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Research Article

THE PREVALENCE OF GALL STONE DISEASE IN ADULT FEMININE IN ASSOCIATION WITH DIETARY FACTORS

Dr Muhammad Yaseen Wajid¹, Dr Asim Din², Dr Hafiz Muhammad Ali Hasnain³^{1,2} Foundation University Medical College, Rawalpindi., ³ University College of Medicine and Dentistry, Lahore.**Article Received:** October 2020**Accepted:** November 2020**Published:** December 2020**Abstract:**

Objectives: The aim of our study was to determine the frequency of Cholelithiasis in adult Feminine population, the role of lipid abnormalities and the importance of dietary factors associated with it.

Study Design: A cross sectional study.

Place and Duration: This study was conducted at Surgical department of Fauji Foundation Hospital Rawalpindi for the duration of four months starting from May, 2020 to August, 2020.

Methodology: We selected 80 patients for our study out of which 30 were controlled patients. We used literature-based questionnaire regarding diet type for the collection of data. We used kit method for the analysis of Serum cholesterol & triglycerides. Also conducted abdominal ultrasonography. SPSS V.20 was used for analysis of data.

Results: In this study Mean±SD age of the patients was as 35.01±5.437. There were 19 (38%) patients of gallstone group and 21 (70%) of control group having the age range from 25 years to 35 years. Remaining 31 (62%) patients of gallstone group and 9 (30%) of control group were having age from 36 years to 45 years. According to the history of the patients there were 16 (32%) subjects of gallstone group and 17 (56.66%) of control group who ate junk food like fast and fried, whereas remaining 34 (68%) patients of gallstone group and 13 (43.33%) of control group were found with no history of such food. Patients who didn't consumed any soft drink were 22 (44%) and rest 28 (56%) patients consumed the soft drinks. There were 43 (86%) patients of gallstone group and 27 (90%) of control group with normal cholesterol level and 7 (14%) patients of gallstone group and 3 (10%) of control group were found with increased level. Normal level of triglyceride was there in 22 (44%) patients of gallstone group and 18 (60%) of control group and 28 (56%) patients of gallstone group and 12 (40%) of control group were having increased level of triglyceride.

Conclusion: According to findings of our study occurrence of Cholelithiasis is rising even in the age of 25 years of adult feminine. Junk food is deeply associated with this disease and no association was found with soft drink consumption along with increased cholesterol & triglycerides.

Keywords: Cholesterol, Cholelithiasis, Pigment Stones, Junk Food.

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INTRODUCTION:

Gallstone disease is one of the prevalent and costly gastrointestinal diseases. The disease has a considerable load to the health care departments. Most of the cases are asymptomatic [1,2]. In Western countries; this is the most common disorder among the digestive system requiring hospital admission having a morbidity of 10%-15% in adults [3]. In the past few decades, the incidence of cholesterol gallstones has been increasing due to changing lifestyles in China [4]. The stone type peculiarly has just shifted in developing Asian countries from the pigment to cholesterol stones. The foundation for this change may be due to consumption of westernized diet and reduced rate of chronic infections [5]. In a study performed in the department of surgery, Madina Teaching Hospital, University Medical & Dental College, Faisalabad, it was found that gallstone disease is increasing in younger age group up to 25 years and especially in male patients.

The complication rate is more in female patients [6]. The gallstones may be classified into cholesterol, black pigment, brown pigment and carbonate stones [7]. The majority of the stones comprise of free cholesterol, mucin glycoprotein, bilirubin calcium salts, unconjugated bilirubin, fatty acids, calcium phosphates and carbonates [8]. The stasis of bile and mucus hyper secretion are the recognized factors in causation of cholesterol stones [9,10]. There is strong association of the disease with female gender [11] illiteracy, low socioeconomic status, smoking, intake of low fiber, diabetes, hypertension, soft drink & tea consumption, physical inactivity, multiparity, high body mass index (BMI) [12,13] junk food in the form of sweet foods and high refined sugars, low fiber contents, high fructose intake, fast food, high fat, and low vitamin C intake. Protective factors on the other hand were high intake of fiber, monounsaturated fats, fish (ω -3 fatty acids), olive oil consumption, fruit, vegetable protein intake, coffee and vitamin C supplementation [14]. Thus, an association of cholecystectomy with subsequent risk of depressive disorder & insulin resistance was observed in females, but not in males [15].

