Pattern and Burden of Endocrine Disorders in Tertiary Care Hospital of Nepal

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Abstract

Background: Endocrine diseases have variety of manifestation affecting many systems of the human body. Endocrine diseases like diabetes, hyper/hypothyroidism, hirsutism, hyperprolactonemia are risk factor for many noncommunicable diseases.

Objectives: The aim of this study was to find out the pattern and burden of endocrine diseases of patients attending at endocrine clinic in BPKIHS, a tertiary care hospital of eastern part of Nepal.

Materials and Methods: We took all the patients coming to endocrine OPD once a week from January 2010 to December 2010. The subjects were selected consecutively on the basis of defined criteria that include: Clinical manifestation of hormonal dysfunctions, irrespective of age and gender, not suffering from co-morbid mental disorders or use illicit drugs.

Results: Among 271 patients selected according to defined criteria during a year, 172 were female and 99 males. Majority of them (25.8%) were in age group of 41-51 years. About 36.9% were obese and 25.8%, 18.1%, 12.5% and 6.6% were normal weight, overweight, morbid obese and underweight respectively. Among all the subjects 59.4% had diabetes mellitus, 27.7% hypothyroidism and 8.1% hyperthyroidism. Goiter, (Infertility and hyperprolactinemia), (Autoimmune thyroiditis and osteomalacia) were found in 1.8%, 0.7%, and 0.4% respectively. 12.2% had stage I hypertension and 8.5% stage II hypertension.

Conclusion: In conclusion we found majority of patients were type 2 DM followed by hypothyroidism and hyperthyroidism. We also found obesity in most of the patients. So appropriate medical treatment, life style interventions and motivation therapies are needed for proper management of these endocrine clinic patients.

Keywords: Endocrine Diseases Profile; OPD; BPKIHS; Dharan

Introduction

Endocrine diseases have varied manifestations affecting many organs and/or systems of the human body. Hormonal diseases such as diabetes mellitus, hypo/hyperthyroidisms, hirsutism, and gynaecomastia are important among endocrinal disorders all over the world [1]. Endocrine dysfunctions are culprit for major non-communicable diseases like ischemic heart disease, stroke, chronic renal failure etc. Etiology of hormonal dysfunctions is still not clearly established, but there are some crucial factors [1].

Majority of the hormonal dysfunctions are under diagnosed in Nepal. The rapid unplanned urbanization is recognized as one of the important environmental hazards in this country. The trend of diabetes mellitus is higher in urban population in Nepal [2]. In recent years, diabetes mellitus and other endocrine diseases such as hypo/hyperthyroidism, goiters, hirsutism, gynaecomastia etc. are frequently encountered by the clinicians and it is increasing with time. The environmental factors such as social class, obesity, dietary habit, physical activities etc. are significantly influencing these increasing trends [3]. Facilities for diagnosis and management are still inadequate at all level of the public healthcare services.

Therefore, we tried to find out the pattern and burden of endocrine diseases of patients attending at outpatient at endocrine clinic in BPKIHS, a tertiary care hospital of eastern part of Nepal.

Materials and Methods

We took all the patients coming to endocrine OPD once a week from January 2010 to December 2010. A total of 271 patients were included in this study. They were selected consecutively on the basis of defined criteria that includes: Clinical manifestation of hormonal dysfunctions, irrespective of age and gender, not suffering from co-morbid mental disorders or use illicit drugs.

A questionnaire was designed to include general information, socioeconomic profile and anthropometrical measurements. A written informed consent was taken from each of the selected patients. Venous blood from each of the participants was collected for necessary biochemical investigations to confirm diagnosis.

Diagnosis of an endocrine disease was made following the detailed history taking and standard diagnostic criteria:

- For the diagnosis of diabetes mellitus, impaired glucose tolerance, gestational diabetes mellitus (According to ADA 2009 diagnostic criteria) [4].
- Hypothyroidism or hyperthyroidism (T3, T4, TSH).
- Gynaecomastia (estrogen, prolactin, FT4, TSH).
- Infertility, Hyperprolactemia and Hirsutism (testosterone, semen analysis, FSH, LH, serum cortisol, prolactin, TSH).
- Osteomalacia (LFT, serum calcium, phosphorus, X-ray).

