Epidemiology and Risk factors of cholecystitis

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ABSTRCT

Background Cholecystitis is common surgical condition seen in different ages (young ,old) and both sexes .

Mostly caused by gallsteones.

The main risk factors predisposing to gallstone formation include increase BMI, chronic disease(diabetes mellitus), hemolytic diseases, estrogen and pregnancy.

Key words prevalence , risk factors of cholecystitis, gallstones

Aim of this study to differentiate the diffusion Risk factors of cholecystitis among patient at Diyala/Iraq province through 2023-2024, which is important in preoperative period in diagnosis and determining severity of the disease. .

Results The age group >35 years scored highest percentage 67.5 %

Obesity found in 36.3% of patients .

Multigravida scored highest percentage 68.8 %

While primipara found in 13.8%

History of OCP scored highest percentage 53.7 % .

Family history scored highest percentage 53.7% .

High fat diet found in 50% percentage of patients

Diabetes mellitus found in 12.5 %

,Hypertension in 11.3 %

And Finally anemia in 27.5%

Conclusion The prevalence of cholecystitis is common clinical condition in Diyala Iraq .there is obvious relationship between cholecystitis and age,family history ,obesity ,high fat diet, chronic disease ,history of oral contraceptive pill and multipara femals.

Early awareness, diagnosis, present attainable health facilities and health education are very important in management of patients and prevent complications.

Introduction

90% to 95% of the cases of acute cholecystitis caused by obstruction of cystic duct by gallstones . acalculous cholecystitis responsible for 5%-10% of cases with acute cholecystitis , which is acute inflammation of the gallbladder without gallstones, mostly seen in the patient of severe definitive illnes, associated with increase morbidity and mortality if it is not managed in appropriate time.

, benign gallbladder polyps,primary tumors of the gallbladder or common bile duct , metastatic tumors to the gallbladder, foreign bodies ex bullets ,parasites all of these are other causes of obstructive cholecyctitis

Prolonged period of gallbladder obstruction end with acute cholecystitis .

Classification of the gallstones into pure cholesterol stones, black , brown pigmented stones, and mixed stones. the favourited condition that contributed in formation of cholesterol gallstones are super saturation of bile with cholesterol, and also the presence of cholesterol crystals in the gall bladder long period coalesce into stone,.also some new studies found the function of effect elements (copper, zninc, iron, and Calcium) and disturbed pH in the formation of gallstones .

Severe pain in RUQ region, increase temperature, and Murphy's sign is positive with an increase WBC on laboratory examination are diagnostic of Acute cholecystitis;also imaging studies including ultrasound , computed tomography , magnetic resonance imaging, and cholescintigraphy play an important role in the confirmation of the diagnosis and detection if there is associated complications.

Patients and method

Subjects

This cross-sectional study was carried out in Department of General Surgery at Baquba Teaching Hospital between october 2023 to february 2024 among 80 patients in study place.

The study population originally included all patients residents aged twenty years and more.

Data collection

Sample size was based on the number of responses within the specified period. The questionnaire has been translated into Arabic.

the first part of questions was taking history and involved patient demographics information(gender, age) and whether a chronic or acute cholecystitis , family history.

The second part addressed knowledge of cholecystitis risk factors (obesity,high fat diet,diabetes mellitus ,hypertension,anemia,history of OCP ,primipara and multipara)

The answers to the second part of the questionnaire reflected the knowledge of participants with “Yes” ,”No” - “positive “, “ Negative “

Also informations from medical records were used for statistical analysis. The data collected for the study included medical history, laboratory analyses including Haemoglobin level.

Statistical Analysis

The data analysis was done by Statistical Package for Social Sciences (SPSS)

version 26. We expressed the qualitative data by frequencies and the quantitative data such as weight and age by arithmetic mean.

We used chi square to analyze the data when p value less than 0.05 considered significant.

Results

results of present study showed there is significant differences ($P<0.05$) among percentages of all risk factors.

