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Original Research

Epidemiological Profile and Risk Profiles amongst subjects with Gall Stones

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ABSTRACT:
Background: Mainly there are two major gallstone sub forms in gallbladder, cholesterol stones and bilirubin gallstones. In western countries, most gallbladder stones are cholesterol types. It is commoner amongst females compared to males. Research suggested that physical exertion, life style modifications, reducing weight and avoiding fried things could prevent gall stone formation. The present study was conducted with the aim to determine the epidemiological profile and risk factors for gall stone formation. **Materials and methods:** Stable subjects without any complicated situation like emphysematous bladder, perforation who were diagnosed with cholelithiasis during CECT/ USG abdomen elder than 10 years were included in the study. Black were classified as pigment calculi. Brownish or greenish with laminated Appearance were mixedcalculi. All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software. **Results:** A total of 200 subjects were enrolled in the study. Table 1 shows the epidemiological and demographic profile of subjects with gall stones. There were 16 males with cholesterol type stone, 36 with mixed type stone and 12 with pigment stones. Amongst subjects with non sedentary lifestyle, there were 6 who had cholesterol type stones, 4 had mixed type and 8 had pigment stones. Amongst non diabetics, 18 had cholesterol type stone and 4 had mixed type. There were majority stones amongst non alcoholics and non smokers. There were 16 subjects who were smokers and alcoholics respectively and had stones. **Conclusion:** Females are at an elevated risk of cholelithiasis and the most common type of gall stone is mixed type. Subjects between 31-50 years of age are commonly afflicted.
Key words: Cholesterol, gall stone, epidemiological, non sedentary

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INTRODUCTION

Gallstones are calcium deposits that are most commonly formed andpresent in gallbladder but in various cases they becomeobvious due to their intrinsic risk leading to pain or other associated complications. Mainly there are two major gallstone sub forms in gallbladder, cholesterol stones and bilirubin gallstones. In western countries, most gallbladder stones are cholesterol types. [1,2] The incidence of gallstone varies amongstdifferent portions of India. They are basicallyclusterof solidthingslike bile acids, cholesterol and pigmented substances in the biliary tract components.[(3-5)]The well-established risk aspects for gallstones are advancing age, female predilection, obesity and sedentary lifestyle. [(6-8)] Also, increasedamount of lipids and elevated glucose in the body are relatedwith gallstone formation. [(9)] The risk of the disease increases to many folds with advancing age in both genders.[(10,11)] It is commoner amongst females compared to males.[(12,13)] Research suggested that physical exertion, life style modifications, reducing weight and avoiding fried thingscouldprevent gall stone formation. [(14-17)] The present study was conducted with the aim to determine the epidemiological profile and risk factors for gall stone formation.

MATERIALS AND METHODS

The present observational study was performed in Department of General Surgery for a period of 2 years. Stable subjects without any complicated situation like emphysematous bladder, perforation who were diagnosed

with cholelithiasis during CECT/ USG abdomen elder than 10 years were included in the study. The study was approved by the institutional ethical board and all the subjects were informed about the study and a written consent was obtained from them in their vernacular language. Seriously ill subjects with other comorbidities like impaired renal function were excluded from the study. After appropriate diagnosis, epidemiological profile, demographic details and any associated risk factors were obtained from the patients. A standard proforma was used to record all the details. After cholecystectomy gallbladder was opened and gallstones were classified into 3 categories according tothe color.Pale yellowish and white stones were cholesterol calculi. Black were classified as pigment calculi. Brownish or greenish with laminated Appearance were mixed calculi. All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software.