The risk of cholesterol gallstone increases with consumption of fat from fried foods and meat, and the risk of pigment gallstone rise with consumption of

carbohydrate from noodles. Fast & fried junk food and physical inactivity due to use of social media has led to increase in cholesterol and triacylglycerol levels resulting in causation of this disease. Laparoscopic cholecystectomy is the definitive treatment, though minimally invasive, it carries risk of complications. Patients may suffer from post cholecystectomy syndrome after surgery [16]. If the diet is modified and physical activity improved, it can reduce the chances of the disease and operative surgery as well.

METHODOLOGY:

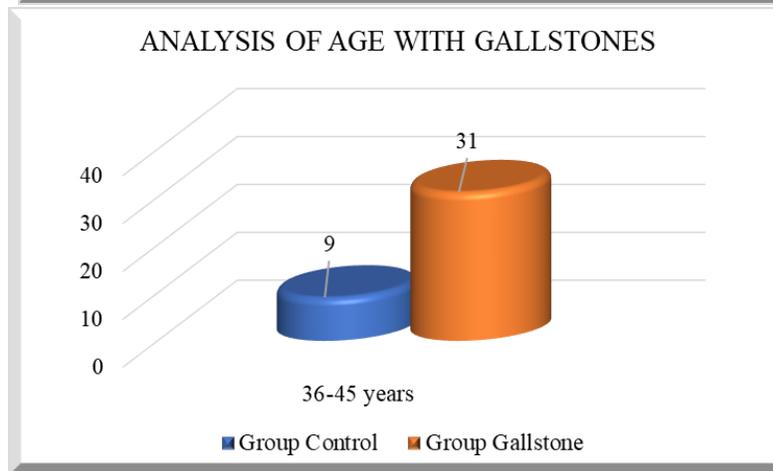
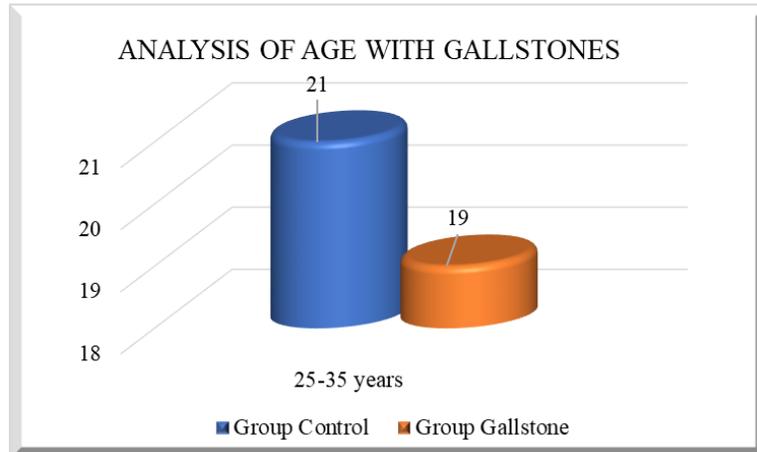
This cross-sectional study was conducted at Surgical department of Fauji Foundation Hospital Rawalpindi for the duration of four months starting from May, 2020 to August, 2020. In this study 80 females were selected out of which 50 patients were in gallstone group with the age from 25 years to 45 and 30 patients were in control group. 30 cases in the control group having same age, sex & socioeconomic background were selected. 50 patients of cholelithiasis diagnosed on ultrasonography were taken. An informed consent was taken prior to study with full confidentiality regarding personal information of the participants. After permission from ethical review board of the institution, data was collected by a questionnaire regarding demographic parameters, use of fast, fried food like burger, sandwiches, pizzas, sweet & salty snacks, fries, candies and soft drink consumption. Serum cholesterol & triglycerides estimation was done by kit method using automated analyzer. Cholesterol liquicolor kit of Human Company & triglycerides liquicolor mono kit of Human Company were used. Statistical analysis was done using chi square test. SPSS V.20 was used for analysis of data to find association of gallstones with junk food & lipid profile. A p value <0.05 was taken as significant.

RESULTS:

In this study 80 females were selected out of which 50 patients were in gallstone group with the age from 25 years to 45 and 30 patients were in control group. 30 cases in the control group having same age, sex & socioeconomic background were selected in this study during a period of four months. Results showed mean value for age 35.01 ± 5.437 standard deviation indicating maximum incidence during 30-40 years of age.

