

Hypothyroidism and Ayurveda

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Abstract: Clinical manifestations suggestive of myxedema in women opting tube ligation and hysterectomy Or both where TSH level remain below 5.5 but >0.5 remain untreated and patients of myxedema even taking levo thyroxin supplementation fails to respond properly need bio regulation of thyroid function but remain deprived of ionic calcium, regulated by Calcitonin secretion of Parafollicular cells of thyroid gland, thus in this study both fresh and old cases presenting with agonizing feature, taking trial herbal composite Thyro Reg 1 Cap daily with Calcium gluconate every 15th day intravenous slow and Vitamin D3 60 K every week shows grade I recovery in majority cases against non of control group, suggest thyro bioregulation and ensure improved quality of life.

Keywords: Tube ligation, hysterectomy, TSH, bioregulation, Levo thyroxin, Parafollicular cells, Cholecalciferol, Ionic calcium

1. INTRODUCTION

Hypothyroidism progressively increasing globally in spite of WHO measure to supplement common dietary salt with iodine and in India too, there is a significant burden hypothyroidism and estimates about 42 million people in India suffer from thyroid diseases^{1,2}. Primary hypothyroidism is a common medical problem occurring in approximately 1 to 3% of the total population, with an annual incidence rate of 1 to 2 in 1000, in females; and 2 in 10000 in males^{3,4,5}. Increasing incidence is thought to be due to life style changes, dietary composite constituting growth hormone, pesticide, chemical and synchronized in women due to early cessation of child bearing either by tube ligation or hysterectomy.

Genesis of non dietary nitrogen in dietary constituent and chemicals which suppresses enzymes regulating body metabolism, alters iodination of Tyrosin, in addition also affect C cells of thyroid gland and suppress Calcium metabolism and decline ionic calcium level, accumulation of free radicals and present with presentation due to deficiency of both Thyroxin and Calcitonin (causing ionic Calcium deficiency)

Presentations suggestive of Myxedema is increasing progressively in women who opted tube ligation or hysterectomy or both and common are⁶–

Heaviness in the body, exertional dyspnoea, leg cramps, lethargy, palpitation, constipation and menstrual abnormality (except in hysterectomy cases) whose investigation for thyroid profile shows TSH level within the range of euthyroid state though serum calcium and vitamin D3 levels are markedly low⁷.

As in these cases levo thyroxin supplementation seems risky but failure of conservative management fails to alleviate clinical presentation^{8,9,10,11}, in addition patients taking even progressively increasing dose of Levothyroxin supplementation fails to improve the clinical presentation, though TSH level gets decreased, thus in these cases a herbal composite been evaluated for its clinical efficacy in alleviation of clinical presentation and safety profile.

2. MATERIAL AND METHODS

Patients attending Centre For Research In Endocrinology & Metabolism of National Institute of Health & Research, Warisaliganj (Nawada) Bihar India during January 2010 –January 2014 with manifestations suggestive of hypothyroidism been selected for evaluation of clinical efficacy and safety profile of the herbal composite.

In this study patients of hypothyroidism consuming Levo thyroxin not responding to even higher doses or nor producing satisfactory outcome been also selected for evaluation, cases suspective of malignancy were excluded from the study.

All selected patients were interrogated thoroughly for the history of presentation ,treatment taken, response of therapy, the ligation or hysterectomy or both , examined clinically to adjudge body weight, blood pressure ,cardiac status, renal function and investigated for basic blood sugar, thyroid profile, hepatic and renal profile and hematology to adjudge the clinical efficacy and safety profile of the drug.

Selected patients were classified in to two equal groups constituting equal number of patients and are clinically graded as –

Grade I :	Patients with clinical presentation of hypothyroidism with TSH between 1-5.5
Grade II:	Patients with clinical presentation suggestive of hypothyroidism with progressive rise in TSH even with Levo thyroxin supplementation
Grade III:	Patients with increasing clinical presentation of hypothyroidism without any surge in TSH

Both group of patients were given –

Inj Calcium Gluconate supplementation intravenous every 15th day very slow (Till patient remain normotensive)

Cap Cholecalciferol (Vitamin D) 60 K supplementation every week.

