Original Article

Association of Hypothyroidism & Hyperthyroidism with Age and Gender in Balochistan, CENAR Quetta

Hina Manzoor, Hafiz Khushnaseeb Ahmad, Jamila Shuja, Owais Qadeer Gill, Akram Ali, Muneer Ahmad, Hamida Naheed, Khwaja Ajmal Mustafa, Iftikhar Ahmad, Shehla Iftikhar, Zahid Mahmood

ABSTRACT

Aims and Objectives: A retrospective study of all thyroid patients registered at the centre of Nuclear Medicine and Radiotherapy (CENAR), Quetta from 1st January2010 to December 2011(02years). The aim of this study was to highlight gender and age wise distribution of hypothyroid & hyperthyroid patients in CENAR Quetta. **Study design:** A retrospective study. **Place and Duration:** A retrospective study of 2051 files of Thyroid patients was carried out in CENAR Quetta from1st January2010 to December 2011(02years).

Results: Out of 2051 patients, the most common gender was female with a total of 1442(Hypothyroid female: 487; Hyperthyroid female: 231; Euthyroid female: 724) and the common age group was 16-40yr with a total of 1453(16-40yr Hypothyroid male: 153 & Female: 337; 16-40yr Hyperthyroid male: 113 & Female: 139; 16-40yr Euthyroid male: 158 & Female: 553). **Key Words:** Hypothyroidism, Hyperthyroidism, Age, Gender, CENAR cancer registry.

INTRODUCTION

Thyroid disease is being increasingly diagnosed with greater awareness and is one of the chronic non-communicable disease affecting women more, though male population is not spared of the ailment. Thyroid is butterfly-shaped gland in the neck region, just above collarbone. It is one of endocrine glands, which make hormones. The thyroid hormones, thyroxin (T_4) and triiodothyronine (T_3) are tyrosine based hormones produced by the thyroid gland [1]. The thyroid gland regulates the body metabolism, heart rate, blood pressure and body temperature, among other functions. Thyroid hormone maintains the rate at which your body uses fats and carbohydrates, temperature, influence your heart rate and help in controlling the production of protein. Some time the thyroid can produce too much hormones or not enough [2].

Both excess (hyperthyroidism) and deficiency (Hypothyroidism) of thyroxin can cause disorders.

Corresponding Author
Hina Manzoor
Senior Scientist
CENAR, Hospital Quetta
E-mail hinaqta@yahoo.com

Hyperthyroidism is the clinical syndrome cause by an excess of circulating free thyroxin, free triiodiothyronine, or both. It is a common disorder that affects approximately 2% of women and 0.2% of men. The symptoms of Hyperthyroidism are fast heart rate, nervousness, increased perspiration, muscle weakness, trembling hands, weight loss, hair loss, skin changes, increased frequency of bowel movements, decreased menstrual flow and less frequent menstrual flow, goiter, eyes that seem to be popping out of their sockets. Hypothyroidism is the case where there is a deficiency of thyroxin, tri iodiothyronine, or both. The symptoms of hypothyroidism are feeling slow or tired, Feeling cold, Drowsy, Slow heart rate, Poor memory, Difficulty concentrating, Muscle cramps, Weight gain, Husky voice, Thinning hair, Dry and coarse skin, Feeling depressed, Heavy menstrual flow, Milky discharge from the breast, Infertility, Goiter. Clinical depression can sometimes be caused by hypothyroidism.

About 20 million Americans have some form of thyroid disease and most of them are women. It is estimated that there are at least forty million individuals with thyroid disease in India.

Most of them are women, and most hypothyroidism occurs after the birth of a baby, called postpartum hypothyroidism. Thyroid diseases are most common among women and if not treated in time it can lead to severe health problems [1].

Hyperthyroidism is more common in women than in men. One study (2,779 persons in the United Kingdom; median age 58 years; 20 years' follow-up) found an incidence of clinical hyperthyroidism of 0.8 per 1,000 women a year (95% confidence interval [CI], 0.5 to 1.4 per 1,000 women a year) [3].

Hypothyroidism is the most common for women over 40 [4]. Hypothyroidism is one of the most common endocrine disorders, occurring in up to 50% of the population of the United States and the United Kingdom. Surveys of geriatric population have yielded estimated prevalence rates from hypothyroidism of 0.2 percent to 3 percent [5].