Table 1: Analysis of age with gallstones using chi square test

Serial No	Age distribution	Group			
		Control	Percentage	Gallstone	Percentage
01	25-35 years	21	70%	19	38%
02	36-45 years	9	30%	31	62%
Total		30		50	

**Table No 02: Analysis of Fried & Fast Foods with Gallstones using Chi Square Test**

Fried & fast food		Group		Total
		Gallstone	Control	
Yes		16	17	33
	Percentage	32%	56.7%	41.2%
No		34	13	47
	Percentage	68%	43.3%	58.8%
Total		50	30	80

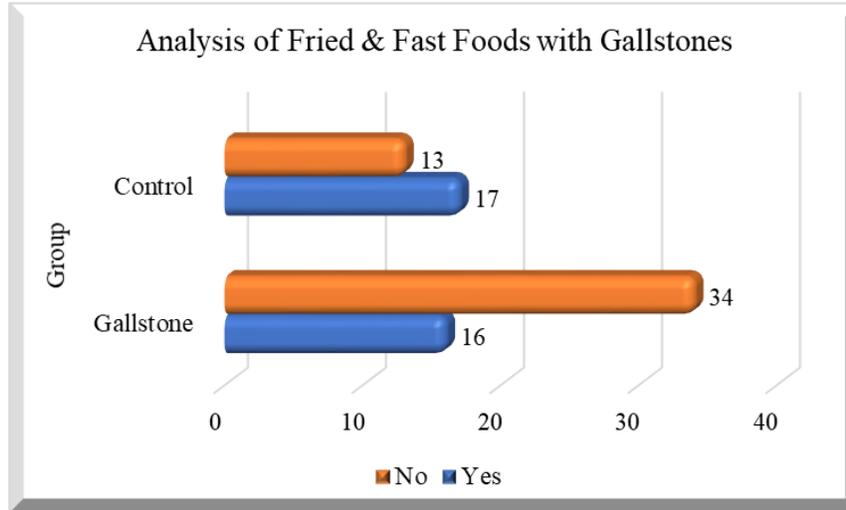
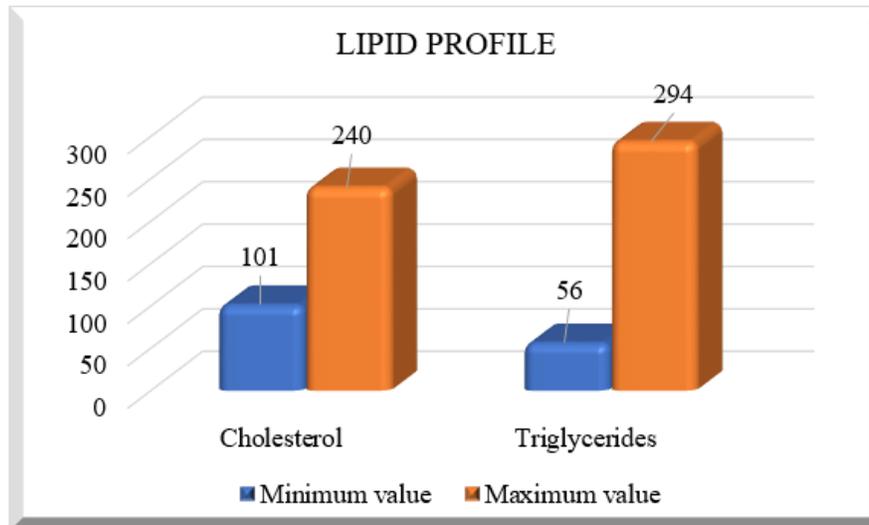


Table No 03: Descriptive Statistics of Values of Lipid Profile

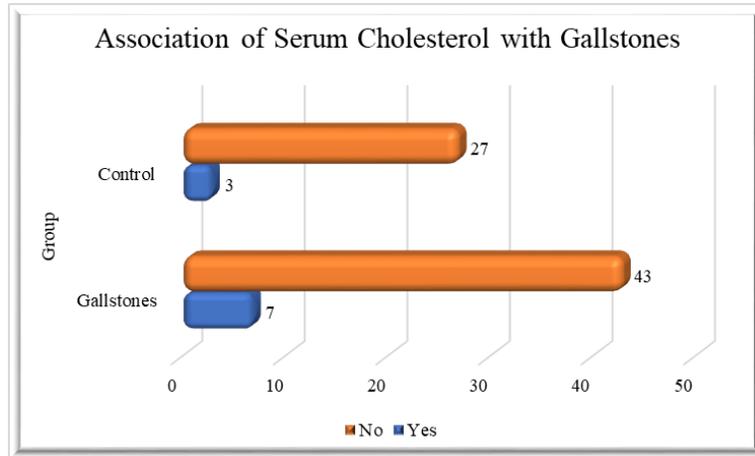
Variables	Qty	Minimum value	Maximum value	Mean±SD
Cholesterol	80	101	240	167.85±27.275
Triglycerides	80	56	294	161.66±60.995