In addition

Group A: Trial drug (THYRO Reg) 1 cap daily after breakfast

Group B: Placebo

Each Cap of Thyro Reg 500mg constitutes active ingredients of –

Bouhinia variegata(Kachnar)	120mg	Zingiber officinale (Shunthi)	12mg
Piper nigrum (Kali mirch)	12mg	Piper longum (Pipali)	12 mg
Terminalia chebula (Haritki)	24 mg	Terminalia bellerica(Bibhitika)	24 mg
Embelica officinalis(Amliki)	24 mg	Crataeva nurvala (Varuna)	12 mg
Cinnamomum tamala (Tejpata)	3mg		
Elletaria cardemomum (Ilaychi)	3mg	Cinnamomum zeylanicum (Dalchini)	3mg
mukul (Gugglu)	150mg	Commiphora	
Herpestis monnieri (Brahmi)	100mg		

In addition patients taking levo thyroxin of either group been continued with continuing dose with an instruction to consume Levothyroxin at fixed time early in the morning without any prior water intake with dietary precaution to abstain from raw radish, onion, garlic, zinger ,mustard leaf, vegetables of cruciferae family and poultry products and products suspicious of hormone adjunction .

All patients been given a follow up card to enter the following and report any urgency to the Program manager or consult the clinician.

Particulars	1 st week	2 nd week	3 rd week	4 th week	5 th week
Heaviness in the body					
Swelling of the body					
Lethargy					
Exertional dyspnoea					
Excessive sweating					
Leg cramp					
Constipation					
Vertigo					
Body weight					
Blood pressure					
Blood sugar					

Thyroid profile was repeated every 4 months till 1st year then every 6 month for 3 years. In addition Hepato renal and hematological status was also recorded every years to adjudge therapeutic effect and safety profile.

Clinical efficacy was graded as –

- Grade I: Complete alleviation of presenting features with normal IBW without any Levo thyroxin adjunction or drug adversity or symptom exacerbation ..
- Grade II Complete alleviation of presentation with IBW and decline in continuing Levothyroxin dose without any adversity
- GradeIII Complete alleviation of clinical presentation with IBW without any lowering in continuing Levo thyroxin dose and drug adversity .

3. OBSERVATION

Among the selected female patients 07 cases were of age <25 years while 173 were of age >45 years but majority 183 were of age group 35-40 years (T-1)

Out of all 64.2% were with tube ligation and 35.8% with hysterectomy (pie diagram)

Commonest presentation among the patients was heaviness in the body, lethargy, exertional dyspnoea, vertigo, constipation and abnormal menses (in tube ligated female) (T-2)

Out of all 62(8.4%) were suffering since <1 yr while 17(3.7%) were from >10 years, majority patients 129 (17.5%) were since 2-3 years (T-3)

Out of all 39 tube ligated and 144 hysterectomy cases develop hypothyroid presentation within 1 year while majority of tube ligation (231) taken 2-3 years and hysterectomy (109) developed the presentation by 2nd year while 6 patients tube ligation taken >3 years to develop (T-4)

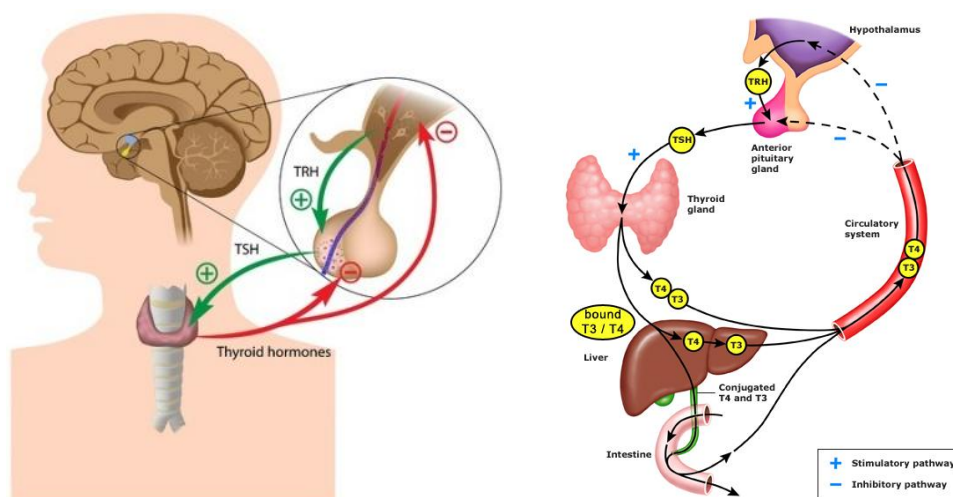
As per biochemical status majority 367 (49.7%) were with TSH 4.5-5.5 ,63(8.5%) fasting blood sugar >120mg and 27% with Post prandiol blood sugar >160 mg% though 7 cases were with pp blood sugar >240mg%, 2.3% shows altered hepatic, 2% with altered renal while 16.8% show marked anemia (T-5)

324 patients were taking Levo thyroxin supplementation in increasing dose without clinical relief and 414 were patients with presentation of hypothyroidism without any drug supplement (T-6, Bar diagram)

Post therapy assessment show complete alleviation of presenting feature with grade I clinical response in 367 of trial group patients while non of control group. In addition majority of trial group achieved hemato hepato renal normalcy (T-7)

4. DISCUSSION

Incidence of hypothyroidic manifestation is increasing progressively among female specially undergoing Tube ligation or hysterectomy and trend of therapy is Levo thyroxin supplimentation usually when TSH value >5.5 but patients remain in agony of hypothyroidic manifestation even when TSH is in between 1.5-5.5, In addition usually patients on Levo thyroxin supplementation fails to show positive response even on increasing dose, may be due to un regulated thyroxin synthesis, release and utilization through its hormone axis.