RESULTS

A total of 200 subjects were enrolled in the study. Table 1 shows the epidemiological and demographic profile of subjects with gall stones. There were 16 males with cholesterol type stone, 36 with mixed type stone and 12 with pigment stones. There were 24 females with cholesterol stone, 78 with mixed and 34 with pigment stones. They were most frequently seen between 41-50 years of age followed by 51-60 years and 61-70 years of age. There was no subject between 71-80 years of age. There were 40 subjects with gall stones between 21-30 years of age and 30 of them had mixed type of stones. Amongst subjects with sedentary occupation, there were 34 who had cholesterol type stone, 110 had mixed type and 38 had pigment stones. Amongst subjects with non sedentary lifestyle, there were 6 who had cholesterol type stones, 4 had mixed type and 8 had pigment stones. Table 2 illustrates the association with risk factors. Stones were seen in majority of the diabetics. There were 22 subjects with cholesterol type stone, 110 with mixed type and 46 with pigment stones. Amongst non diabetics, 18 had cholesterol type stone and 4 had mixed type. There were majority stones amongst non alcoholics and non smokers. There were 16 subjects who were smokers and alcoholics respectively and had stones.

Table 1: epidemiological and demographic profile of subjects with gall stones

demographic variable	**Type of stone**		
	cholesterol stone	**mixed stone**	**pigment stone**
Gender			
Males	16	36	12
female	24	78	34
Age			
11-20	0	0	2
21-30	2	30	8
31-40	8	22	16
41-50	14	24	8
51-60	6	22	8
61-70	10	16	4
71-80	0	0	0
occupation			
sedentary	34	110	38
non-sedentary	6	4	8

Table 2: Association with the risk factor

Risk factor	**Type of stone**		
	cholesterol stone	**mixed stone**	**pigment stone**
diabetic status			
absent	18	4	0
present	22	110	46
Smoking status			
absent	34	108	42
present	6	6	4
Alcohol consumption			
present	4	8	4
absent	36	106	42

DISCUSSION

Gall stones is a momentous reason for death Amongst subjects that could result in a disastrous pathological condition. A study conducted in KSA showed the prevalence of gallstonesas 11.7%.[18]Various studies also demonstrateda higher prevalence rates that were similar to our study.[19] It has been seen that the average prevalence of gall stones in middle eastern countries was 4-12%. [20] On the contrary, the incidence was significantly higher than other studies indifferent areas of the world like in Baghdad it is 3.3%[21], In China, it is 3.2% [22] And in Tiwanit is observed as 6.12%. [23]The incidence of gallstones was consistently high amongst the adult subjectselder than 45 years and female gender was a considerable risk factor for cholelithiasis. Sedentary lifestyle and obesity were related with an increased prevalence of gallstone. In the same way, elderly age group and female gender have an increased predilection towards gallstone disease. [20, 22, 24]As per the present study, A total of 200 subjects were enrolled in the study. There were 16 males with cholesterol type stone, 36 with mixed type stone and 12 with pigment stones. There were 24 females with cholesterol stone, 78 with mixed and 34 with pigment stones. They were most frequently seen between 41-50 years of age followed by 51-60 years and 61-70 years of age. There was no subject between 71-80 years of age. There were 40 subjects with gall stones between 21-30 years of age and 30 of them had mixed type of stones. Amongst subjects with sedentary occupation, there were 34 who had cholesterol type stone, 110 had mixed type and 38 had pigment stones. Amongst subjects with non sedentary lifestyle, there were 6 who had cholesterol type stones, 4 had mixed type and 8 had pigment stones. There were 22 subjects with cholesterol type stone, 110 with mixed type and 46 with pigment stones. Amongst non diabetics, 18 had cholesterol type stone and 4 had mixed type. There were majority stones amongst non alcoholics and non smokers. There were 16 subjects who were smokers and alcoholics respectively and had stones.The results were in accordance from other past studies where the condition showed a considerable prevalence amongst females that could be because of the estrogen hormone that could cause increased saturation of cholesterol present in bile that in turn elevate the formation of gallstones.[25-27]Various studiesindicated that the daily physical activity can protect from the formation of gallstones[6,28] and obesity could up fold the risks for gallstones to many timesamongst all age groups. [8, 29] Contrasting researches showed no such correlation between physical inactivity and disease.[30]

CONCLUSION

Females are at an elevated risk of cholelithiasis and the most common type of gall stone is mixed type. Subjects between 31-50 years of age are commonly afflicted. There is considerable association between diabetes and occurrence of gall stones.

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