Age group > 35 years scored the highest percentage 67.5

more than age group 25-35 years (16.3%)

And the group < 25 years scored the lowest percentage 15 %

Non Obese patients scored highest percentage (63.7%) than obese (36.3%)

Females multigravida scored highest percentage (68.8%)

While primigravida (13.8%)

Positive History of oral contraceptives pills

Scored highest percentage(53.7%)

negative history of OCP scored (46.3 %)

Positive Family history scored highest percentage (53.7%)

Negative family history (scored 46.3%)

High fat diet scored in half patients (50%)

Chronic disease Diabetes mellitus scored in (12.5%)

While no DM patients scored (87.5%)

Hypertension scored in (11.3%)

while no hypertension patients scored (88.8%)

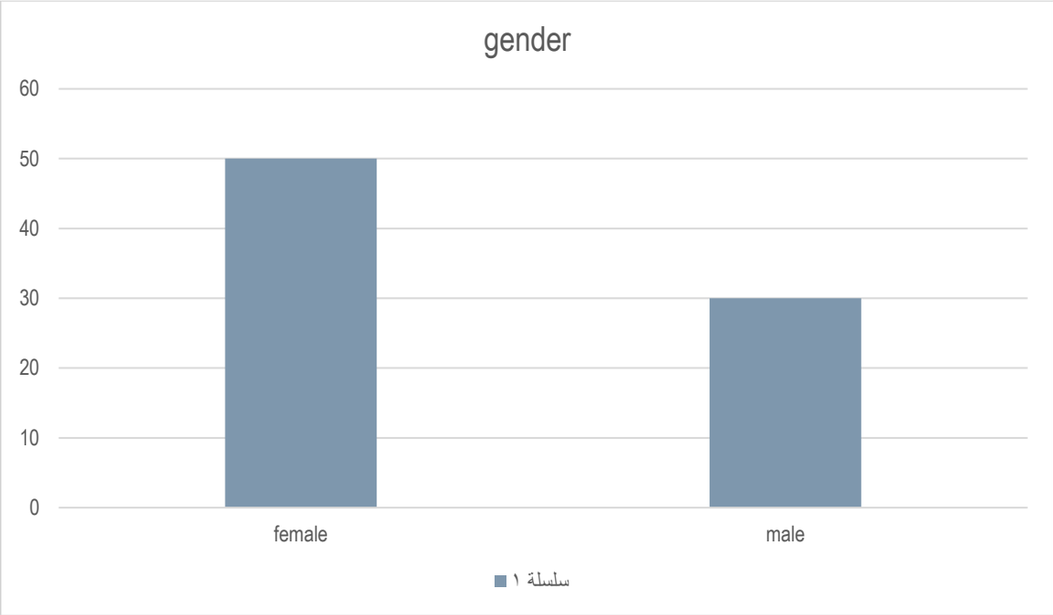
Anemia scored in (27.5%)

No anemia scored (72.5%)

