IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 20, Issue 9 Ser.15 (September. 2021), PP 12-16
www.iosrjournals.org

Hypothyroid Disorders in Uae Community, Single Cnetre Retrospective Study

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Abstract.
Introduction*. Thyroid dysfunction is one of the leading endocrine disorders. Previous data show that about half of the population with thyroid dysfunction remains undiagnosed. Advances in thyroid disorder diagnosis have created new thyroid disorder categories such as subclinical hypothyroidism and subclinical hyperthyroidism.*
Objective. *The purpose of the study was to detect the prevalence of hypothyroid disorders (clinical and sub clinical hypothyroid) among UAE adult population.* ***Subjects and Method****. A retrospective (single centre) Community Based Hospital audit study. Patients from ages 18 and above were randomly selectedwho had attended HH Family Medicine OPD and tested for periodic screening, chronic disease or obesity workup. Descriptive statistics were studied for continuous variables and categorical variables such as age, BMI, dyslipidemia, diabetes mellitus, hypertension, FBS, HbA1c, lipid profile, TSH, FT4, FT3. A p-value of <0.05 was considered as statistically significant.* ***Results.*** *Total 240 randomly selected patients were included and analyzed. There were 145 (60.4%) female and 95 (39.6%) males. Age from 18 to maximum 70 with mean 34.2. Out of240 we found 78 (32.5) were obese, and 86 (35.8%) over weight. The minimum and maximum TSH values were 0.31 and 85, mean value 2.9 and SD 6.76 respectively. Among these 21(8.8%) out of 240 had high TSH one patient with low TSH while 90.8% had normal TSH. Among those with high TSH, Female were 14 (66.66%) and 7 (33.34%) males with male to female ratio 1:2. P value 0.14.****Conclusion;****we conclude thatin this community hospital based retrospective study, hypothyroidism is highly prevalent (8.8%)in HattaSuburbs of UAE. The majorityof our patients with hypothyroidism were females. These two observations correlate to other earlier studies.Our study observations remain to be validated by multi centers larger population-based studies.*
Key words*. Hyperthyroidism; Hypothyroidism, Sub clinical hypothyroidism, Thyroid dysfunction*

Date of Submission: 18-09-2021 Date of Acceptance: 03-10-2021

I. Introduction/ Background

Thyroid gland diseases are a public health problem worldwide.Thyroid dysfunctions have increased recently and are considered the commonest endocrine diseases [1].

It represents around 30% to 40% of the patientsseen in an endocrine practice [2].

The prevalence of hypothyroidism and subclinical hypothyroidism in the developed world is about 4-5%.and 4-15% respectively [3-5].

The American Association of Clinical Endocrinologists (AACE) estimated that in the United States approximately 13 million people, or 4.78% of the population, have undiagnosed thyroid dysfunction [6]. The U.S. National Health and Nutrition Examination Survey III screened 13 344 individuals with previously unrecognized thyroid disease by measuring serum TSH, The study found that 4.6% of the population had hypothyroidism (0.3% overt and 4.3% subclinical[7].

The systemic review of studies from Arab world such as Egypt, Algeria, Saudi Arabia and Bahrain showed that the prevalence of different types of thyroid disease including goiter and hypothyroid varied ranging from 6.18 to 47.34. Gender, dietary factors, iodine deficiency, family history, diabetes and x-ray radiation were reported as risk factors associated with different type of thyroid diseases.

Imbalance in the regulation of thyroid gland hormones can cause many disorders that range from asymptomatic small goiter, clinical overt hypo andhyperfuctionaffecting cardiac contractility, blood pressure and rhythm disturbance which can cause heart failure and fibrillation. (Klein and Danzi, 2007).Using TSH and FT4, it is possible to determine four situations: clinical hypothyroidism, clinical hyperthyroidism, , subclinical hyperthyroidism and subclinical hypothyroidism.

Hypothyroidism presents with clinical symptoms of lethargy, anhedonia, and weight gain, constipation etc with abnormal thyroid function test (high TSH > 4.2 uIU/ml and low Free T3 / T4 levels), while Subclinical hypothyroidism (SCH) is a laboratory biochemical diagnosis based on elevated serum TSH level (4.2—9.9 uIU/ml) and normal free T3 / T4 in asymptomatic patients.. Subclinical hypothyroidism can be a strong indicator of risk for atherosclerosis and myocardial infarction in elderly women.

Subclinical hypothyroidism prevalence increases in women with increasing age. A substantial number of patients with subclinical hypothyroidism eventually develop overt hypothyroidism each year at the rate of 4.3–8%, with the elderly having a higher predisposition [8].

A study conductedat Imperial College London Diabetes Centers in the Abu Dhabi UAE on 12900 subclinical hypothyroidism patients over 10 years to detect overt hypothyroidism. They found 6.5% of patients developed overt hypothyroidism over 90 weeks [9].

