

## A Study of Gallstones Disease incidence in Babylon's Province population

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### دراسة حول حدوث التحصي الصفراوي في سكان محافظة بابل

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**خلفية البحث :** يصاب الجهاز المراري عند الإنسان بالعديد من الأمراض فمنها السرطانية والتشوهات الولادية والاضطرابات الوظيفية و العدوى و التضيق إضافة الى تكوين الحصى المراري . يعتبر تكوين الحصى المراري و ما يصحبه من مضاعفات هو الأكثر شيوعا و يحتل الموقع الأول في سلم أمراض الجهاز المراري .  
**الأهداف :** تحاول هذه الدراسة ان تقيم وقوع التحصي المراري في سكان محافظة بابل بالإضافة الى محاولة معرفة و تقييم عوامل الخطورة المؤهبة لحدوث هذا المرض و تمت مقارنة النتائج المحلية مع تلك القادمة من أجزاء العالم الأخرى .

**الطريقة :** تمت دراسة و مراجعة السجلات الطبية ل (٢٥٧) مريض مصاب بأعراض تحصي كيس المرارة و التي أوجبت لهم إجراء عملية استئصال كيس المرارة بواسطة الجراحة النازلية مع / أو جراحة الفتحة التقليدية بعد أثبات التشخيص بواسطة الفحص البطني والأمواج فوق صوتية مع / أو الفحص البطني المقطعي في مستشفى الحلة التعليمي العام خلال فترة ثلاث سنوات . تم استثناء كل الحالات التي تم علاجها طبيا و لم تخضع للجراحة .  
**النتائج :** أوضحت الدراسة أن وقوع التحصي في كيس المرارة هو (١٢%) وأن نسبة النساء الى الرجال كانت (١:٦) . كما أوضحت الدراسة أن قمة وقوع المرض كانت في العقد الرابع من العمر كما لاحظنا تزايد وقوع المرض في الذين هم دون سن الثلاثين من العمر .

**الاستنتاج :** بينت الدراسة أن وقوع التحصي المراري في سكان محافظة بابل يوازي وقوعه في سكان اجزاء مختلفة من العالم كما كان التكوين الكيميائي للحصى المراري متشابه أيضا .  
**مفتاح الكلمات :** حصى المرارة ، أمراض كيس المرارة ، التحصي المراري ، وقوع ، بابل .

**Background :** There are multiple disorders affecting the biliary system . Malignancies, congenital anomalies, dysfunctional disorders, infections, strictures and gallstones formation are some of the spectrum of diseases affecting the biliary system. Yet, gallstones formation with its associated complications is a commonest disorder occupying the top in the spectrum of the biliary system diseases.

**Objectives :** This study tries to assess and analyse the incidence of gallstones disease in Babylon's Province population. It also attempts to identify and evaluate the predisposing risk factors associated with this disease. Comparison of local results with those from other parts of the world had been reviewed and investigated.

**Methods :** Medical records of (257) patients who underwent laparoscopic and/or open cholecystectomy for their symptomatic gallstones proved by abdominal ultrasonography and/or computer assisted tomography over a period of three years in Al-Hilla General Teaching Hospital had been reviewed and analysed. All cases of gallstones disease which had been managed medically had been excluded from this study.

**Results :** An incidence of (12%) of gallstones disease among Babylon's Province population had been disclosed according to this study. The female to male ratio revealed to be of (6:1). The peak incidence of the disease was in the fourth decade of life. An increasing incidence of the disease among patients less than (30) years old had been demonstrated.

**Conclusion :**The study showed that the incidence of gallstones disease in our locality was similar to that in other parts of the world. Also the chemical composition of gallstones was similar to that found in reports from other parts of the world.

**Keywords :**Gallstones, Gallbladder disorders,Cholelithiasis, Incidence, Babylon Province.

**Introduction:**

Gallstones disease is a relatively common disease in Iraq. In this retrospective study we try to assess and analyse the incidence of gallstones disease and attempt to identify some of the risk factors associated with its occurrence in the population of Babylon's Province. At the same time this study compares the results reported from other parts of the world. Results obtained can be used to help prevention/reduction of this disease incidence in our locality.

**Patients and Methods:**

This study included all patients with gallstones disease who had been submitted to surgical intervention either by laparoscopic and/or open cholecystectomy in Al-Hilla General Teaching Hospital over a period of (3) years :19/2/2009-19/2/2012. The medical records of (257) patients with gallstones disease diagnosed by abdominal ultrasonography and/or computer assisted tomography were reviewed and analysed. All patients who had not been treated surgically had been excluded from this study.