Gender

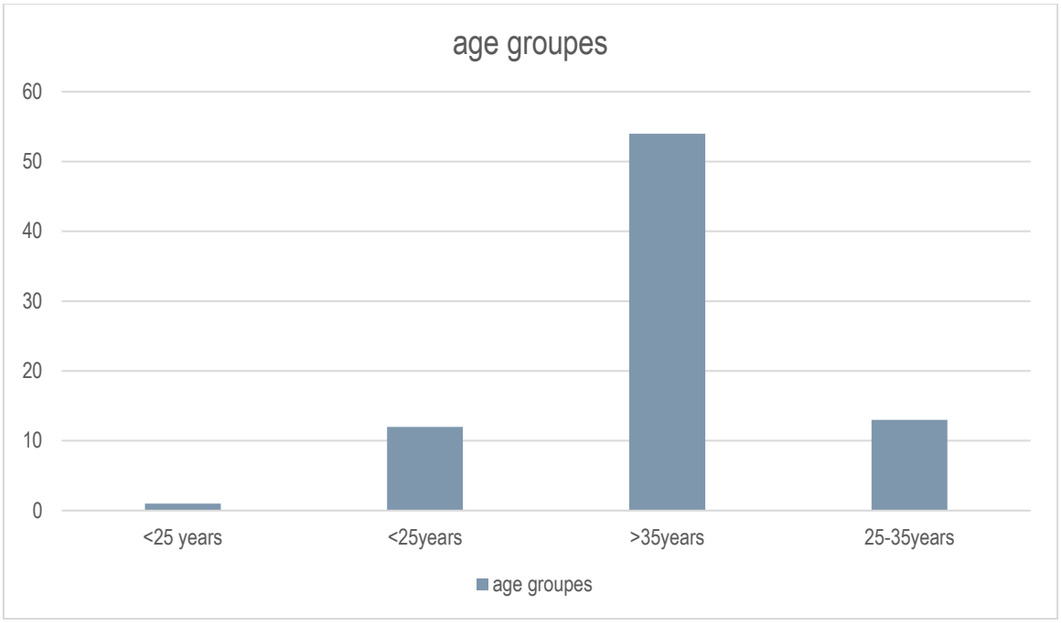
		Frequency	Percent	Valid Percent	Cumulativ Percent
Valid	female	50	62.5	62.5	62.5
	male	30	37.5	37.5	100.0

