

# The Association between Waiting for Cholecystectomy and Developing Pancreatitis

Dr. Khalid Al bedah<sup>1</sup>, Dr. Firas Alateeq<sup>2</sup>, Dr. Ahmed Al-olah<sup>3</sup>, Dr. Waleed Alshehri<sup>4</sup>,  
Dr. Abdulhakim Alkhodair<sup>5</sup>, Dr. Shomoukh Al-Sharif<sup>6</sup>, Dr. Majed Juhayman<sup>7</sup>,  
Dr. Meshaal Ahmad Aljebreen<sup>8</sup>

College of Medicine, King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia.

**Abstract:** *The question to be answered in this study is: what is the duration to develop acute pancreatitis in cholecystitis patient. The causes of acute pancreatitis in Saudi Arabia differs from the causes in western countries. The aim of the study is to study the frequency and the prevalence of pancreatitis among patients in the waiting list for cholecystectomy. The objectives of the study is: To evaluate the risk factors to develop pancreatitis, Determine whether there is male or female predominance to develop pancreatitis, to analyze the severity of pancreatitis in relation to gallstone. Method: Cross – sectional study, the sampling technique used in choosing the sample size was purposive sampling technique for the patients who met the inclusion criteria. No patient interview was done and the information was extracted from the charts only. Results: In this study, thirteen females 54.2% and eleven males 45.8 met our inclusion criteria. Ages 30 and below comprised 20.8 percent of our sample size while ages between 31 to 50 and 51 or more comprised 33.3% and 45.8% respectively. The duration of waiting for cholecystectomy was found to be high in the first sixth months with a percentage of 79.2% while seven months to year was 12.5 % and 13 months or above was 8.3%*

**Keywords:**

## 1. Introduction

Cholecystitis is the inflammation of the gallbladder that occur most commonly because of an obstruction of the cystic duct. 90% is due to a stones in the cystic duct while the other 10 % of cases represent acalculas cholecystitis (1).

The risk factors for calculus cholecystitis are female sex which is more susceptible to gallstones 3 times than men, obesity, drugs and increased age (2).in the United Kingdom 5.5 have gallstones. The prevalence of gallstones is related to age and obesity directly (3). The prevalence of overweight and obesity in relation to gallstones formation in Saudi Arabia was found to be high compared to the western standards. In a study that was conducted to patients from Riyadh in Saudi Arabia the results was that gallstones appear to be more common in young Saudi females. The principle factors for this early occurrence appear to be overweight, early age of menarche, early marriage and high parity (4).

One of the theories for gallstone formation is that the metabolic alteration in the hepatic cholesterol secretion combined with changes in gallbladder motility and intestinal bacterial degradation which produce cholesterol crystals (5). This obstruction in the cystic duct leads to accumulation of the bile in the gallbladder which leads to inflammation of the gallbladder and ischemia and necrosis of the gallbladder.

Cholecystitis has a lot of complications. One of these complications is developing pancreatitis which is the inflammation of the pancreas due to obstruction of the pancreatic duct and there for, the prolytic enzymes are activated in the pancreatic cells starting the inflammatory process and finally leading to necrosis of the pancreatic cells (6). The gallstone which comes from the gallbladder

is the single most common etiology of acute pancreatitis (7).

Acute pancreatitis has an incident rate of approximately 40 of the cases per year for 100,000 adult in the US, worldwide the incidence ranges from 5-80 cases per 100,000. 10-20% of the cases may develop sever pancreatitis. Studies have shown that female gender and old age more common to develop acute pancreatitis due to biliary tract disease (8). The research is retrospective chart review which studies the relation between cholecystitis and developing pancreatitis.

This study was chosen because of the small number of studies on this topic in Saudi Arabia and to give guidelines for acute pancreatitis treatment and to study the prevalence in patients attending King Abdul Aziz medical City (KAMC).

## 2. Objectives

The aim of the study is to estimate the frequency and the prevalence of pancreatitis among patients in the waiting list for cholecystectomy.

The objectives of the study are to evaluate the risk factors to develop pancreatitis, determine whether there is male or female predominance to develop pancreatitis and to analyze the severity of pancreatitis in relation to gallstones.

## 3. Method

The study was held at King Abdul Aziz medical City in National Guard in the department of general surgery, the department of general surgery is considered one of the best in the country, with professional doctors and nurses and includes different patients which was helpful in studying the prevalence of acute pancreatitis in cholecystitis patients.

The study subjects were patients presented to the ER at King Abdul-Aziz medical city complaining of acute pancreatitis due to gallstones for the period from 2008 to 2012 and meets

the following criteria. The inclusion criteria were WBC more than 13000, Amylase more than 500, evidence of acute cholecystitis, pancreatitis related to gallstones and radiological findings that indicates inflamed gallbladder (i.e.: thick wall, pericyclic fluid and biliary dilatation). The Exclusion criteria were no surgical intervention was performed and pancreatitis not related to gallstones.

Cross – sectional study design as this type of study gives information about the prevalence and the risk factors of the disease and is excellent for measuring the population burden of the disease. After choosing a margin of error by 10% and a confidence level by 95% and a population size of 2000 people because of the study was from 2008 to 2012 and there are at least 2-3 persons presenting every week complaining of cholecystitis and acute pancreatitis. The sample size was 96 patients initially but was reduced during the data collection phase to 24 due to some limitations which will be stated in the discussion part.

