Gallstones are one of the most common problems associated with the gallbladder, affecting millions of people throughout the world¹. Studies have shown that Indian females shoulders the burden of 10-22 % of the worldwide prevalence of gallstones among females. Gallstones are the commonest associated risk factor with Gallbladder cancer, and appear to occur at a younger age in India. The problem of high incidence of gallstones with a rising rate of Gallbladder cancer is a uniquely Indian problem².

Gallbladder disease today is a common problem: 20 to 25 million Americans harbour gallstones, representing 10% to 15% of the adult population. Northern India has one of the highest reported incidence of gallbladder cancer (GBC) in the World. The highest incidence rates of GBC in the world are 21.5/100 000 in females in Delhi. Gallstones were said to play a major role in gallbladder cancer³.

Major elements involved in the formation of human gallstones are cholesterol, bile pigment and calcium⁴. Analysis of chemical composition of gallstones can provide a significant reference to the treatment and prevention of their reoccurrence⁵. Quantitative analysis of the principal constituents of gallstones, such as total cholesterol, bilirubin, inorganic phosphate and calcium is well known⁶. However, there is not much data available on the correlation between bile and serum levels of these constituents in this patient population⁴.

The purpose of this study is to identify whether the serum levels of different variables decides the type of gallstone and to study variables distribution among gallstone patients. If there are any significant results, researchers can try to target that variable while formulating a newer specific technique to treat gallstones.

AIMS AND OBJECTIVES

Estimation of the incident of cholesterol stone in different gender

MATERIALS AND METHODS

The present study was a cross-sectional observational study, which was conducted on patients presenting with gallstone disease in Mamata General Hospital, Khammam from October 2016 to September 2018. Patients in whom the presence of gallstones was confirmed by ultrasound abdomen were included in this study. A series of 50 patients were compiled for the present study during this time, after obtaining clearance from ethical committee.

INCLUSION CRITERIA:

- Patients in whom the presence of gallstones was confirmed by ultrasound abdomen.
- Patients who have undergone cholecystectomy for the same.
- Patients who were ready to participate in the study.

EXCLUSION CRITERIA:

- Acalculous Cholecystitis.
- Patients with obstructive Jaundice.
- Patients not fit for cholecystectomy.
- Patients who refused cholecystectomy.
- Patients who were not ready to give informed written consent for the study

An elaborate study of these cases with regard to patient's details, including history, examination findings, routine and special investigations, type of surgery, type of stone and the number of stones, were done.

All these patients were subjected to quantitative analysis of:-

- a. Serum total cholesterol - Based on enzymatic calorimetric determination employing cholesterol esterase and cholesterol oxidase,

All these patients were subjected to routine preoperative investigations and underwent either open or laparoscopic cholecystectomy. These patients after cholecystectomy and retrieval of stones, were divided into three groups based on the morphology of gallstones into

- i. Cholesterol stones – solitary/multiple, oval, large, granular surface, yellow white.
- ii. Pigment stones – multiple, small, jet black, mulberry shaped.
- iii. Mixed stones – multiple, multifaceted, brown, variable size

OBSERVATIONS AND RESULTS

AGE GROUP

In the present study, mean age of the study group was 44.4 years, ranging from 17 to 76 years. The commonest age group in the study was middle 31-50 years, followed by 51-60 years age group as depicted in

AGE GROUP	FREQUENCY	PERCENTAGE OF CASES
<20	2	4
21-30	4	8
31-40	15	30
41-50	16	32
51-60	9	18
61-70	2	4
71-80	2	4
TOTAL	50	100

Mean age of patients in cholesterol stone group (45.36 years) was more than pigment and mixed stone group as depicted in table 3. However, this difference was statistically not significant (P value=0.9).

In the present study, among 50 cases, 41 (82%) were females and 9 (18%) were males with male to female ratio of 1:4.5. Representing the majority of the study population were females as depicted in table

SEX	FREQUENCY(N=50)	PERCENTAGE OF CASES
FEMALE	41	82
MALE	9	18
TOTAL	50	100

DISCUSSION

Gallstone disease remains one of the major causes of abdominal morbidity and mortality throughout the world. Gallstone disease is a chronic recurrent hepatobiliary disease due to impaired metabolism of cholesterol, bilirubin and bile acids, which is characterised by the formation of gallstones in the hepatic bile duct, common bile duct or gallbladder. Asian populations (5-20%) suffer from gallstones with lowest frequencies being in Black Americans³⁷. In India too, the gallstone disease is relatively common with an overall prevalence in the order of 10-20 per cent. There is a clear North-South divide (commoner in the North) in the burden of gallbladder diseases in India, a phenomenon which is poorly understood.

Cholecystectomy is currently considered the “gold standard” for the treatment of gallstone disease. Cholecystectomy is one of the most commonly performed abdominal surgical procedures. Laparoscopic cholecystectomy has now replaced open cholecystectomy as first-choice treatment³⁹. AGE GROUP DISTRIBUTION

Mean age of cases in this study was 44.4 years, ranging from 17 to 76 years. Most common age group in this study was middle age i.e., 31-50 years followed by 51-60 years. Which was consistent with other studies conducted by Bansal A et al⁴⁷, Jenna P et al³⁷. Where as in studies conducted by Kafia SM et al⁴⁸, Karlatti SS et al⁴⁹ most common age group was 41-60 years which was about 10years older than the present study^{48, 49}. The mean age of cases in Nakeeb A et al⁵⁰ study was 58.2 years.

The frequency of gallstones increases with age, escalating markedly after age 40 to become 4 to 10 times more likely in older individuals. The stone type also changes with age: initially being composed predominantly of cholesterol (corresponding to an increased cholesterol secretion into and saturation of bile) but in late life tending to be black pigment stones. Further, symptoms and complications increase with age, leading to more frequent cholecystectomies.

Majority of the study population was females 82% (41 cases) while males constituted only 18% (9 cases) with male to female ratio of 1:4.5. Study by Das B et al⁴⁰ has observed a male to female ratio of 1:3.8. In Shareef KM et al⁴⁸ study male to female ratio was 1:7.3. In Parambil SM et al⁵¹ and Bansal A et al⁴⁷ study male to female ratio was 1:2.1 and 1.8 respectively. Nath K et al² observed a ratio of 1:1.5.

CONCLUSION

On the basis of the above observations, the frequency of gallstones increases with age, escalating markedly after age 40 to become 4 to 10 times more likely in older individuals and majority of the study population was females 82% (41 cases) while males constituted only 18% (9 cases) with male to female ratio of 1:4.5.

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