	Total	80	100.0	100.0	



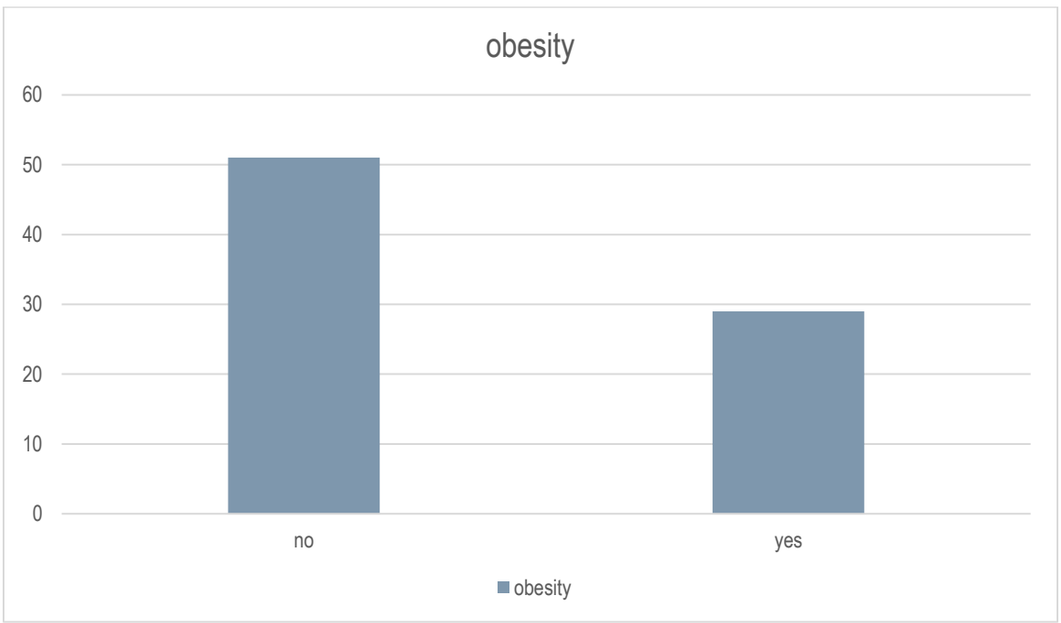
Age group

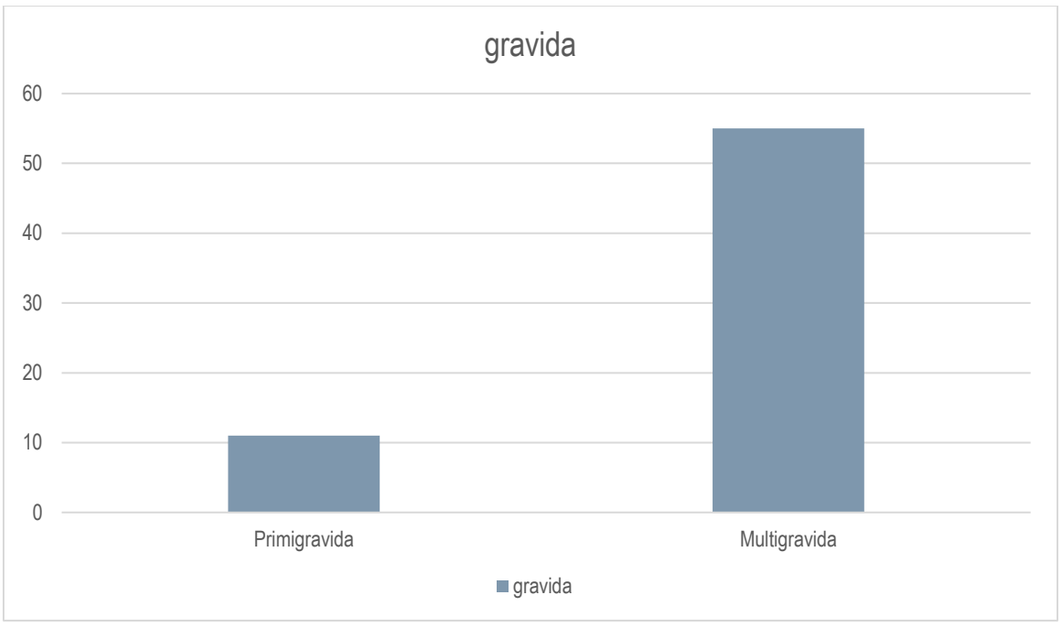
		Frequency	Percent	ValidPercent	Cumulative
Valid	<25 years	1	1.3	1.3	1.3
	<25years	12	15.0	15.0	16.3
	>35years	54	67.5	67.5	83.8
	25-35years	13	16.3	16.3	100.0
	Total	80	100.0	100.0	



obesity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	51	63.7	63.7	63.7
	yes	29	36.3	36.3	100.0
	Total	80	100.0	100.0	





primpara

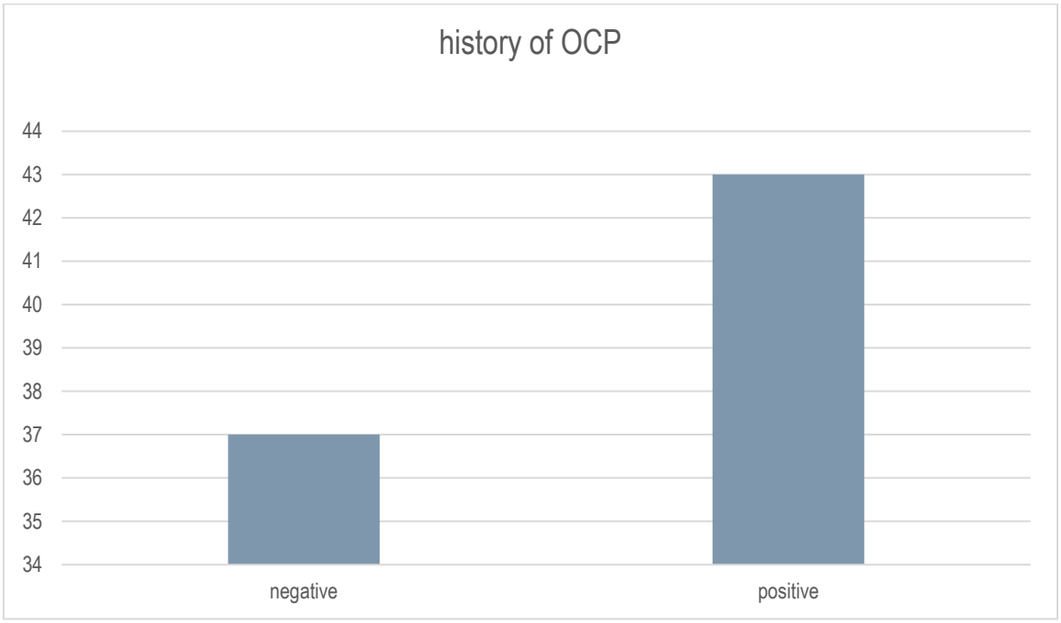
		Frequency	Percent	Valid Percent	Cumulative percent
Valid	no	69	86.3	86.3	86.3
	yes	11	13.8	13.8	100.0
	Total	80	100.0	100.0	