Biochemical analyses and hormonal assays were carried out by auto analyzer (RA-50, Ireland) and ELISA (enzyme linked immunosorbent assay) method and CLIA method (chemoimmunoassay) respectively. Standard commercial kits were used in all analyses. SPSS (version 12.0) was used to analyse the data. Descriptive statistics was used for all variables. Values were expressed as percentage.

Results

Of the 271 patients, 172 (63.46%) were female and 99 (36.53%) male. Majority of them (25.8%) were in age group of 41-51 years (Figure 1). Hilly ethnic groups and Mongols comprised majority in this study (Table 1).

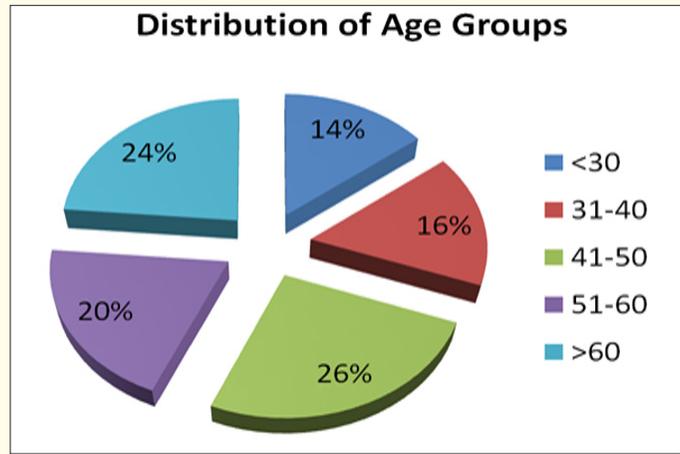| Case-ethnicity groups	Number (%)
Brahmins	48 (17.7%)
Chhetris	06 (2.12%)
Newars	44 (16.23%)
Hilly ethnic groups/Mongols	**77 (28.41%)**
Terai ethnic groups	14 (5.16%)
Disadvantaged/dalits	14 (5.16%)
Others	37 (13.6%)
Total	271 (100%)

Table 1: Distribution of ethnicity.

Figure 1: Age group among subjects.

About 36.9% were obese and 25.8%,18.1%,12.5% and 6.6% were normal weight, overweight, morbid obese and underweight respectively (Figure 3). In endocrine disease pattern; 59.4% had diabetes mellitus, 27.7% hypothyroidism and 8.1% hyperthyroidism. Goiter, (Infertility and hyperprolactinemia), (Autoimmune thyroiditis and osteomalacia) were found in 1.8%, 0.7%, and 0.4%. Endocrine disease profile among the studied population is described in detail in the table 2 (Table 2 and Figure 2).

Name of Disease	Female (%)	Male (%)	Total (%)
Diabetes mellitus	78 (28.7%)	83 (30.62%)	161 (59.32%)
Hypothyroidism	69 (25.09%)	7 (2.58%)	75 (27.67%)
Hyperthyroidism	16 (5.94%)	7 (2.58%)	23 (8.52%)
Goiter	3 (1.1%)	2 (0.7%)	5 (1.8%)
Infertility	2 (0.7%)	0	2 (0.7%)
Hyperprolactemia	2 (0.7)	0	2 (0.7)
Osteomalacia	2 (0.7)	0	2 (0.7%)

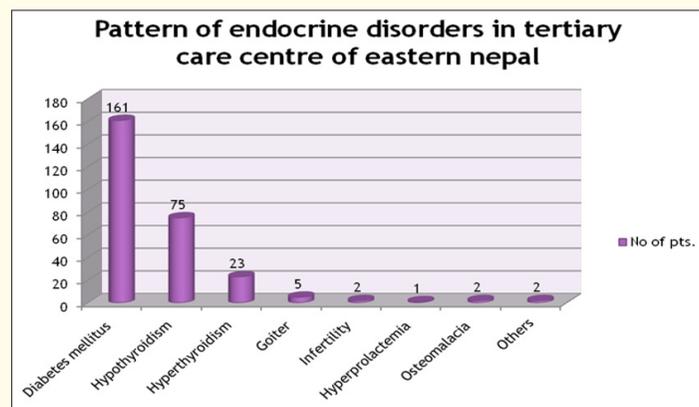*Table 2: Disease profile of the endocrine patients (n = 271).*

