



A STUDY ON PREVALENCE OF THYROID DYSFUNCTION IN PATIENTS DIAGNOSED WITH CHOLELITHIASIS

General Surgery

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ABSTRACT

Gallstone disease is the most common disorder affecting the biliary system. Hypothyroidism causes low bile flow and sphincter of Oddi dysfunction and hence promotes gall stone formation. This study attempts to know the prevalence of thyroid dysfunction in patients with cholelithiasis.

KEYWORDS

Cholelithiasis, Thyroid Dysfunction, Thyroid Function Test.

INTRODUCTION

- Gallstone disease is the most common disorder affecting the biliary system and is a relatively common problem in patients presenting to the outpatient.
- Gallbladder stone prevalence varies among different parts of the world. About 10% in western countries and around 4% in India.
- There have been various risk factors that are associated with gallstone formation such as gender, obesity, pregnancy, dietary factors, Crohn's disease, terminal ileal resection, gastric surgery, hereditary spherocytosis, sickle cell diseases, and thalassemia.
- Biliary stasis is an important factor in gallstone formation.
- Thyroid dysfunction causes altered serum cholesterol levels and super saturation of bile with cholesterol causing altered motility, contractility and filling of gallbladder causing prolonged residence of bile. This leads to gallstone formation. This study is aimed to understand and reemphasize the relationship between thyroid dysfunction and gallstone disease.
- Studies have shown hypothyroidism as one of the causative factor for cholelithiasis.
- Currently Thyroid function test is not included in the workup of patients with cholelithiasis.
- In this study we look into the prevalence of hyperthyroidism, hypothyroidism, euthyroid in patients with cholelithiasis and to establish the relevance of including thyroid function test in the workup of patients with cholelithiasis.

DEFINITIONS

- Subclinical hypothyroidism: symptom free patient with TSH level above upper limit of normal and T3, T4 within normal limit.
- Clinical hypothyroidism: symptoms of hypothyroidism with TSH level above the upper limit and T3, T4 or both decrease below normal limit.
- Euthyroid: clinical and lab tests are within normal range.
- Clinical hyperthyroidism: symptoms of hyperthyroidism with TSH level within normal or below normal limit and T3, T4 or both increased above normal limit

MATERIALS AND METHODOLOGY

The present study is a cross sectional study of 50 cases of cholelithiasis diagnosed in Bapuji hospital and Chigateri General Hospital attached to JJM Medical College, Davangere during the study period of February 2021 to December 2022.

50 cases for the purpose of the study were selected on the basis of the non probability (purposive) sampling method.

Details of patients, full history, clinical examination and symptoms of hypothyroidism (loss of appetite, gaining weight, tiredness, constipation, cold intolerance, menstrual disturbances) were collected.

Inclusion Criteria

- Patients with cholelithiasis.

Exclusion Criteria

- Patients with previous history of thyroid disorder on treatment for it.
- Patients with past surgical history of any thyroid interventions.
- Pregnancy
- Oral contraceptives
- PCOD
- Acute cholecystitis without gallstones
- Liver or renal failure
- Those prescribed medications known to affect the thyroid function test such as phenytoin, carbamazepine, metoclopramide, amiodarone and lithium.

OBSERVATION AND RESULTS

The following are the figures from the data of the study to know the prevalence of thyroid dysfunction in cholelithiasis.