multipara

		Frequency	Percent	Valid percent	Cumulativ Percent
Valid	no	25	31.3	31.3	31.3
	yes	55	68.8	68.8	100.0
	Total	80	100.0	100.0	

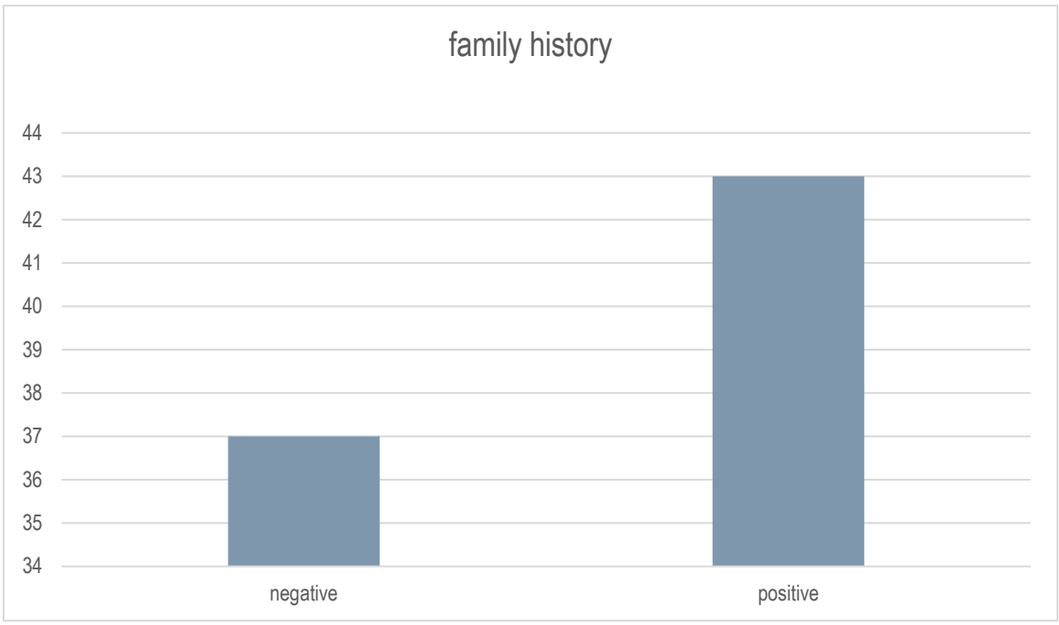
History of OCP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	negative	37	46.3	46.3	46.3
	positive	43	53.7	37.5	83.8
	Total	80	100.0	100.0	



Family history

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	negative	37	46.3	46.3	46.3
	positive	43	53.7	37.5	83.8
	Total	80	100.0	100.0	