II. Objective.

Our objective was to estimate prevalence of hypothyroidism inHatta suburb, UAE.

III. Method.

A retrospective audit study conducted at Family Medicine department Hatta Hospital- from July 2018 to October 2019. Total 240 patients were included through random sampling. All included

Patients' age ≥18 years had visited family medicine department for either annual periodic screening, chronic diseases work up, or obesity workup.

Exclusion Criteria. Patients with history of thyroid surgery, known thyroid disease or taking medications such as anti-thyroid, amiodarone, lithium, nitroprusside, sulphonylureaswere excluded.

IV. Data collection and assessment.

Data were collected on the basis of retrospective review of electronic medical data.

Data was double entered and analyzed in SPSS version 25. Descriptive statistics were studied, mean and standard deviation for continuous variables and percentages or proportions for categorical variables (age, FBS, HbA1c, lipid profile, TSH, FT4, FT3, BMI, DM, Hypertension, HbA1c, lipid profile,). A p-value of <0.05 was considered as statistically significant.

Prior approval taken fromClinical governance office, Audit Department, medical complaint section, Dubai Health Authority-

V. Results:

We analyzed 240 patients through random sampling. As below details

Table -1

VARIABLES	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Age	18	70	34.21	11.07
BMI	15.60	47.57	28.14	6.35
TSH	0.31	85	2.90	6.76
FT4	6.90	25	15.9	2.31
FT3	3.20	6.60	4.72	0.62
FBS	59	312	105	30.4
HbA1c	4.10	12.50	5.50	1.17
TC	91	297	178	36
LDL	41	73	120.7	34.2
HDL	12	137	50.63	15.05
TG	11	505	108.7	68

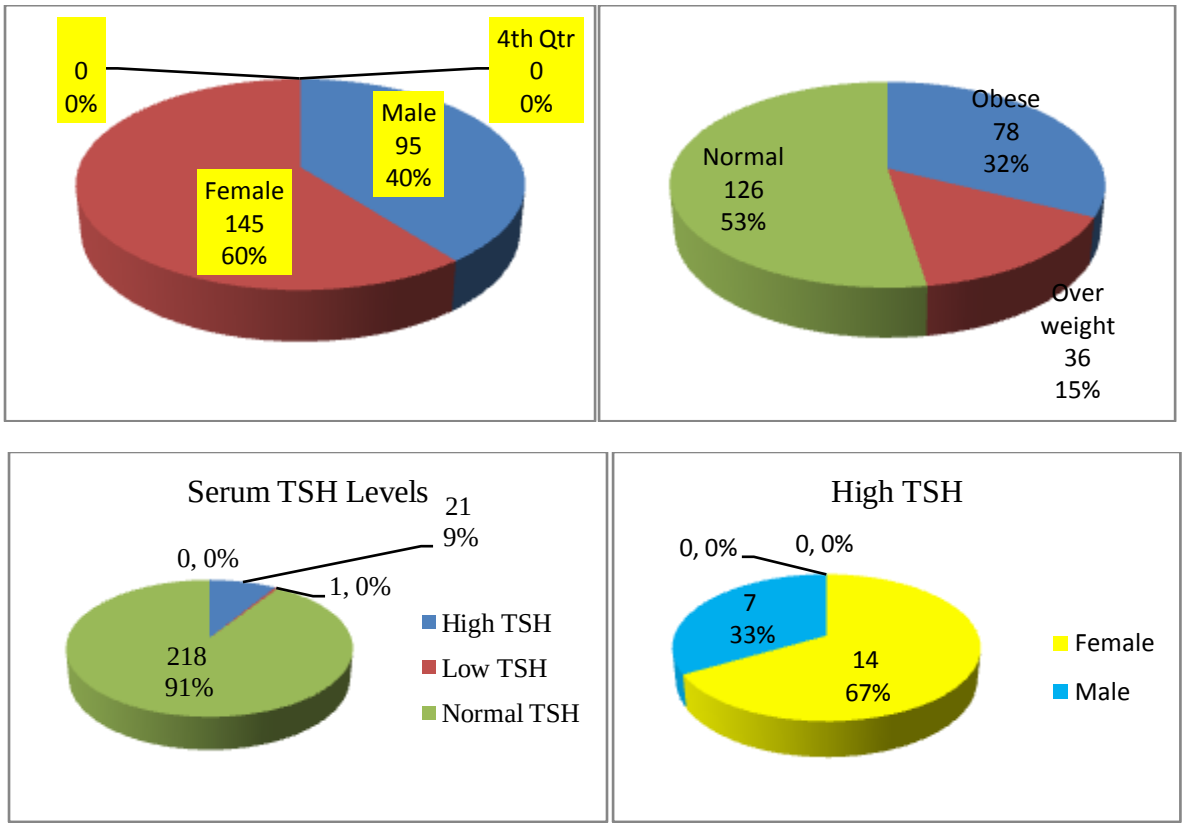
Table -2

VARIABLES	VALUES	NUMBER	PERCENTAGE
Gender	Male Females	95 145	39.6% 60.4%
Comorbid conditions	Hypertension Diabetes Mellitus Dyslipidemia	14 15 09	5.8% 6.3% 3.8%
Blood Pressure Readings	High Normal	19 221	08% 92%
BMI	Obese Overweight Under weight Normal	78 86 13 63	32.5% 35.8% 05.4% 26.3%
LABORATORY WORKUP			

