Prevalence Of Gallstone In Relation To Age, Sex And Body Mass Index In Tikrit City

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ABSTRACT: *gallstones are common diseases in many countries of the world , and incidence rate may reach about 20 % .Most cases of gallstones occur in females , the incidence rate may reach four times to one in comparison between women and men , mainly in fatty , fertile , age of forty female , gall stones are rare before age of 20 years ,but; may occur at any age . many cases are not diagnosed because they do not cause any signs or symptoms , and thus can only be diagnosed accidently by routine abdominal ultrasound.*

The aim of study is to evaluate the relationship between age,sex and body mass index as risk factors for gallstone.

a cross sectional study was conducted in Tikrit city during the period from early of May to the end of October 2019 . 468 were enrolled in present study , and only 95 patients were diagnosed as a case of gallstone (29 male , 66 female). All patients attending private ultrasound clinic with different complains, data was collected by using certain questionnaire.

The results showed that, There was highly significant statistical relationship (P – value ≤0.05) between body mass index mean in both gallstone cases(26.628±5.808) and, in cases without gallstone(22.225±1.316). In the present study there was high statistically significant relation(P- value ≤ 0.05) between body mass index measurement above 25(31.97727273± 3.747859149) and measurement below 25(21.85882353± 1.616313889) in patients with gallstone.

The present study conclude that , Body mass index more than 25 considered as an important risk factor for gallstone.

Keywords : fertile ,cholesterol,estrogen,obesity, ultrasound .

1. INTRODUCTION

Most cases of gallstone diseases present accidently because of asymptomatic patients percent is the highest, and they still without treatments , the main presenting features of gallstone include right upper quadrent abdominal discomfort or pain mainly aggravated by or sometimes my reach the doctor clinics with complications or acute case of cholecystitis. The acute conditions mainly treated by surgical operations under general anesthesia by cholecystectomy either lab cholecystectomy or open cholecystectomy. In few cases gallstones may pass via common bile duct(CBD) and patients present with clinical features of cholangitis or pancreatitis and might present with yellowish discoloration of skin and sclera, all CBD stones should be referred for consideration of treatment because of the risk of potential severe complications , after establishment of gallstone diagnosis surgical removal of

gall bladder should be done either by laparoscopic surgery with less serious complications or routine cholecystectomy,(Lu J, Cheng Y, Xiong XZ et al(2012) .The reasons that lead to the formation of gallstones are still unknown, as the imbalance between the chemical components of the bile compositions leads to the formation of a gallstones,(Chang YR ,2013) . There are many known risk factors whose presence is associated with gallstones, including the patient's sex mainly in female and age, the incidence rate increases with age,(Stender S ,2013). The occurrence of the disease at a higher rate in women may be caused by the presence of the estrogen hormone that leads to the release of more cholesterol into the bile,(Radmard AR .2015, Reshetnyak.2012) as obesity is also considered Another risk factor is not less important than gender and age, just as the genetic factor plays an important role in the occurrence of the disease and thus the family's medical history of gallstones can be considered an important risk factor as well, and other factors include rapid weight loss, pregnancy and diabetes, (Aslam HM .2013). Ultrasonography (USG) one of the most important method to diagnose gallstones cases because it is available , safe and its diagnostic rate is high, therefore , its use in diagnosis has spread widely, as the ultrasonography become used to evaluate the patients with abdominal pain of unknown cause,(Nordestgaard BG et al .2012, Krawcyzk.2011).

2. PATIENTS AND METHODS

A cross sectional study was conducted in Tikrit city during the period from early of May to the end of October 2019 . 468 subjects were enrolled in present study , and only 95 patients were diagnosed as a case of gallstone (29 male , 66 female). All patients attending private ultrasound clinic with different complains, data was collected by using certain questionnaire.

All patients attending ultrasongraphic clinic wear in fasting state for accurate diagnosis of gall bladder diseases .

body mass index was calculated by Quetlets index as:

BMI= Weight(kg)/(Height (meter))^2

And according to this equation body mass index

Below 18.5 : Under weight

Between 18.5-24.9 : Normal

Between 25-29.9 : overweight

 Between 30-39.9 : Obese

40 or more: severe obesity

Body weight was measured in kg by using weighing machine. Body height was measured at standing position by making the patients to stand against a fixed calibrated rod with adjustable headrest.

Body mass index was measured in both subjects with gallstones and those without gallstones, and patients were divided in to two groups according to the age

Group one :

1.1. 46 patients below 40 years

1.2. 49 patients above 40 years

Group two :

2.1. 51 patients below 25 years

2.2. 44 patients above 25 years

Statistical Analysis

data in present research were existing as a mean and standard deviation, (SD). Unpaired student T- test was used to compare between means and standard deviations measured

variables. Data analyzed by using SPSS version 21. P value less than 0.05 , (P≤ 0.05) was used as significant value.

3. RESULTS

The present study was prepared on 463 patients who attended a private ultrasound clinic , abdominal ultrasound was done for all patients ,95 of them were diagnosed as gallstone ,while the results of the other 368 patients ultrasonic examination were normal. Patients who were diagnosed with gallstone 66 women (69.5%), 29 men (30.5%) , and women to men ratio was 2.3:1., the prevalence of gallstone was (20.5%).

table 1 There is   highly significant statistical relationship between BMI mean in both gallstone cases(26.628±5.808) and, in cases without gallstone(22.225±1.316).

(Table 1). show the mean and standard deviation of body mass index (BMI) in gallstone patients and patients without gallstone.

Subjects	BMI mean	BMI stander deviation	P value
Gallstone cases	26.628	5.808	0.00001
Without gallstone	22.225	1.316	

Table 2 There was non-significant relationship between body mass index in 66 women diagnosed   with   gallstone,(27.095±6.202)   and   29   men   diagnosed   with gallstone,(25.710±4.728).