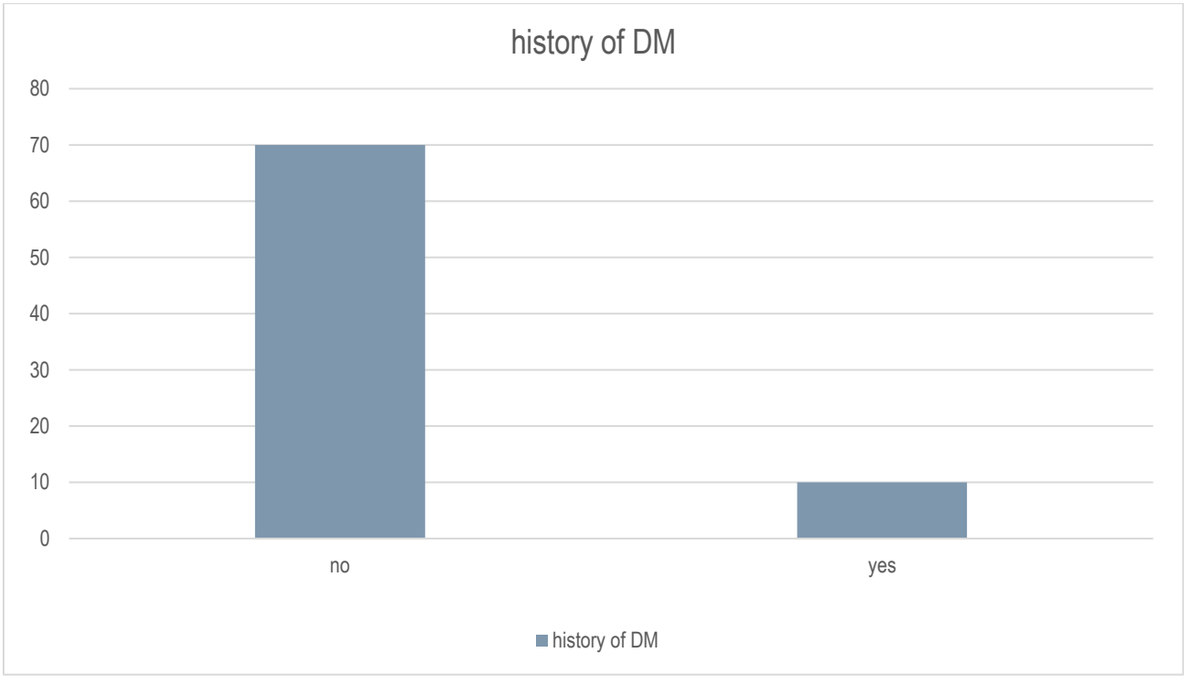


high fat diet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	40	50.0	50.0	50.0
	yes	40	50.0	50.0	100.0
	Total	80	100.0	100.0	