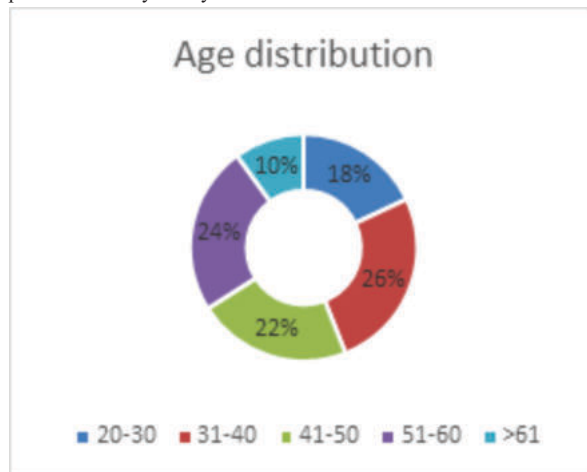


Figure 1: Distribution Of Patients According To Age

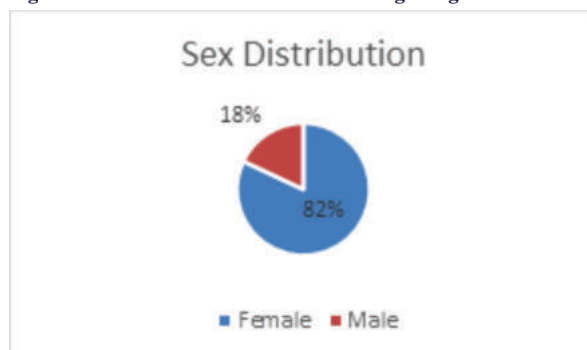


Figure 2: Distribution Of Patients According To Sex

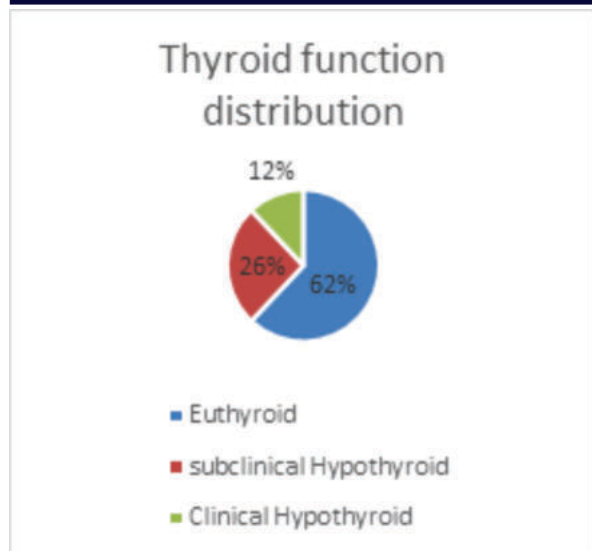


Figure 3: Distribution Of Patients According To Thyroid Function

Among the study group, 72% i.e., 36 patients were in the age group of 31-60yrs, 18% i.e., 9 patients in age group of 21-30 yrs and 10% above 60 yrs. Among the study group, 82% i.e., 41 patients are females and 18% i.e., 09 patients are males. Among the study group, 12% i.e., 06 patients had Clinical hypothyroidism, 26% i.e., 13 patients had Subclinical hypothyroidism and 62% i.e., 31 patients were in euthyroid state. Between the age group of 20-30 yrs 33.3% i.e., three patients had Subclinical hypothyroidism, 66.6% i.e., six patients were in euthyroid state. Between the age group of 31-40yrs 7.7% i.e., one patient had Clinical hypothyroidism, 23% i.e., three patients had Subclinical hypothyroidism, 69.3% i.e., nine patients were in euthyroid state. Between the age group of 41-50yrs 18.2% i.e., two patients had Clinical hypothyroidism, 36.4% i.e., four patients had Subclinical hypothyroidism, 45.4% i.e., five patients were in euthyroid state. Between the age group of 51-60yrs 25% i.e., three patient had Clinical hypothyroidism, 25% i.e., three patients had Subclinical hypothyroidism, 50% i.e., six patients were in euthyroid state. Above 61yrs 100% i.e., five patients were in euthyroid state.

DISCUSSION

Gall stone formation is a complex process involving various mechanisms affecting the flow of bile and bile content. Gall stones can develop in hypothyroidism for a wide range of reasons, including decreased liver cholesterol metabolism, decreased hepatic bile secretion, decreased bile flow into the duodenum, and impaired sphincter of oddi relaxation. Delayed passage of bile down the biliary system and into the duodenum causes biliary stasis, which is prevalent in hypothyroid individuals. This is due to the fact that thyroxine's pro-relaxing effect on the sphincter of Oddi is diminished in hypothyroid patients.

The hallmark laboratory investigation to detect hypothyroidism and also a sensitive indicator for diagnosing early thyroid dysfunction is serum TSH level. Serum TSH level is the most accurate indicator of thyroid function.

Among the 50 patients under study, 41(82%) patients were females and 09(18%) patients were males.

Majority of patients i.e., 36 (72%) patients were in the age group >31 yrs.

Among the study group, majority of the patients i.e., 34 (68%) had multiple calculi alone.

In the study group, 19(38%) patients had hypothyroidism and 31(62%) patients were in euthyroid state. Among the 19 patients, 4 patients are males and 15 patients are females.

Majority of patients had subclinical hypothyroidism when compared to clinical hypothyroidism. Among the 19 hypothyroid patients, 13 patients had subclinical hypothyroidism and 6 patients had clinical hypothyroidism.

Among the 09 male patients studied, 4 patients i.e., 44.5% had hypothyroidism. In that, 3 patients had sub clinical hypothyroidism and 1 patients had clinical hypothyroidism.

Among the 41 female patients studied, 15 patients i.e., 36.6% had hypothyroidism. In that, 10 patients had subclinical hypothyroidism and 5 patients had clinical hypothyroidism.

Among the 36 patients more than 31 yrs of age, 16 patients i.e., 51.6% had hypothyroidism. In that, 10 patients are subclinically hypothyroid and 6 patients are clinically hypothyroid.

CONCLUSION

This prospective observational type of study was conducted in Department of General Surgery, JJM Medical College, Davangere. It can be concluded from the findings of the study that hypothyroidism is a highly probable risk factor for development of cholelithiasis especially for middle aged females. The core pathophysiology responsible for the initial disease process will persist in such people with untreated hypothyroidism, leading to complications and recurrence.

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