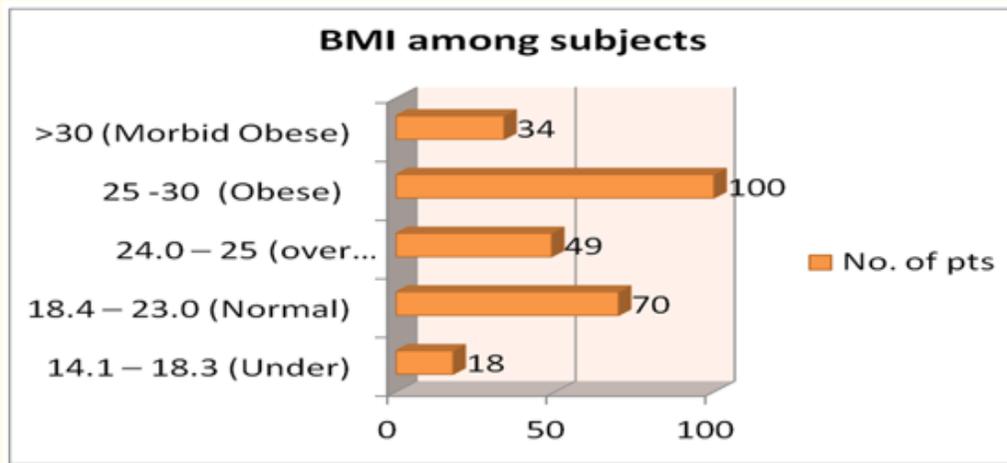*Figure 2: Disease profile of the endocrine patients.*

Figure 3: BMI among subjects.

Variables	Min	Max	Mean	±SD
Age (year)	16	87	48.55	15.159
BMI (kg/m^2)	12.61	37.09	24.8564	4.32592
Creatinine	0	6.8	1.178	4.2053
fbs	58	83.4	106.54	113.304
ppbs	56	88.4	166.9	173.672
HbA1 c	4.7	15	4.64	4.234
Serum Na	133	242	13.63	43.015
Serum K	3.8	4.2	0.54	2.825
Ft3/t3	0	23.2	7.0674	27.21003
ft4/ t4	0	9.6	1.83	7.64
TSH	0	18.6	3.5581	13.58072
LH	4.6	23	0.33	2.229
FSH	3.67	34	0.41	2.868
Prolactin	4.53	281	1.49	17.323
testosterone	100	138	0.51	8.383
T cholesterol	4	388	107.01	85.502
Triglycerides	2	787	109.7	105.509
lDL	20	133	2.76	16.833

Table 3: Baseline and Laboratory profile of the subjects.

Discussion

Diabetes mellitus and thyroid disease are the most common endocrine diseases all over the world [5]. The endocrine diseases such as goiter, hirsutism, gynaecomastia, short stature, infertility etc. are not diagnosed because patients do not arrive to clinic because of social stigmatisms which affect physical, mental and social health of the patients. Moreover, there are many shortcomings e.g. compliance with endocrine disease treatment protocol is often absent in the medical college hospitals.

Majority of them (25.8%) were in the age range of 41 - 75 years with female preponderance. (172 female vs 99 male), similar to study done by Abdul Menon., *et al.* [5] (292 female vs 202 male) and (age group 41 - 75 yrs).

The striking finding of this study -about 36.9% were found obese, comparatively more in male patients which is alarming signals to our nation, similar to study done by Vaidya AK., *et al* [6].

We found majority of patients attending were diabetes mellitus (59.4%) followed by hypothyroidism (27.7%) and hyperthyroidism (8.1%) The reason for more diabetes patients attending clinic may be due initial treatment of newly diagnosed diabetes, poor glycemic control, intercurrent illness and complications of diabetes.

The studied endocrine disease profile indicated the necessity for treatment facility in at least secondary level of government health sector. The patients seek appropriate treatment from public hospitals due to financial limitations.

The limitation of our study is that we had small sample size. We could not include all endocrine diseases because of missing data and lack of special laboratory test facility for endocrine disease.

Conclusion

We found majority of patients were type 2 DM followed by hypothyroidism and hyperthyroidism. We also found obesity in most of the patients. So appropriate medical treatment, life style interventions and motivation therapies are needed for proper management of these endocrine clinic patients.

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