

## THE AGE AND GENDER PRESENTATION IN THE FORMATIONS OF GALLSTONES

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### ABSTRACT

**Aims:** The aim of this study is to determine age and gender differences in gallstones.

**Methods:** First of all, we searched the general knowledge about gallstones. Then, we retrospectively evaluated 330 patients who applied to the General Surgery Department of Trakya University with the diagnosis of gall bladder stone between 09.01.2015-03.30.2016.

**Results:** Two hundred and eight (63%) patients were female and 122 (37%) were male. 106 (32.1%) patients were over 65 years old and the least risky group in forming gallstones was under 20 years of age.

**Conclusion:** In Trakya University General Surgery Department, gall bladder stones are mostly seen in patients over 65 years of age and higher in women compared to men.

**Keywords:** Cholelithiasis, gallstones, risk factors

### INTRODUCTION

Gallstones are crystal like collections formed by merging of normal and abnormal gallbladder content. Major elements taking part in the formation of gallstones are cholesterol, bile pigment and calcium. On the other hand; iron, phosphorus, carbonate, proteins, carbohydrates, mucus and waste products of cells are also present in trace amounts in the gallstones (1).

There are two types of gallstones: cholesterol stones and pigment stones. Cholesterol stones which are generally green-yellowish in color are composed of hardened cholesterol and about 80% of the gallstones are cholesterol stones. Pigment stones which contain bilirubin are smaller and darker in appearance. Gallstones can be developed in either as either a single large stone or hundreds of small stones or a mix of both (1).

In many studies risk factors in developing gallstones are explained shortly with 4F rule; Fatty, Forty, Female and Fair. Other risk factors in developing gallstones are age (directly proportional), gender (female > male), obesity, diet (rich in animal fat), genetic factors, diabetes mellitus, rapid weight loss and drugs (2).

Symptoms of gallstones are abdominal pain, jaundice, red or brown color of urine, nausea, vomiting and fever (2).

Ultrasonography has a high sensitivity and specificity in diagnosing gallstones. In patients with severe pain, laparoscopic or open cholecystectomy are the most preferred surgical procedures (2).

According to these information we got from the hospital, we found out that gallstone formation also depends on gender and age.

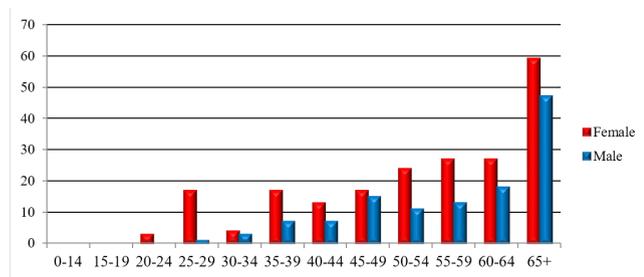
### MATERIAL AND METHODS

Retrospectively, we evaluated the patients who applied to the General Surgery Department of Trakya University with the diagnosis of gallbladder stone between 09.01.2015-03.30.2016. Consulting to the general surgery service of our hospital with a gallbladder stone problem was enough to be included in our search. The patient population which was involved in the study had been diagnosed as cholelithiasis and were referred to general surgery polyclinic. Permission is obtained

from the Ethical Committee of Trakya University. First, we grouped the patients according to their age and gender differences. Then, we used descriptive statistics. As descriptive statistical methods; mean, range, percentage, ratio and proportion were used. Mann-Whitney U Test was used for obtaining P value. For the age ranges, we used the criteria of the World Health Organization. IBM SPSS program was used during this process.

## RESULTS

There were 330 patients who were admitted to the General Surgery Clinic during 09.01.2015-03.30.2016. These 330 patients were included in the study and evaluated according to their age and gender (Figure 2). 208 (63%) patients were female and 122 (37%) was male. 106 (32.1%) patients were over 65 years old and the least risky group in forming gall bladder stones were under 20 years of age. The mean age of patients was 56.56 years. The youngest patient was 22 years old and the oldest patient was 91 years old.



**Figure 1: The distribution of age and gender among patients who applied to the general surgery clinic with the diagnosis of gallstones**

## DISCUSSION

As a result of our study, patients referred to Trakya University Medical Faculty hospital with gallstones were mostly females and over 65 years. There was a significant difference in number of patients with gallstones between male and female patients in older age ( $p=0.018$ ).

Çavuş et al. (3) have examined risk of developing gallstones in their study in their study. They have grouped the patients according to their racial characteristics and obtained some statistical data (3). With age, the risk of gallstones was found to be increased in all ethnic groups. The threshold between the high and relatively low rates of cholecystectomy seems to be the age 40. The cholesterol stone prevalence increased linearly with age for both

genders and reached 50% in women at age 70. With age, cholesterol secretion and saturation were also found to increase. Gender is a significant risk factor for gallstones. According to most studies, the risk of cholelithiasis and cholecystectomy operation is greater for males than females for all ages. Especially in young women (20-30 years) the ratio of female/male; varies between 10/1 in the Pima Local People and 2-3 / 1 in the Europeans (3).

Their obtained results based on the age and gender showed similarity with our study. We compared previous studies with our own. In a study performed by Mustafa Şahin et al. (4) the patient population was greater than ours but in spite of that, our study also showed similar results. In this study, 100 patients with with gallstones and ultrasound results were included. The average age was 45 years. 58 (58%) patients who were diagnosed with gallstones were between 40 and 60 years old and 74 (74%) patients in the patient group and 79 (79%) patients in the control group have been staying for 5 years or longer (for at least 9 months in one year) were living around Malatya. There was no difference between the two groups in terms of eating habits (4).

Both studies showed that gallstones occurred more in females and as the age increases as the age increased, the risk for developing gallstones increased. On the other hand, in our hospital we came across with some missing information in patient records. For example, patients' height and weight were not present in their records.

In Trakya University General Surgery Department, gallstones are mostly seen in patients over 65 years of age and higher in females compared to male patients.

**Ethics Committee Approval:** This study was approved by Scientific Researches Ethics Committee of Trakya University Medical Faculty.

**Informed Consent:** Written informed consent was obtained from the participants of this study.

**Conflict of Interest:** The authors declared no conflict of interest.

**Financial Disclosure:** The authors declared that this study received no financial support.

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