In Norway (Nord- Trondelag) health survey with questionnaire and Blood samples results as hyperthyroidism was 2.5% in females and 0.6% in males, hypothyroidism 4.8% in females and 0.9% in males [6].Unfortunately, there is very little information available on this subject from our part especially from Balochistan.

AIMS AND OBJECTIVES

This study was aimed to highlight gender and age wise distribution of Hypothyroid and Hyperthyroid patients in CENAR Quetta from 1st January2010 to December 2011(02years).

MATERIAL AND METHODS

The record review was carried out of last two years (1st January2010 to December 2011) in the centre for Nuclear medicine and Radiotherapy (CENAR), Quetta. During this period, files of all registered patients were reviewed and data collected. Statistical percentage and graphs were used to evaluate the results.

RESULTS

In this study, 2051 patients of thyroid disease were registered in 2010-11 at CENAR Quetta, out of which the most common gender was female with a total of 1442(Hypothyroid female: 487; Hyperthyroid female: 231; Euthyroid female: 724)(Table 1 and Figure 1 , 4 & 7) and the common age group was 16-40yr with a total of 1453(16-40yr Hypothyroid male: 153 & Female: 337; 16-40yr Hyperthyroid male: 113 & Female: 139; 16-40yr Euthyroid male:158 & Female:553). (Table 1 and Figure 2, 5, 6, 8 & 9) (Euthyroid is not included in Graphs and Table).

