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RESEARCH ARTICLE

STUDY ON PREVALENCE OF SUBCLINICAL HYPOTHYROIDISM INELDERLYAGEGROUP AND ITS RELATION WITH DIABETES, HYPERTENSION AND ISCHEMIC HEART DISEASE

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Abstract

Introduction:-

1. Subclinical hypothyroidism, also called mild thyroid failure, is diagnosedwhenperipheralthyroidhormonelevels arewithin normal reference laboratory range but serum thyroid-stimulating hormone (TSH) levels are mildly elevated.
2. Themostimportantimplication ofsubclinicalhypothyroidismishigh likelihood of progression to clinical hypothyroidism. The possibility that it is a cardiovascular risk factor has been a subject of debate.
3. Large-scale randomized studies are needed for evidence-based recommendationsregardingscreeningformild thyroidfailureand levothyroxine therapy for this condition.
4. Serum TSH has a log-linear relationship with circulating thyroid hormonelevels(a2-foldchangeinfreethyroxinewillproducea100- fold change in TSH). Thus, serum TSH measurement is the necessary test for diagnosis of mild thyroid failure when the peripheral thyroid hormone levels are within normal laboratory range.
5. Severalconditionshave beenlinked tohypothyroidism,including nonalcoholic fatty liver disease, cancer mortality, arthritis, kidney dysfunction, and diabetes, though causality is unclear.

Aims and Objectives:-

1. Toestimatetheprevalenceofsubclinicalhypothyroidismabovetheageof60years.
2. To study the relationship of subclinical hypothyroidism to Hypertension,DiabetesandIschemicHeartDiseasein those patients.

MaterialsandMethods:-

Studydesign:
Crosssectionalstudy.

Studyperiod:
1year.

Studypopulation:
PatientsattendingGeneralmedicineOPD in DrBalasahebVikhePatil Rural Medical College Loni.

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Setting:
DepartmentofGeneralMedicine,DrBalasahebVikhePatil Rural Medical College Loni.

Samplesize:
100.

Inclusioncriteria:
Patients above the age of 60 years attending medical outpatient in Dr. BalasahebVikhePatil Rural Medical College LonifromJune 2022 to June 2023 were studied.

Exclusioncriteria
1. Knownthyroiddisease
2. Historyofneckirradiation.
3. Chronicrenalfailure.
4. Severeillness(suchasinfections,myocardialinfarctions,severe heart failure or recent intensive care admission)
5. Takingdrugssuchasamiodarone,lithium,anti-thyroiddrugswillbeexcluded.

Results:-

Table1:- Agedistribution.

	Frequency	Percentage
61–70	34	34%
71–80	34	34%
81–90	32	32%
Total	100	100%
Mean ±SD	75.37 ±7.92	

Table2:- Genderdistribution.

	Frequency	Percentage
Male	51	51%
Female	49	49%
Total	100	100%

Table3:- Diabetes.

	Frequency	Percentage
Yes	39	39%
No	61	61%
Total	100	100%

Table 4:-Hypertension.

Yes	39	39%
No	61	61%
Total	100	100%

Table5:- Ischemic heart disease.

	Frequency	Percentage
Yes	42	42%
No	58	58%
Total	100	100%

Table6:- TSHlevels.

	Frequency	Percentage
>5.5µIU/ml	20	20%
<5.5µIU/ml	80	80%

Total	100	100%
Mean±SD	4.30±2.36	

Table7:-ClinicalPresentation.

	Frequency	Percentage
Fatigue	8	40%
Constipation	8	40%
WeightGain	7	35%
Goiter	2	10%
Cold intolerance	3	15%

Table 8:- Age and TSH levels.

	>5.5µIU/ml	<5.5µIU/ml	Total
61 – 70	6 (30%)	28 (35%)	34 (34%)
71 – 80	7 (35%)	27 (33.75%)	34 (34%)
81 – 90	7 (35%)	25 (31.25%)	32 (32%)
Total	20 (100%)	80 (100%)	100 (100%)
Chi square test= 0.04, p=0.97, Not statistically significant			

Table9:- GenderandTSHlevels.

	>5.5µIU/ml	<5.5µIU/ml	Total
Male	8 (40%)	43 (53.8%)	51 (51%)
Female	12 (60%)	37 (46.2%)	49 (49%)
Total	20 (100%)	80 (100%	100 (100%)
Chi square test= 0.01, p=0.004			

Table 10:- DiabetesandTSHlevels.

	>5.5µIU/ml	<5.5µIU/ml	Total
Yes	18(90%)	21(26.3%)	39(39%)
No	2 (10%)	59(73.8%)	61(61%)
Total	20(100%)	80 (100%)	100(100%)
Chisquaretest=27.06,p=0.0001*,Statisticallysignificant			

Table 11:- Hypertensionand TSH levels.

	>5.5µIU/ml	<5.5µIU/ml	Total
Yes	14(70%)	28(35%)	42(42%)
No	6 (30%)	52(65%)	58(58%)
Total	20(100%)	80(100%)	100(100%)
Chisquaretest=7.96,p=0.004*,Statisticallysignificant			

Table12:- Ischemic heart disease andTSH levels.

	>5.5µIU/ml	<5.5µIU/ml	Total
Yes	5 (25%)	10(12.5%)	15(15%)
No	15(75%)	70(87.5%)	85(85%)
Total	20(100%)	80(100%)	100(100%)
Chisquaretest=1.94,p=0.16,NotStatisticallysignificant			

Discussion:-

1. Subclinical hypothyroidism denotes mild thyroid dysfunction.Its prevalence in general population is around 5 to15 % of patients. Riskoftransformationtotruehypothyroidismis2to5%peryear.
2. The best screening test for any thyroid disorder is measurement of TSH. It is highly a sensitive and specific test. Serum TSH has log relationshipwith hormoneserumthyroxine,soif serumthyroxine levels doubles there is

ahundredfold change in serumTSH levels.

3. Inthepresentstudy,themeanTSH levelswas6.10±2.36.20%had TSH level >5.5 µIU/ml. 80% had TSH levels below 5.5 µIU/ml.
4. Inthepresentstudymean agewas75.37±7.92years.34% belong to61-70years,34%in71-80 yearsand32%in81-90years.Inthe TSH>5.5µIU/mlgroup,35%belongtoagegroup61-70years,35% in 71-80years,30%in 81-90years.
5. Thereis noassociationobservedwithrelationtoageandTSH levels as the p value calculated to be >0.05
6. Majorityofthesurveysreportedameanageof65-80yearswhichis in agreement with our study findings.

Conclusions:-

1. Prevalenceofsubclinicalhypothyroidismis 20%inthe present study;itishighlyprevalentinelderlywomen.
2. SymptomsofhypothyroidismareseeninpatientswithsubclinicalHypothyroidism (around 40% in the present study) fatigability, constipation and weight gain are the most common symptoms.
3. Subclinical hypothyroidismis significantlyrelatedwithdiabetesand hypertension but not with ischemic heart disease in the present study.

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