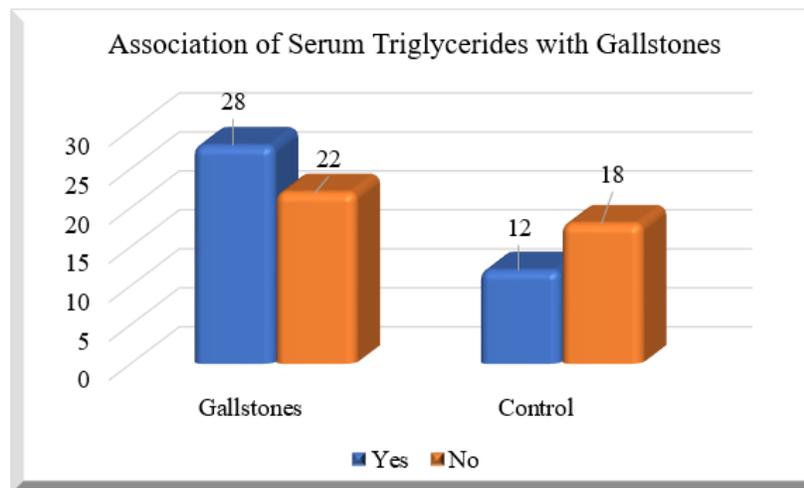
Lipid profile values were considered according to National Cholesterol Education Program (NCEP) values. Desirable value of serum cholesterol was < 200mg/dL. Borderline was considered between 200-239 mg/dL and a value 240mg/dL was taken as high risk. Desirable value of serum triglycerides was < 150mg/dL. Borderline was considered between 150-199 mg/dL and a 200-499 mg/dL was taken as high risk.

Table No 04: Analysis of Association of Serum Cholesterol with Gallstones Using Chi Square Test

Increased Cholesterol	Group		Total
	Gallstones	Control	
Yes	7	3	10
	14.0%	10.0%	12.5%
No	43	27	70
	86.0%	90.0%	87.5%
Total	50	30	80

**Table No 05: Analysis of Association of Serum Triglycerides with Gallstones Using Chi Square Test**

Increased triglycerides	Group		Total
	Gallstones	Control	
Yes	28	12	40
	Percentage	56.0%	40.0%
No	22	18	40
	Percentage	44.0%	60.0%
Total	50	30	80



DISCUSSION:

Cholelithiasis is a disease which is becoming relatively prevalent in the society. Recent years have seen a dramatic change in the population afflicted by this disease along with its presentation. Changes in dietary habits with westernization of diet, sedentary life style and craving for fast food have resulted in a large number of female populations belonging to younger age group (20-40 years) affected by gallstones. Gallstone disease was thought to be a disease of forties.

This study shows the early occurrence of disease i.e. 19 out of 50 female patients are in the range of 25-35 years and maximum incidence is during 36-45 years. But Shrestha (2015) [17] showed that the occurrence is maximum during 20-40 years in females. Another study by Hayat N, 2013 done at UMDC, MTH. Faisalabad showed early occurrence of disease up to 25 years but mainly in males [18]. Likewise, Suryaparkash in 2016 [19] showed occurrence of gallstones in relatively young age; 30-40 years due to lifestyle and dietary changes.

This study also shows strong association of the disease with fast & fried food. Soft drink consumption showed no association. Also, no correlation was found with hypercholesterolemia. This is same finding as in previous study by Shrestha in 2012 [20] but contrary to studies by (Atamanalp 2013, Zhu 2014 and Ravikanth 2016) [21,22,23] which strongly suggested that high cholesterol is associated with gallstones. Increased triglyceride level has some association with gallstones. Strong association was seen in previous studies (Sachedeva 2011, Shrestha 2012, Zamani 2014 and Zhu 2014) [24].

CONCLUSION:

According to findings of our study occurrence of Cholelithiasis is rising even in the age of 25 years of adult feminine. Junk food is deeply associated with this disease and no association was found with soft drink consumption along with increased cholesterol & triglycerides.

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