(Table 2). show the mean and stander deviation of body mass index in women and men with gallstone.

Gender	BMI mean	BMI stander deviation	P value
Women with gallstone	27.095	6.202	0.239
Men with gallstone	25.710	4.728	

Table 3 show the measurement of body mass index in patients with gallstone according to the age group , in patients less than 40 years there was no significant relation in body mass index measurements (25.971±6.444) in comparison with measurement of body mass index in patients above 40 years(27.244±5.131)

(Table 3). show body mass index measurement in women and men patients with gallstone distributed according to age.

Age group	Number of patients	BMI mean	BMI stander deviation	P value
Below 40 years	46	25.971	6.444	
Above 40 years	49	27.244	5.131	
Total	95			0.288

Table 4 show high statistically significant relation between body mass index measurement above   25(31.97727273± 3.747859149)   and   measurement   below   25(21.85882353± 1.616313889) in patients with gallstone.

(Table 4) . mean and stander deviation of body mass index measurements.

Body mass index	Number of patients	mean	stander deviation	P value
Below 25	51	21.85882353	1.616313889	
Above 25	44	31.97727273	3.747859149	
Total	95			0.00001

4. DISCUSSION

Ninety five patients were diagnosed as a cases of gallstone by abdominal ultrasound 66(69.5%) of them were women and 29(30.5%) were men , increased estrogen level in women might considered as an important cause of this increment of gallstone incidence, as estrogen increase excretion of cholesterol via bile and also by increasing saturation of bile with cholesterol to the upper limit ,the prevalence of gallstone was (20.5%) , and   the mean of patients age was (39.32±10.48),(3.8).

   S.A. Abu-Eshy, et al, found that , the prevalence of gallstone disease at the Saudi Arabia till now has no certain level and needs further studies and with more detailed parameters. Whereas the prevalence of gallstone disease in their series was 11.7%, it was 4.4% in a study group of 1604 pregnant women from Al Kharj Military Hospital . In other parts of the world, varying figures were given for the prevalence of gallstones, ranging from 4% to more than 20% (Tunisia 4.1%, Islamic Republic of Iran 4.7%, Bangladesh 5.4%, Peru 10.7%, Germany 7.8%). ,New Zealand 20.8% and United States of America 10%−15%),(9).

   In the present study body mass index mean in patients with gallstone was (26.628±5.808) and there was highly significant association of BMI in gallstone patients and patients with normal abdominal ultrasound so BMI considered as an important risk factor of gallstone.

   Dr Ashok Kumar Das, Dr Anku Moni Saikia, Ms Anjana Moyee Saikia, Dr Rupali Baruah, mentioned that cases of gallstone with Gender and BMI was significantly related , further substantiate the predictivity of risk of BMI However, there was no significant association between body mass index and gender in control cases.in women there was positive relationship with BMI revealed In a study done in a Danish population,(4,10).

   Men also displayed a non-significant propensity towards higher prevalence among those with a body mass index exceeding 30 .Similar finding was furthermore stated in other studies,(2,11).

   Previous studies have mentioned unpredictable associations of BMI or relative weight with gallstone disease in man populations. In a case-control study in Australia, there was practically no difference in BMI between gallstones conditions and either hospital or community controls in men, while in women they found that, a positive association between BMI and gallstones , while in Netherland   Another case-control study was done and showed a positive association in both men and women,(1,12). positive association was mentioned in two previous prospective study for relative weight or BMI with clinical gallstone disease in men and women separately in Framingham, USA and in Japanese men in Hawaii. in the San Antonio another cross sectional research was done and showed a clear, predictive relation between BMI and self-reported gallstone disease in women as well as in men,(5,13,14).

   In the present study , as in table 2 , showed non-significant relationship between body mass index in women(27.095±6.202) and men(25.710±4.728) with gallstone.
 A study performed previously by Ashok Kumar Da in India(2015) mentioned that , in female conditions there was relation between body mass index sex and different age group , it was

found that in women cases, 35 (24.8%) had BMI more than 25, in the rest BMI is < 25.In case of men,16.6% had BMI more than 25. Again in final total summation of cases of gallstone is considered, 22.7% had BMI more than 25. This is found to be significantly predictive

p=0.0376), while in the control group ,the same relationship was insignificant (p=0.7361),(2.15).

in the present study there was no significant relationship in body mass index measurements below 40 years (25.971±6.444) in comparison with measurement of body mass index in gallstone patients above 40 years(27.244±5.131).

The developments of gallstone significantly related to increase age is mentioned and confirmed in study performed in Taiwan which was explained and blame the presence of many risk factors for long period of time and not related to the country or style of living,(7).

A Danish study showed that an increased incidence of gallstone in patients >45 years compared with those aged <35 years, and with advanced age regarding gallstone incidence , there was less differences in relation to sex ,(16).

In the present study , as in table 4 found high statistically significant relationship between body mass index measurement above 25(31.97727273± 3.747859149) in comparison with measurement below 25(21.85882353± 1.616313889) in patients with gallstone.

elevated body mass index (BMI) is associated with an increased risk of gallstone disease, one of the most common and costly of gastrointestinal diseases.1-5 However, whether this association reflects a causal effect of obesity on gallstone disease is unclear. It may be that another factor simultaneously raises BMI and causes gallstone disease, and that elevated BMI is merely a marker of this other causal factor (in epidemiology, this common phenomenon is termed("confounding"),(17.18).

5. CONCLUSIONS

Body mass index more than 25 considered as an important risk factor for gallstone, and the study recommend to do further studies with larger samples to establish the prevalence of gallstone in teenager patients.

6. REFERENCES

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