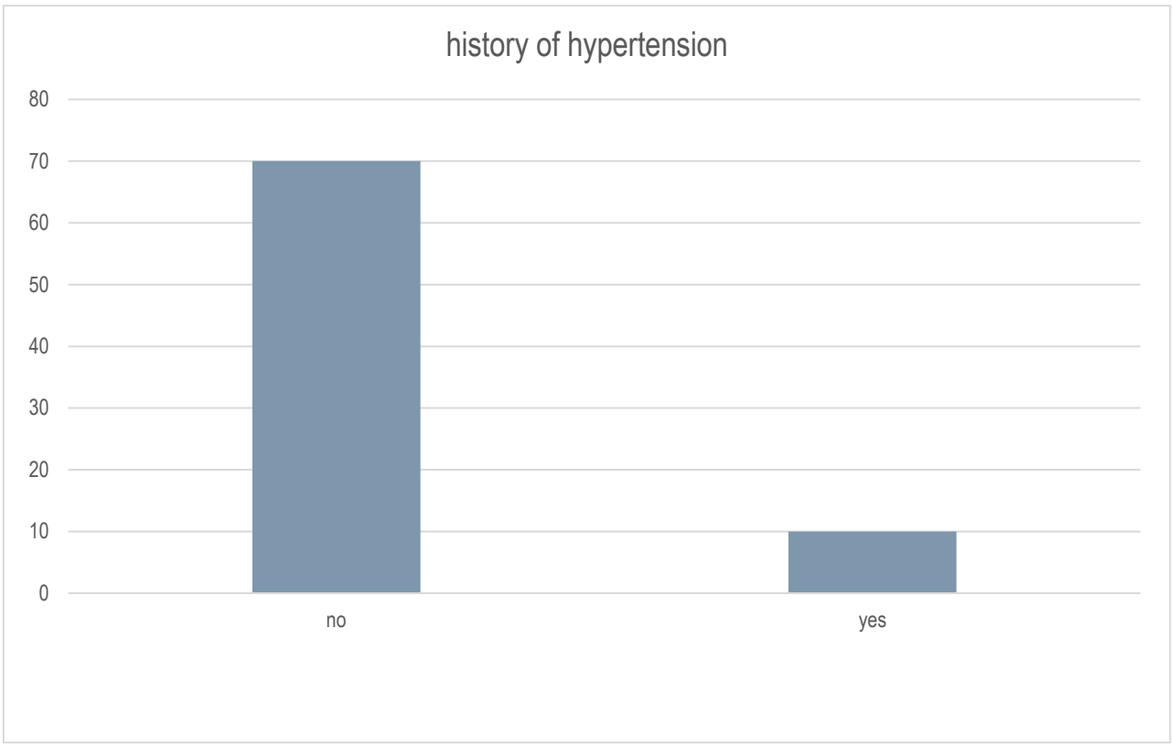
DM

		Frequency	Percent	Valid Percent	Cumulative Perc
Valid	no	70	87.5	87.5	87.5
	yes	10	12.5	12.5	100.0
	Total	80	100,0	100.0	