Figure-1
Distribution of patients by gender wise

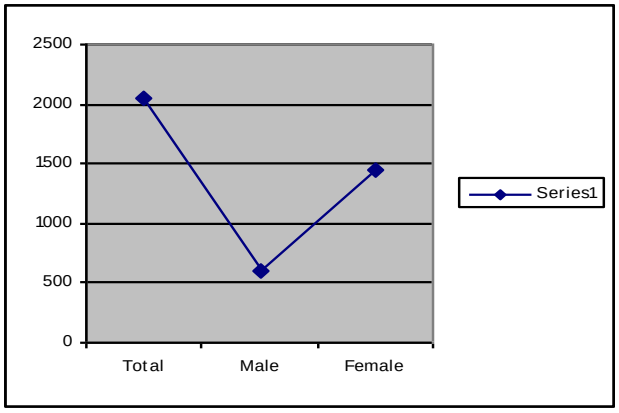

Figure-2
Distribution of Thyroid patients by Age Group

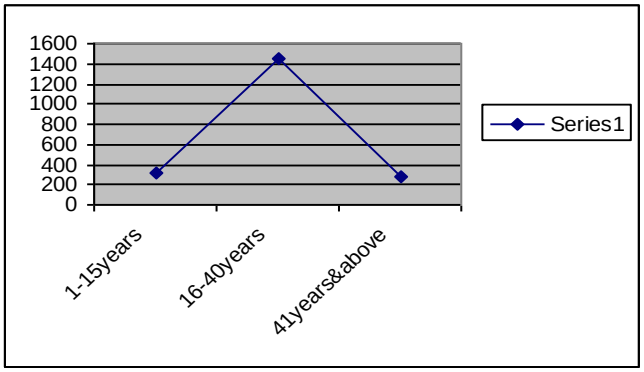

Figure-3
Distribution of Thyroid patients by Thyroid Type

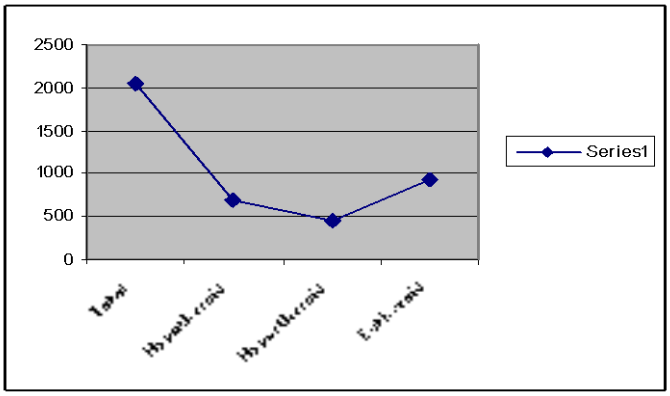

Figure-4
Distribution of Hypothyroid patients by gender wise

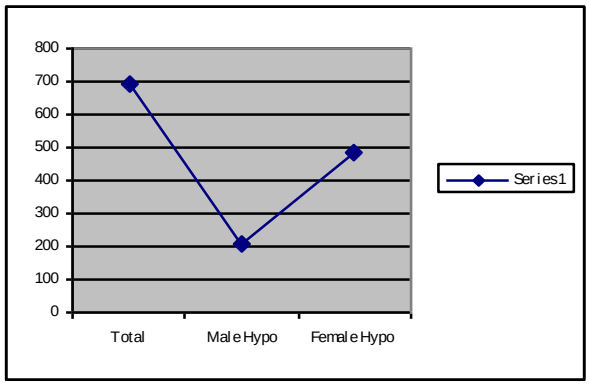

Figure-5
Distribution of Male Hypothyroid patients by Age Group

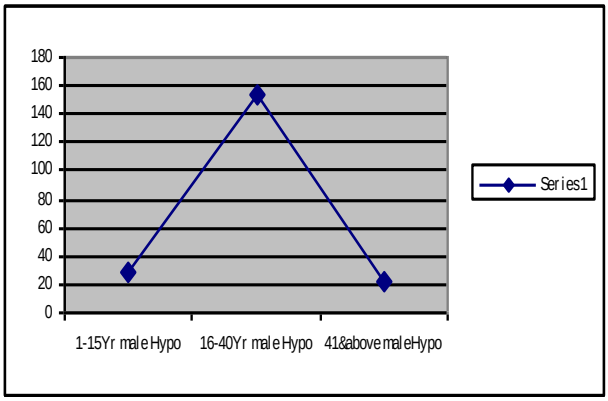

Figure-6
Distribution of Female Hypothyroid patients by Age Group

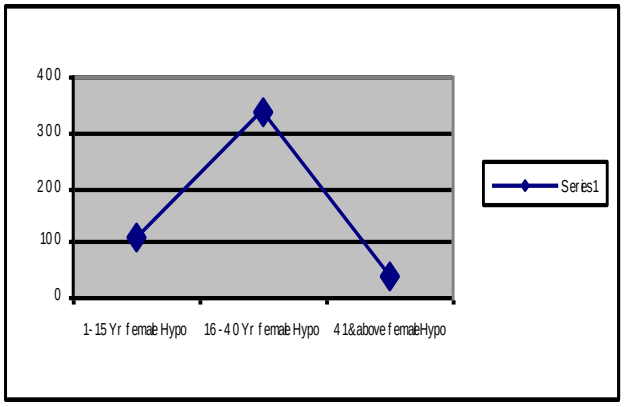

Figure-7
Distribution of Hyperthyroid patients by gender wise

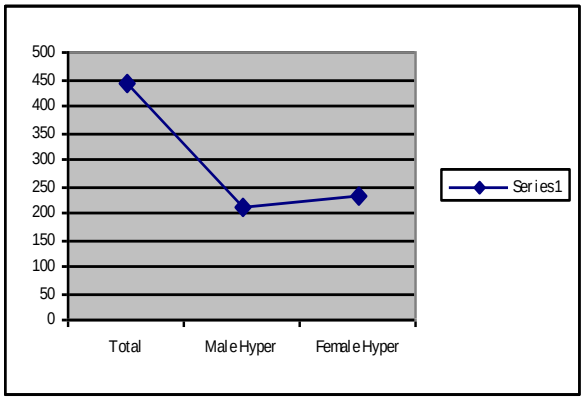

Figure-8
Distribution of Male Hyperthyroid patients by Age Group

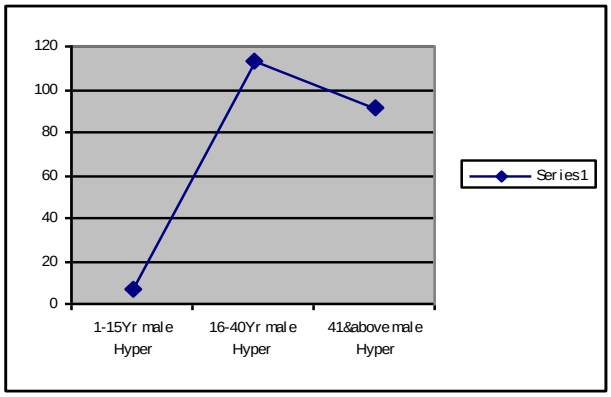

Figure-9
Distribution of Female Hyperthyroid patients by Age Group.