**Results:**

Out of a total (2141) patients investigated by abdominal ultrasonography and/ or computer assisted tomography for their diverse abdominal complaints during the years (2009-2012) only (257) patients were diagnosed to have symptomatic gallstones disease as the main aetiology of their complaints that required surgical intervention in the form of laparoscopic and/or open cholecystectomy to solve their complaints. This gave gallstones disease an incidence rate of about (12%) in Babylon's Province population. In this study there were (220) females and (37) males with a female to male ratio of (6:1). The average age for females was (39) years (17-75 year) while it was (34) years for males (23-69 years). The peak incidence of the disease, according to this study, revealed to be in the fourth decade as is shown in table (1).

**Table (1) demonstrating the relationship between the patients' age and the disease incidence.**

Year	Decade						Total
	2nd	3rd	4th	5th	6th	7th	
2009-2010	2	16	25	18	8	1	70
2010-2011	2	23	28	21	10	2	86
2011-2012	1	29	35	23	11	2	101

We observed that the number of patients younger than (30) years was steadily increasing over the study period as is shown in table (2)

**Table (2) showing increased incidence of gallstones disease in patients less than (30) years old.**

<b>Year</b>	<b>Percentage</b>
2009-2010	22.85%
2010-2011	26.74%
2011-2012	28.71%

In this study, all females were multiparous but only for (21) patients: (11) of these were unmarried, (6) having only one child and four were suffering primary infertility.

Defining obesity as a more than (110%) of the ideal body weight for age and height, only (40) patients (15.56%) were obese and only (8) of these were males. Regarding bile infection, this study showed that bile infection was not an important risk factor for gallstone formation. In only (15) patients (5.8%) there was bile infection which was due to *E. Coli*, *Klebsiella pneumonia*, *Enterococci* and *Citrobacter freundii*. This study showed no pure pigment stones and most of the study group had mixed type of gallstones.

Regarding other possible risk factors for gallstones disease e. g. gastrointestinal tract diseases, drugs intake and prolonged total parenteral nutrition, these were absent in our study group.

### **Discussion:**

Similar high rates of gallstones disease incidence have been reported in different western countries: (19%) in Sweden<sup>(1)</sup>, (15%) in Netherlands<sup>(2)</sup> and (12%) for females and (6%) for males in the United Kingdom<sup>(3)</sup>. Studies derived from autopsies showed an even higher incidence of gallstones disease than that reported using different diagnostic radiological modalities as the former included cases with silent gallstones. Using autopsies, Gobell et al reported an incidence of (33%) in women and (17%) in men in Sweden<sup>(4)</sup>. In Germany, there reported was (34%) in women and (18.5%) in men<sup>(5)</sup>. There is definitely a higher incidence of gallstones disease among females in countries where cholesterol gallstones are prevalent<sup>(6,7,8,9)</sup>. This risk is reduced by taking a high fibre diet<sup>(10,11)</sup>. Generally, our population consume a low fibre diet with high calorie in the form of refined carbohydrates. There is an increased incidence of gallstone disease in families of patients with gallstones to five-fold with two-fold increase in their first degree relatives<sup>(12)</sup>. The aetiology of this increased familial incidence may be a genetic susceptibility in the control of bile secretion and cholesterol saturation or dietary due to ingestion of the same food stuffs for prolonged periods. In Europe and America, the ratio of females to males ranges from 3:1 to 7:1. It may be attributed to the female's high levels of oestrogen and progesterone during their reproductive life that the disease incidence is high in females. Oestrogen, whether endogenous or exogenous in the form of contraceptive pills or as a replacement therapy in postmenopausal phase can increase the bile cholesterol concentration and decreases bile acid synthesis. That progesterone can induce smooth muscles relaxation with subsequent ineffective gall bladder contraction can impair emptying of its contents with resultant enhancement for stone growth. There is an increased bile saturation in the second and third trimesters of pregnancy associated with a reduction of bile acid levels with an impaired gallbladder emptying. Up-to-date it is not settled whether pregnancy induces gallstones formation or change silent gallstones into symptomatic one. In the tropics and the rural oriental

regions where there is a high frequency of bacterial infections (most commonly *E. Coli*) and parasitic infestation (*Ascarislumbricoides*), pigment stones are more prevalent<sup>(13)</sup>.

**Conclusion:**

The study revealed that the incidence of gallstones disease among Babylon's Province population is relatively high of (12%) and that the female to male ratio is also high of (6:1). Reviewing similar reports from America and Europe showed that this study results are consistent with them. Also the chemical composition of gallstones was similar to that found in these reports. There were no pure pigment stones. The risk factors, that had been investigated in this study, predisposing to a high incidence of gallstone disease were multiparity, high intake of refined carbohydrates diets with low intake of fibre-rich foods as well as obesity. The diagnosis of gallstones disease patients is detected nowadays at a younger age and was steadily increasing over the study period. This increase may be a reflection of an improved health care system, better diagnostic facilities and an improved health education among Babylon's Province population leading them to seek early medical advice. Yet, on the other hand, this increase can also be attributed to increased incidence of the risk factors mentioned above.

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