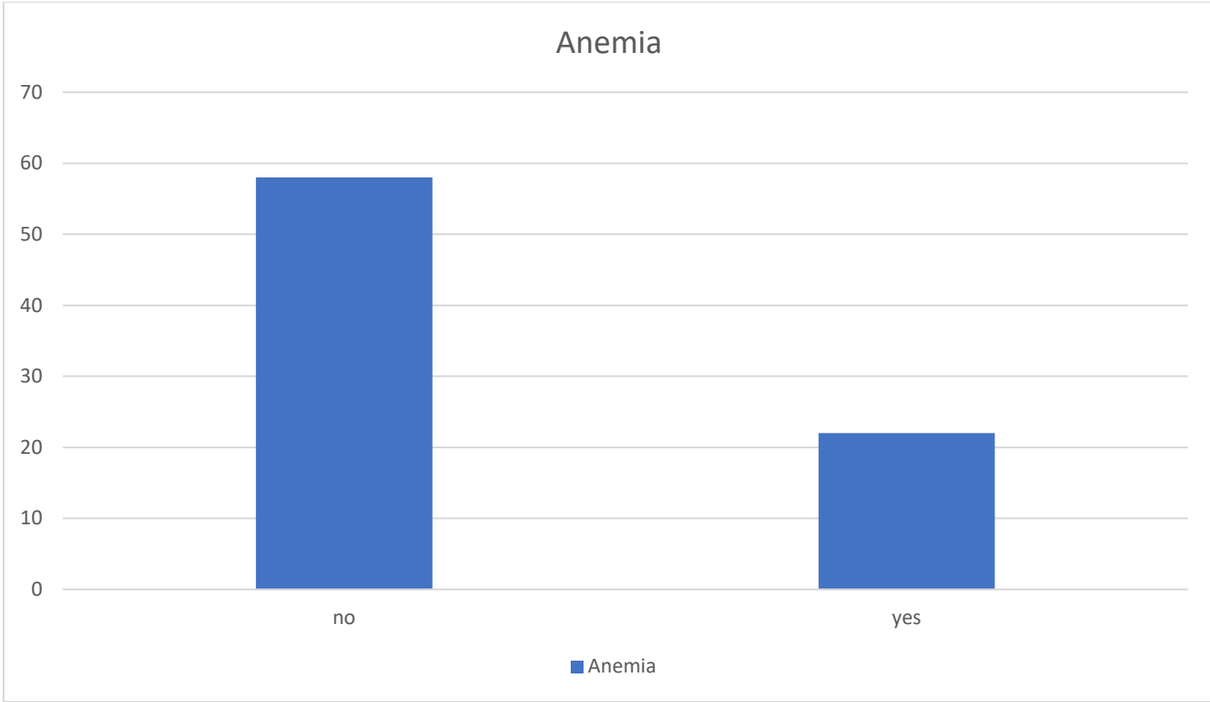
Hypertension

		Frequency	Percent	Valid percent	Cumulative Percent
Valid	no	71	88.8	88.8	88.8
	yes	9	11.3	11.3	100.0
	Total	80	100.0	100.0	



Anemia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	58	72.5	72.5	72.5
	yes	22	27.5	27.5	100.0
	Total	80	100.0	100.0	



Discussion

Cholecystitis is a common disorder among both genders. However, knowledge about the spread and risk factors of cholecystitis is still limited in Diyala, that is why this study aimed to discover the prevalence and risk factors of cholecystitis among the Diyala/ Iraq population.

The study showed that was 62.5 % females and 37.5% males , and the age of majority was >35 years and these results matched with study in Seung Jae Lee 2023, Konyang University, University College of Medicine,South Korea

The risk of cholecystitis increase with increase bod weight showed in 36.3% and these results matched with study Department of Surgery, Dr. D.Y. Patil Vidyapeeth, (2019) Maharashtra, India

Despite that There is no relationship between BMI and severity of cholecystitis and body weight is not a indication for the conversion from laparoscopic to open cholecystectomy.

Females with cholecystitis were multigravida in 68.8% which is higher percentage matched with

Study in Department of Radiology, Union Diagnostics and Clinical Services 2019 in Nigeria

the risk of gallstones increased in pregnancies between the women with gallstones. Awareness should be made to the gallbladder during abdominal ultrasound in pregnancy.

Positive Family history scored in 53.7% and these matche with study in Division of Cancer Epidemiology and Genetics,2010 National Cancer Institute, USA .

This large percent of population that study based on also suggests that the present genetic or lifestyle specific of stones within families increase the risk of biliary tract disease in addition to supports the present of gallstones in biliary carcinogenesis.

High fat diet scored in 50% of patients these matched with study in Biochemistry Laboratory, Department of Basic Sciences, Faculty of Medicine, 2017, Chile.

high fat diet contribute to the formation of gallstones. Cholesterol is loaded by micelles and vesicles present in the bile, cholesterol crystals derive from thermodynamically unstable vesicles in the first stage of gallstone formation participating in consisting of gallstones .

Patients with diabetes mellitus scored 11.3%

DM slightly increased risk of cholecystitis and these matched with study in Surgery Department, 2019 Hospital Universitário Therezinha , Italy.

There were no data significant associations between the type of surgery and Diabetes Mellitus, most of the cases being did laparoscopically, despite of that the rate of disease was higher in the DM patient comparing with the non-diabetic patient, which adapted well with the increased incidence of the severe forms of acute cholecystitis in the DM patient.

Patients with hypertension scored 11.3% increased risk of cholecystitis and these matched with study in Army Medical University 2022, China

Also the study showed there is no significant data conformed the association of hypertension with cholecystectomy , hypertension could related with gallstones but not with severe gallstones symptoms that needed cholecystectomy.

Patients with anemia scored 27.5%

Matched with study in Department of General Surgery, 2012 New Delhi, India

The low level of serum iron leading to bile greater saturation with regard to cholesterol, which will end to formation of gallstones

Conclusions

Cholecystitis is common clinical presentation in Diyala/ Iraq. more common in old age and there is an clear corelationship between increase body weigt , high fat diet,anemia , family history,hypertension,DM, history of OCP ,multigravida and risk of cholecystitis .

Diagnosis as soon as possible, availability of health facilities and health instruction all of these factors are important to prevent complications. New patterns of treatment should be adopted as the plane choice of care to prevent complications.