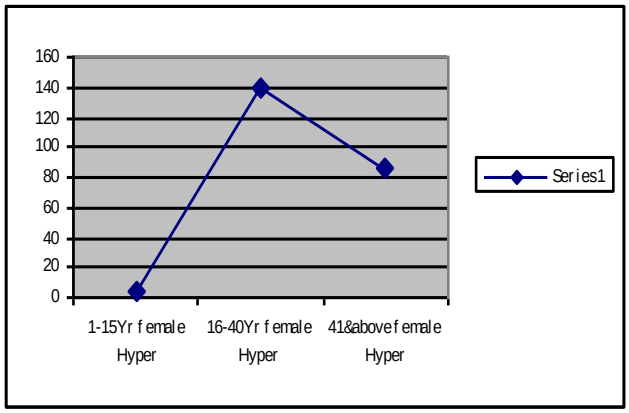

Table-1

Age and Gender wise distribution of Thyroid patients (Hypothyroid & Hyperthyroid) from Balochistan

Variables	No. of patients	Percentage
Gender wise distribution		
Total no. of patients	2051	100
Female patients	1446	70
Male patients	605	30
Age wise distribution		
01-15years	312	15
16-40years	1453	71
41&above	286	14
Thyroid disorder		
Hypothyroid patients	691	34
Hyperthyroid patients	442	21
Euthyroid patients	918	45
Gender wise distribution in Hypothyroidism		
Male Hypothyroid patients	204	30
Female Hypothyroid patients	487	70
Age wise distribution in male Hypothyroid patients		
01-15years male hypothyroid patients	28	14
16-40years male hypothyroid patients	153	75
41&above male hypothyroid patients	23	11
Age wise distribution in female Hypothyroid patients		
01-15years female hypothyroid patients	109	22
16-40years female hypothyroid patients	337	70
41&above female hypothyroid patients	41	08
Gender wise distribution in Hyperthyroidism		
Male Hyperthyroid patients	211	47
Female Hyperthyroid patients	231	52
Age wise distribution in male Hyperthyroid patients		
01-15years male hyperthyroid patients	07	03
16-40years male hyperthyroid patients	113	54
41&above male hyperthyroid patients	91	43
Age wise distribution in female Hyperthyroid patients		
01-15years female hyperthyroid patients	05	02
16-40years female hyperthyroid patients	139	60
41&above female hyperthyroid patients	87	38

DISCUSSION

Present study was conducted to figure out the hypothyroid and hyperthyroid patients and its various aspects in Balochistan region. There were similarities as well as differences in the results of the present study in comparison to some already performed international studies.

Thyroid disorders are more common in women than in men [7]. In our study thyroid disorder (Hypothyroidism& Hyperthyroidism) is also more common in women (70%) than in men (30 %).

Thyroid disease in general and hypothyroidism in particular are very common in women. Onset increases with age and it is estimated that 26% of pre menopausal and menopausal women are diagnosed with thyroid disease [8]. Hypothyroidism is more common in women, has total prevalence of 1% to 2% and increases with age (~10% adults >65 years). In the U.S. population, prevalence of biochemical hypothyroidism is 4.6%, but clinically evident hypothyroidism is present in 0.3% [9.] Similarly in our study total of 691 Hypothyroid patients; 487(70%) Female Hypothyroid patients and 204(30%) Male Hypothyroid patients which shows hypothyroidism is more common in women than in men. The results of the present study showed that out of 2051 patients 691 hypothyroid patients were analyzed so clinically evident hypothyroidism is present in 34% patients.

