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Incidence of Hypothyroidism in Patients with Cholelithiasis Attending ESI Hospital [A Tertiary Care Hospital] Coimbatore.

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Abstract :
AIM :
To study the incidence of hypothyroidism in patients presenting to the general surgical out patient department with cholelithiasis in a tertiary referral centre - government medical college - ESI.
Methodology:
Patients attending general surgical out patient department of government medical college and ESI hospital , Coimbatore with cholelithiasis were investigated by performing thyroid function tests which includes thyroids stimulating hormone [TSH] , Free T3 and Free T4 levels.
RESULTS :
There were 70 patients who were operated for cholelithiasis. Out of 70 patients , 9 were found to be hypothyroid [12.7% of the study population]. Out of 9 hypothyroid patients , 2 patients were found to have clinical hypothyroidism [2.8% of the study population] and 7 patients were found to have sub clinical hypothyroidism [9.9% of the study population].
Conclusion :
There is an association between thyroid and gall stone disease with subclinical hypothyroidism found to be more common than clinical hypothyroidism.
Key Words : *cholelithiasis , gall stones , thyroid function , tests.*

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I. Introduction

Gall stone disease is the most common biliary pathology presenting to the out patient department of general surgery. The gall stones can be divided into three main types, cholesterol , pigment [black,brown] or mixed stones. The most common type of stones are mixed type of gall stones.

In Asia , 80% of gall stones causing cholelithiasis are pigment stones. Cholesterol stones contain 51-99% cholesterol plus admixture of calcium salts , bile acids , bile pigments and phospho-lipids.

Many studies have been undertaken to identify the risk factors for biliary lithiasis. In the west , it has been focused that hyper saturation of cholesterol in bile in nucleation process is a critical step in the genesis of bile stones.

Recent studies also demonstrated that there is a low bile flow in patients with hypothyroidism. Furthermore , the sphincter of oddi expresses thyroid hormone receptors and thyroxine has a direct pro relaxing effect on the sphincter. Both low bile flow and sphincter of oddi dysfunction are regarded as important functional mechanism that may promote gall stone formation in patients with hypothyroidism.

Hypothyroidism is the most common cause of secondary hyper cholesterolenemia , patients with hypothyroidism have serum cholesterol levels approximately 50% higher than patients in euthyroid status and 90% of all hypothyroid patients have elevated cholesterol levels.

II. Materials And Methods

Patients attending general surgical out patient department of Government medical college and ESI hospital , Coimbatore for cholelithiasis were investigated for hypothyroidism by performing thyroid function tests namely serum TSH , Free T3 and Free T4.

Type of study - Prospective study done for a period of 12 months from November 2016 to October 2017.

Inclusion Criteria:

Patients more than 18 years with complaints of cholelithiasis and patients with asymptomatic cholelithiasis found incidentally on ultrasonogram abdomen.
Exclusion Criteria :
Patients with a history of previously diagnosed or treated thyroid function abnormalities.
History of thyroidectomy. Pregnancy. Chronic debilitating illnesses. Sepsis or Cholangitis. Patients of phenytoin , carbamazepine , metaclopromide , amiodarone and lithium.

III. Observation And Results

TABLE [1] :

			AGE		HYPOTHYROIDISM	
GENDER	**NUMBER**	**PERCENTAGE**	**MEAN**	**RANGE**	**CLINICAL**	**SUB-CLINICAL**
MALE	**29**	**41.4**	**45**	**20-70**	**0**	**2 [2.86%]**
FEMALE	**41**	**58.6**	**50**	**20-80**	**2 [2.86%]**	**5 [7.14 %]**

Out of 70 patients , 29 [41.4 %] were male patients and 41 [58.6%] were female patients. With age ranging from 20-70 years in males and 20-80 years in female patients. 2 female patients had clinical hypothyroidism [2.86%] and 5 female patients [7.14%] were found to have subclinical hypothyroidism.

TABLE [2] :

TOTAL	**CLINICAL HYPOTHYROIDISM**		**SUB-CLINICAL HYPOTHYROIDISM**		**TOTAL**		**EUTHYROID**		**TOTAL**	
AGE	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Below 20	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2.9**	**2**	**2.9**
21-30	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**11.5**	**8**	**11.5**
31-40	**0**	**0**	**1**	**1.4**	**1**	**1.4**	**12**	**17.1**	**13**	**18.5**
41-50	**1**	**1.4**	**1**	**1.4**	**2**	**2.8**	**27**	**38.6**	**29**	**41.4**
51-60	**1**	**1.4**	**4**	**5.7**	**5**	**7.1**	**9**	**12.9**	**14**	**20**
61-70	**0**	**0**	**1**	**1.4**	**1**	**1.4**	**2**	**2.8**	**3**	**4.3**
71-80	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1.4**	**1**	**1.4**
TOTAL	**2**	**2.8%**	**7**	**9.9%**	**9**	**12.7%**	**61**	**87.3%**	**70**	**100%**

Among the study population , the most common age group presenting with sub clinical hypothyroidism is 51 - 60 years [5.7% of the study population] and clinical hypothyroidism ranges from 41-60 years age group.

TABLE [3] :

	NUMBER OF PATIENTS	**HIGH TSH**	**LOW T3**	**LOW T4**	**LOW T3 AND T4**
Gall stones with low T3 and T4	**7**	**7**	**0**	**0**	**7**
Gall stones with low T4	**1**	**1**	**0**	**1**	**0**
Gall stones with low T3	**1**	**1**	**1**	**0**	**0**
TOTAL	**9**	**9**	**1**	**3**	**7**

Out of 7 subclinically hypothyroid patients , All 7 patients had high TSH and low T3 and T4 levels. Out of 2 clinically hypothyroid patients , both patients had elevated TSH , out of which one patient had low T3 levels and the other patient had low T4 levels.

TABLE [4] :

GENDER	**TOTAL CASES [%]**	**GOITRE WITH HYPOTHYROIDISM [%]**	**NON GOITRE WITH HYPOTHYROIDISM [%]**
FEMALE	**41 [58.6%]**	**2 [2.8%]**	**5 [7.14%]**
MALE	**29 [41.4%]**	**0**	**2 [2.8%]**

Out of 41 female patients , 2 patients [2.8%] had hypothyroidism associated with goitre , 5 patients [7.14%] had hypothyroidism with goitre. Out of 29 male patients , 2 patients [2.8%] had hypothyroidism without goitre.

IV. Conclusion

There is an association with hypothyroidism with gall stone disease in which the incidence of sublinical hypothyroidism is more commoner than clinical hypothyroidism.

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