The sampling technique was used in choosing the sample size was purposive sampling technique as this technique was appropriate to this study in relation to the inclusion and exclusion criteria and the large population size.

The data were collected from the medical record by the co investigators using a data collection sheet. Data that were collected included: gender, age, the duration between diagnosis of cholecystitis and developing a pancreatitis, duration of staying at the hospital and the severity. The collected data were entered into the excel program and imported to the SPSS for analysis.

**4. Result**

A statistical analysis was done to the collected data that are gender, age, duration of waiting for cholecystectomy, duration of staying at the hospital and the severity due to the small sample size.

Gender	N	Percent
Male	11	45.8
Female	13	54.2

The female gender was found to develop pancreatitis as they are at risk of developing cholecystitis more than males as shown in the above table 45.8 of the sample size were males and 54.2 were females.

		N	percent
age	30 or less	5	20.8
	31 to 50	8	33.3
	51 or more	11	45.8

In the table above the most affected age group were found to develop pancreatitis was 51 or more age group. The age was Divided into 3 groups, 30 years or less, 31 to 50, and 3-50 or more. Patients in the age group of 50 or more were found to develop pancreatitis more than the others 45.8% (11). 31 to 50 was second with 33.3% (8). 30 years or less 20.8% (5)

		N	Percent
Duration of waiting for cholecystectomy	1-6 months	19	79.2
	7-12 months	3	12.5
	13 or above	2	8.3

In the table above it was found that 79.2% of the patients who developed pancreatitis because of cholecystitis are the patients who were waiting for cholecystectomy for less than 6 months.

		N	Percent
Staying in hospital	1-10 days	15	62.5
	11 and above	9	37.5

In the table above is the result of patients 'length of stay at the hospital after developing pancreatitis, the majority were found to stay in the hospital for less than 10 days.

		N	percent
Severity	non severe	10	41.7
	Severe	11	45.8

The table above shows the severity of the pancreatitis. 45.8% of the patients were found to have severe pancreatitis the severity was calculated by Ranson criteria. 3 patients from the sample size were n/a due to insufficient information which is 12.5%.

**5. Discussion**

In the result we found a similarity between our study and the (High prevalence of overweight and obesity in Saudi Arabia) study regarding the female gender being more susceptible to pancreatitis than males. Old age also was found to be a risk factor to developing pancreatitis as 45.8% from our sample size was found to be 51 or more which Agrees with worldwide studies regarding acute pancreatitis.

To study the duration of waiting for cholecystectomy. The sample size was divided to 3 groups 1-6 months, 7-12 months, and 13 months and above. It was found that 79.2% of the sample size who developed pancreatitis were from the first group (1-6) months, 12.5% were found to be from 7-12 months and 8.3% were found to be from the third group (13 months and above).

The result for severity indicated that the majority of the sample size were complaining of severe pancreatitis. The severity of pancreatitis for 3 patients was not calculated by Ranson criteria and were considered N/A because of lack of information.

The limitations for this study were the inability to extract data from the charts to complete the sample size, small sample size, unclear chart writing and insufficient data to determine the severity. In future studies in this subject should include larger sample size and include samples from other areas in Saudi Arabia.

## 6. Conclusion

Acute pancreatitis is a serious disease it can be life threatening if not treated and prevented early. In this study we tried to study the groups that are at high risk of developing pancreatitis due to biliary tract diseases. Female gender and old age and the patients who waited for the cholecystectomy for 6 months were found to have a high risk of developing pancreatitis.

## References

[1] National Institutes of Health consensus development conference statement on gallstones and laparoscopic cholecystectomy AM J Surge 1993;165:390-8  
 [2] Huang J, Chang CH, Wang JL, Kuo HK, Lin JW, Shau WY, et al. Nationwide epidemiological study of severe gallstone disease in Taiwan. BMC gastroenterology. 2009;9:63

[3] Beckingham IJ, Rowlands BJ. Post cholecystectomy problems. In Blumgart H, ed. Surgery of the liver and biliary tract. 3<sup>rd</sup>ed. London: WB Saunders, 2000  
 [4] AR Al-Nuaim, K. Al-Rubeaan, Y Al-Mazrou O, Al-Attas, N Al-Daghari, T Khoja. High prevalence of overweight and obesity in Saudi Arabia. Intern J Obes 1996;20:547-52  
 [5] Donovan JM. Physical and metabolic factors in gallstone pathogenesis. Gastroenterology clinics America. 1999;28(1):75-97  
 [6] A review of acute pancreatitis .Eur J Gastroenterol Hepatol 1997;9:1-120.  
 [7] Bradley EL. Complications of acute pancreatitis and their management. In: Trade M, Carter DC, Longmire WP, eds. Surgery of the pancreas. Edinburgh: Churchill Livingstone, 1997:245-62  
 [8] Granger J, Remick D. ACUTE PANCREATITIS: models, markers and mediators. Shock.

### Appendices:

**Data collection sheet**

Age	Gender	Duration of waiting of cholecystectomy	Severity of pancreatitis	Surgical intervention	Duration of staying in hospital	US findings