The results of our study showed that hypothyroidism is three times more common in women than in men (Male to Female ratio 1.5:3.5). This is similar to the other international studies as the prevalence of hypothyroidism is three times higher among women than men (Krishan P & Singh Randhir, 2011) [5]. A 1995 survey in the UK found the mean incidence (with 95% confidence intervals) of spontaneous hypothyroidism in women was 3.5/1000 survivors/year (2.8–4.5) rising to 4.1/1000 survivors/year (3.3–5.0) for all causes of hypothyroidism and in men was 0.6/1000 survivors/year (0.3–1.2) [10]. Data from the CDC (Centre for disease control and prevention) spanning the years 1999 to 2010 yield similar numbers: hypothyroidism is four times as common among women as among men [11].

Hypothyroidism is the most common of thyroid disorders and occurs most often in women over 40 [12]. A 2011 study concluded that about 8% of women over 50 and men over 65 in the UK suffer from an under-active thyroid and that as many as 100,000 of these people could benefit from treatment they are currently not receiving [13] while in our study about 70% of female hypothyroid patients are in younger age group i.e 16-40years and about 75% of male hypothyroid patients are in younger age group i.e 16-40years. In this area hypothyroidism is more common in younger compared to the other studies where it is common in older age is mainly due to iodine deficiency. Iodine is an important trace element required for the synthesis of thyroid hormones. Daily requirement of iodine is normally met by a well balanced diet and drinking water except in hilly areas and around the rivers and great lakes where iodine has been leached out of soil so that food grown in soil is iodine deficient, resulting in increased incidence of hypothyroidism in these iodine deficient areas [14].

The results of the present study also showed that hyperthyroidism is more common in women (52%) than in men (47%) and common age group was 16-40 years i.e 16-40years male hyperthyroid patients (54%) &16-40years female hyperthyroid patients (60%).

The prevalence of hyperthyroidism is also reported as more common in women than men (Krishan P & Singh Randhir, 2011). [5] In another study performed on 2,779 persons in the United Kingdom, it was found that hyperthyroidism is more common in women than in men. It has a peak incidence between the age of 20 and 40 with women being affected up to seven times more commonly than men (John Mckain, 2010) [15].Although (2009-2013 WebMD UK) found that hyperthyroidism affects women 10 times more often than men, and is most common in people aged 20-40[16]. Similarly Cedars-Sinai organization in 2013 found that this disorder occurs in almost 1 percent of all American and affects women 5 to 10 times more often than men [17].

In our study, male to female ratio of hyperthyroid patient is 2**:**1.9 but other studies showed that it is 5 to 10 times more common in women than in men. Several

factors contribute in explaining this relatively smaller incidence in Balochistan due to some social and economical reasons, illiteracy, lack of awareness due to which patients do not come up for medical consultation in early stages, especially in the back ward areas. Balochistan is widest province of Pakistan with poor, less educated and scattered population. Due to poverty, illiteracy and lack of awareness they failed to approach for proper treatment. CENAR Quetta is the only thyroid management facilitated centre in Balochistan. Through it has limited thyroid management facilities but it drains thyroid patients from Balochistan.

CONCLUSION

In this study, it was aimed to see the age and gender which is more affected from hypothyroidism and hyperthyroidism in Balochistan. The present study has clearly shown that majority (70%) of the patients were females while 71% of the patients were up to the age of the 16-40years indicating that problem was dominant in mostly young to middle aged patients.

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AUTHORS

- **Hina Manzoor**
  Senior scientist
  CENAR, Hospital Quetta
- **Dr. Hafiz Khushnaseeb Ahmad**
  Senior Medical officer
  CENAR, Hospital Quetta
- **Dr. Jamila Shuja**
  Senior Medical officer
  CENAR, Hospital Quetta
- **Dr. Owais Qadeer Gill**
  Senior Medical Officer
  PINUM, Faisalabad
- **Dr. Akram Ali**
  Senior Medical officer
  CENAR, Hospital Quetta
- **Dr. Muneer Ahmad**
  Medical officer
  CENAR, Hospital Quetta
- **Dr. Hamida Naheed**
  Senior Medical officer
  CENAR, Hospital Quetta
- **Khwaja Ajmal Mustafa**
  Principle Scientist
  CENAR, Hospital Quetta
- **Iftikhar Ahmad**
  Senior Scientist
  CENAR, Hospital Quetta
- **Dr. Shehla Iftikhar**
  Senior Medical officer
  CENAR, Hospital Quetta
- **Dr. Zahid Mahmood**
  Assistant Professor Oncology
  B.M.C, Quetta

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