Thus with due education regarding Levo thyroxin supplementation, Calcium Gluconate intravenous every 15th day, Cholecalciferol every week and Thyro Reg 1 Capsule daily in trial group ,patient had complete relief of the presenting feature with normalcy in vital and biological values as –Active constituent of Thyro-Reg bioregulate thyroid function i.e.- secretion of follicular and parafollicular cells i.e.- Thyroxin and Calcitonin and its release by activating Thyroid releasing factor ,in addition immune improving property vigorate both cells of thyroid gland. Supplimentation of Calcium gluconate intravenously ensure availability of ionic calcium and cholecalciferol facilitatae utilization of Calcium ensuring better neuro conduction and relieves neuropathic manifestation and dyspnea due to improved cardiac contractility.

Active constituent of Bauhinia varigata (bark) promotes conversion of Tyrosine to Thyroxin ,by potentiating the enzyme tyrosinase , Herpestis monnieri stimulate hormone axis (THP) and increases TRF ^{13,14,15,16,17,18,19} , Hepato stimulant Phyllanthus emblica, Terminalia chebula, Terminalia bellerica promotes active conversion of Cholecalciferol to Calcitrol facilitate optimum calcium concentration to maintain and bioregulate neuro cardiac and muscular activity. In addition immune improving character of Phyllanthus emblica,

Active ingradients of Zingiber officinale,Piper longum and Piper nigrum acting as anti inflammatory and stimulant to thyroid pituitary axis promotes thyroid tissue regeneration and bioregulation of thyroid activity . Crataeva nurvala active ingradients also synergizes with its anti inflammatory activity and bioregulate calcium metabolism and ensure ionic calcium concentration in body fluids.

Elettaria cardamom, Cinnamomum zeylanica and Cinnamomum tamla ensure conversion of tyrosine to thyroxin, and Herrpestis monnieri improves neural function and acting both on CNS and PNS alleviate presentation of neuropathy, ensuring bioregulated thyroid function ^{20,21,22}

5. CONCLUSION

Trial group both fresh cases of hypothyroidism after tube ligation or hysterectomy and hypothyroid patients taking levothyroxin supplement with persistiting manifestation shows grade I clinical response against non of control group. Control group shows symptomatic relief but not complete alleviation (grade II)

No patients of either group shows drug related adversity or exacerbation of presenting features.

Table1. Shows age and clinical status wise distribution of patients

Age group (in yrs)	Number of patients		
	Tube ligation	Hystrectomy	Total
< 25	07	-	07
25-30	79	17	96
30-35	88	29	117
35-40	127	56	183
40-45	92	70	162
>45	81	92	173

