INTRODUCTION

Gallstones are a common clinical finding in the Western populations. The prevalence rates in adult European is 10–15%, while in African and Asian populations prevalence is 3–5%. In the United States, the prevalence rates range from 5% to 27%. In American Indians, gallstone disease is found in 30% of male and 64% of female (Everhart et al., 2002). The prevalence of Gallstones is raising day by day in Pakistani population. The important biochemical components of gallstones are cholesterol, bile pigment and calcium. Cholesterol and pigmented gall stones are more prevalent as compared to mixed stones. Some elements also play a considerable role in the pathogenesis of gallstones. In an Indian stone formers, it was observed that 14 minor or trace elements including Sulfur, Chloride, Potassium, Vanadium, Chromium, Manganese, Iron, Nickel, Copper, Zinc, Bromide and Lead were identified in the gallstones.

There are three types of gallstones:

(i) Pure cholesterol stones which are constitutes around 90% cholesterol,
(ii) Pigment stones, they can be either brown or black and constitutes around 90% bilirubin
(iii) Mixed composition stones, which are constitute of varying amounts of cholesterol, bilirubin and other substances such as calcium carbonate, calcium phosphate and calcium palmitate.

The major constituents of black pigment stones are insoluble bilirubin pigment polymer mixed with...
calcium phosphate and carbonate. Whenever calcium and un-conjugated bilirubin exceeds then precipitation of calcium bilirubinate occurs. The major factors causing black pigment stones are hemolytic anemias, ineffective erythropoiesis, and increased production of bilirubin (caused by hereditary spherocytosis, thalassaemia, sickle cell disease, liver cirrhosis, malaria, and ineffective erythropoiesis). Increasing age is an important risk factor for gall stone formation as 20% of adults over 40 years of age and 30% of those over age 70 developed biliary calculi. Female gender is another risk factor for cholelithiasis as during the reproductive years, the female-to-male ratio is about 4:1. Obesity, diabetes mellitus, estrogen, pregnancy, hemolytic diseases, and cirrhosis are the common risk factors predisposing to gallstone formation. Mucus, calcium and lipids forms the gallstones. Gallbladder mucin is one of the key factors in gallstone formation. However, there is little information about the diversity of mucin secretion according to the stone composition. A major causative agent for stasis is gallbladder dyskinesia which in turn may be a consequence of gallbladder wall pathology. However, it was observed that gallbladder tension increased, rather than decreased during the early stage of gallstone formation. Present study is aimed to see the various types of gallstones.

**Objective of the Study**
Recognition of various gall stones in the patients attending surgical OPD by biochemical analysis of gall stones.

**MATERIALS AND METHODS**
The study is a cross sectional study, in which cases were patients with gall stones attending surgical OPD at Isra Hospital Hyderabad who were diagnosed on ultrasonography. Gall stone analysis was done from Institute of Biochemistry Sindh University Jamshoro. A total of sixty nine subjects were included in the study from January 2012 to June 2013. Study was conducted in the ISRA Hospital, Hyderabad and Institute of Biochemistry Sindh University Jamshoro.

**Sampling technique**
Cases were selected through non-random sampling.

**Inclusion criteria**
- Male and Female both >15 and <64 years.
- Those who gave consent to participate.
- Patients undergoing surgery for Cholelithiasis at surgical department of Isra University Hospital.

**Exclusion criteria**
- Non consenting patents.
- Age <15 and >65 years.
- Patients with a calculus gall bladder disease.

**Parameters**
- Biochemical analysis of gall stones

**Data Collection Procedure**
After ethical approval taken from hospital ethical committee, all the patients presenting to surgical ward for resection of gall bladder (cholecystectomy) for Cholelithiasis and fulfilling the inclusion criteria were included in the study. Data was collected from all the patients in surgical ward undergoing cholecystectomy for Cholelithiasis & was recorded on a pre designed proforma. Stones removed from gall bladder were submitted to the Institute of Biochemistry Sindh University Jamshoro for chemical analysis.

**RESULTS**
In our research study the mean Age was 35.81 ± 8.12 years. Frequencies in different age groups are 15-24 (11.60%), 25-34 (24.64%), 35-44 (53.63%), 45-54 (8.69%), 55-64 (01.45%). Age distribution is shown in Fig-III-1.

In our research study 49(71.0%) were females and 20(29%) were males with the female to male ration of 2.45:1. gender distribution is shown in Fig-III-2.
In our research study frequencies of different types of gall stones were, cholesterol stones 38(55.07%), pigmented stones 20(28.99%) and mixed type of stones 11(15.94%). Frequencies of different types of gall stones is shown in Fig-III-3.

DISCUSSION
Cholelithiasis is the major cause of morbidity all over the world. In well developed countries the prevalence of cholelithiasis is about 24% but its prevalence is low in underdeveloped countries. In our research study cholesterol gall stones are more common than pigmented and mixed gall stones. These results are consistent with the study of Salam et al and Mokhtar.

German and scandinavian research on gall stones also have reported that cholesterol gall stones are predominant as compared to pigmented and mixed gall stones.

These results are also consistent with the result of Tassaduque et al who have conducted research study on gall stones in Multan. These results are also consistent with the findings of Channa et al who has reported that 68% of gall stones are of cholesterol type.

High cholesterol in bile as compared to bile acids and bile salts leads to nucleation of cholesterol which results in the development of gall stones. This also happens due to over production of bile in liver. This mechanism works in the development of cholesterol gall stones only.

Our research study also concluded that gall stones are more prevalent in female gender as compare to male gender with ratio of 1.6:1. This finding is consistent with the results reported by Central Department of Statistics in Saudi Arabia.
This finding is also consistent with results of Channa et al who reported that gall stones affect 71% of female.

Schirmer has also reported that cholelithiasis is more common in females then males, with female to male ratio is about 4:1, while the incidence becomes equal in both gender in older age. This may be because of the basic hormonal differences between males and females, together with the differences that might exist due to co-expression of sex hormone receptors in the gallbladder of both sexes.

CONCLUSIONS

This study showed that the frequencies of cholesterol gall stones are more common as compared to pigmented and mixed gall stones. Cholesterol gall stones are accounting 55.07% of total gall stones. And from our study we can conclude that females are more prone to develop gall stones as compared to males.

Copyright © 19 Nov, 2013.

REFERENCES


18. Mokhtar, A.M.A. Cholelithiasis in the western


“A friend is someone who knows all about you and still loves you.”

Elbert Hubbard