TSH	High Low Normal	21 01 218	8.8% 0.4% 90.8%
FT4	High Low Normal	02 01 237	0.08% 0.04% 98.8%
TF3	High Normal	1 239	0.04% 99.6%
FBS	High Impaired Fasting Glucose Normal	18 78 144	7.5% 32.5% 60%
HbA1c	High Impaired Normal	21 31 188	8.8% 12.9% 78.3%
Total cholesterol	High Normal	60 180	25% 75%
LDL	High Normal	86 154	35.8% 64.2%
HDL	Low Normal	102 138	42.5% 57.5%
Triglycerides	High Normal	42 198	17.5% 82.5%
Vitamin D	Deficiency Insufficiency Normal	10 207 23	4.2% 86.3% 9.6%
Thyroid disease	SCH Subclinical Hyperthyroidism Isolated high FT4	21 01 02	8.75% 0.41% 0.83%

Table- 3

SUBCLINICAL HYPOTHYROIDISM- N- 21			
VARIABLES	**VALUE**	**NUMBER**	**P VALUE**
Gender	Male Females	07 14	0.14
Comorbid conditions	Hypertension Diabetes Mellitus Dyslipidemia	01 00	0.96
BMI	Obese Overweight Under weight Normal	07 09 01 04	0.85
FBS	High Impaired Fasting Glucose Normal	00 10 11	0.115
HbA1c	High Impaired Normal	01 02 18	
Total cholesterol	High Normal	03 18	
LDL	High Normal	07 14	
HDL	Low Normal	12 09	
Triglycerides	High Normal	05 16	
Vitamin D	Deficiency Insufficiency Normal	00 19 02	



VI. Discussion

Different thyroid diseases prevalence was reported in different studies. The prevalence of different types of thyroid disease varied between the studies.

The systemic review of studiesof different types of thyroid disease from Arab world showed the prevalence ranging from 6.18 to 47.34%.

The review results search showed Eight retrospective studies; three from Yemen one from Iraq (Nasheiti, 2005), three from Saudi Arab and one from United Arab Emirate and seven cross-sectional studieswere conducted in different Arab regions, including Libya, Saud Arabia, Egypt, Algeria, Bahrain and Oman (El-Mougi et al., 2004; Ghawil et al., 2011; Henjum et al, 2010; Lamfon, 2008; Moosa et al., 2000;Nouh et al., 2008).

Thisourretrospective study of 240 patients' analysis showed, there were 95 (39.6%) male and 145 (60.4%) female. Minimum age of 18 and maximum 70 with mean 34.2. Out of these 78 (32.5%) were obese, and 86 (35.8%) over weight.

The minimum and maximum TSH values were 0.31 and 85; where as mean value and SD were 2.9 and 6.76 respectively. We found 21 (8.8%) had high TSH (Hypothyroid), one patient had low TSH. while 90.8% had normal TSH. Among 21 with high TSH, 14 (66.66%) were female and 7 (33.34%) males with male to female ratio 1:2. reflecting female preponderance. P value 0.14.

Our study findings of 8.8% hypothyroid with female preponderance can be correlated with many authors' studies.

A study conducted by Imperial College London Diabetes center in Abu Dhabi over 10 years on 12900 Subclinical hypothyroid patients'revealed prevalence is more common in females (7–18%) than males (2–15%) [9].

In a study conducted at Riadh, Saudi Arabia, prevalence of subclinical hypothyroidism was 10.3% [10].

Velayutham K et alfound in his study done in South India that the prevalence of hypothyroidism was 7.3% [11].

The study conducted in 2011 in Libya by Ghawil et al reported the prevalence of subclinical hypothyroidism as 2.3%.

VII. Conclusion

Hypothyroidism is a common disorder in adult population. Overweight females seem to be more prone. Recommendations for how often thyroid function tests (TFTs) should be repeated after a previously normal or subclinical test result are lacking

The prevalence of subclinical hypothyroidism in our study population was 8.8 %, with female preponderance, similar to that reported in other studies

We conclude that a large proportion of the Emirati population unknowingly has laboratory evidence of thyroid dysfunction.

Larger cooperative studies involving diverse population samples from multiple centers could help to provide further information on the true frequency nationally.

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Zahid N Qureshi, et. al. "Hypothyroid Disorders in Uae Community, Single Cnetre Retrospective Study." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(9), 2021, pp. 12-16.