Pie diagram showing distribution of patients as per clinical state

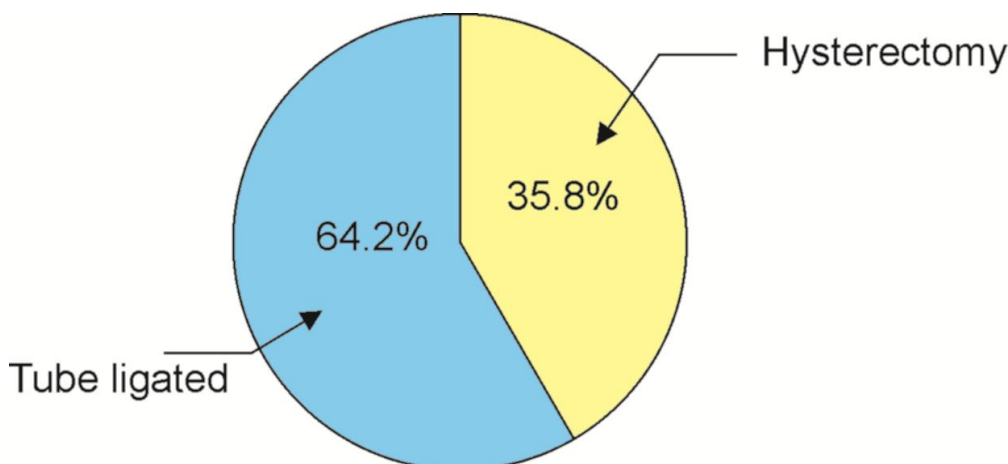


Table2. Distribution of patients as per clinical presentation

Particulars	Number of patients					
	<25	25-30	30-35	35-40	40-45	>45
Age in yrs----→						
Heaviness in the body	07	96	117	183	162	173
Heaviness in the abdomen	07	96	117	183	162	173
Progressive weight gain	07	96	117	183	162	173
Exertional dyspnoea	06	96	117	183	162	173
Vertigo	06	90	110	181	162	173
Lethargy	07	96	117	183	162	173
Constipation	07	96	117	183	162	173
Scanty menses	07	67	109	143	-	-
Tingling and numbness	07	96	117	183	162	173
Leg cramp	07	96	117	183	162	173
Palpitation	06	90	110	180	162	173
Pain in multiple joints	05	95	56	83	100	148

Table3. Distribution of patients as per duration of presentations

Duration in yrs	Number of patients						Total
	<25	25-30	30-35	35-40	40-45	>45	
Age group -----→							
< 1	04	09	09	29	11	-	62
1-2	03	32	20	17	14	-	86
2-3	-	23	30	43	17	16	129
3-4	-	18	21	23	24	16	102
4-5	-	09	14	13	20	19	75
5-6	-	05	09	19	11	24	68
6-7	-	-	04	24	09	18	55
7-8	-	-	-	10	06	21	37
8-9	-	-	-	05	04	20	29
9-10	-	-	-	-	36	22	58
>10	-	-	-	-	10	17	27

Table4. Group wise distribution of patients as per their clinical stage

Clinical stage	Number of patients		
	Group A	Group B	Total
Stage I	143	143	246
Stage II	162	162	324
Stage III	062	062	124

Table5. Distribution of patients as per their basic bio parameters

Bio parameters	Number of patients
Thyroid stimulating Hormone(TSH):	
0.5-1.5	-
1.5-2.5	19
2.5-3.5	119
3.5-4.5	233
4.5-5.5	367
Blood Sugar(mg%) :	
Fasting –	
<70	07
70-80	62
80-90	56
90-100	415
100-110	76
110-120	59
>120	63
Post prandial :	
<120	70
120-140	329
140-160	140

160-180	71
180-200	38
200-220	63
220-240	20
>240	07
Renal parameters: Blood urea (mg%) :	
<30	721
>30	17
Serum creatinine(mg%)	
<1.5	724
>1.5	14
Heaptic parameter (IU) : SGOT :	
<35	732
>35	06
SGPT:	
<30	732
>30	06
Hematological (gm%):	
<10	124
>10	614

Table6. Shows lag period after tube ligation or hysterectomy

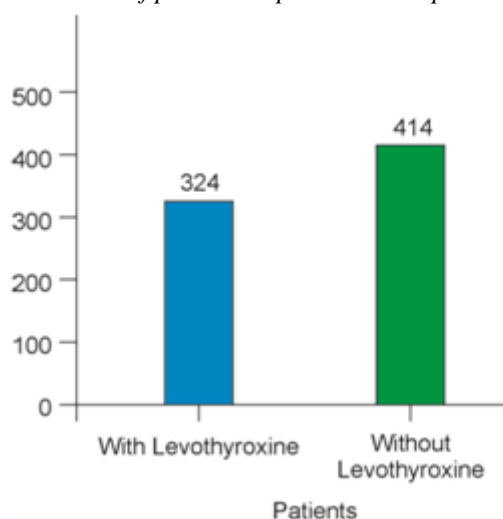
Time period (in years)	Number of patients	
	Tube ligation	Hystrectomy
< 1	39	144
1-2	198	10
2-3	231	11
>3	06	-

Table7. Showing outcome of therapy

Particulars	Number of patients	
	Group A (Trial group)	Group B (Control group)
Complete clinical relief	369	125
TSH level :		
<0.5	28	-
0.-1	341	-
1-1.5	-	-
1.5-2	-	-
2-2.5	-	-
2.5-3	-	-
3-3.5	-	-
3.5-4	-	-
4-4.5	-	21
4.5-5	-	31
5-5.5	-	71
>5.5	-	246
Blood Sugar(mg%) :		
Fasting –		
<100	358	290
>100	11	79
Hepatic profile :		
SGOT(IU):		
<30	369	366
>30	-	03
SGPT(IU):		
<30	369	367
>30	-	05

Renal profile(mg%) :		
Blood Urea		
<30	369	364
>30	-	05
Serum creatinine		
<30	369	365
>30	-	04
Hematology (gm%)		
Hemoglobin :		
<10	-	105
>10	369	264
Clinical grading :		
Grade I	367	-
Grade II	02	240
Grade III	-	129

Table8. Bar diagram showing distribution of patients as per their therapeutic state



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