

## AN OBSERVATIONAL STUDY TO ASSESS THE STATUS OF OJUS IN SUBCLINICAL HYPOTHYROIDISM

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### ABSTRACT

Subclinical Hypothyroidism is a common endocrine disorder resulting from deficiency of thyroid hormone. As per WHO, over 10 million people in the world are affected by thyroid related disorders. Female gender and old age were found to have significant association with hypothyroidism. It is characterized by a broad clinical spectrum ranging from organ effects to multisystem failure. In hypothyroidism, slowing down of metabolism can be related to impairment of agni, So the proper dhathu parinama will not occur as a result there will be impairment of ojus also. As per Ayurveda, ojus is the essence of all the seven dhathus and is said to be the sareera rasa sneha where prana exits. It is the inevitable factor which maintains the homeostasis of the human body. Its normalcy is very essential for the proper physiological functioning and its derangement will result in various diseases. This study aims to observe the status of ojus in subclinical hypothyroid individuals using a validated questionnaire developed in Dept. of Kriya sareera as a part of MD dissertation work. Scoring of ojus was done as per questionnaire and descriptive statistics was used to analyze the data collected. After discussion, the study was concluded. It was seen that patients having hypothyroidism were having Madhyama and avara ojus.

**Keywords:** ojus, subclinical hypothyroidism

### INTRODUCTION

According to *Ayurveda*, *Ojus* is the essence of all seven dhathus.<sup>1</sup> *Ojus* is responsible for maintaining the homeostasis. Although the major seat of *ojus* is *hridaya*, it is present all over the body. *Ojus* is said to be the essence of all *dhathus*, it belongs to the *prasada бага* of all *dhathus*. Just like honeybees collect nectar from different flowers<sup>2</sup>, *ojus* is formed as a result of the collection of *snehamsa* from *prasada paka* of all *dhathus*.

The word *ojus* is derived from two words. 'ubj' and 'asun'. 'Ubj' means *arjava* which means *sahaja* and it is derived from 'urja' *dhathu* which means to give power and vitality. *Ojus* could also mean 'ubja bale' which means *sahaja* or *prakrutha bala*. Synonyms of *ojus* include *kapha*, *bala*, *sarva dhathu tejas* etc.

*Ojus* is of two types; *Para ojus* and *apara ojus*. *Apara ojus* is also known as *slaishmika ojus* with

predominance of *Ap* and *Prithvi mahabhuthas*<sup>3</sup>. Quantity of *apara ojus* is half *anjali*. The *para ojus* which is *sreshta* enters the *hridaya* of zygote at the time of fertilization and its quantity is eight *bindu*. It has a predominant white color with a yellowish and reddish tinge. Any diminution in the quantity of *para ojus* leads to instantaneous death.

According to *Charaka samhitha*, *ojus* have the color of ghee, taste of honey and smell of *laja*<sup>4</sup>. *Charaka* while describing *madatyaya chikitsa* has given ten qualities to *ojus* stating that they are opposite to that of *visha*

### Different Concepts of Ojus

The word *ojus* has been used with different meanings in different contexts in the literature of *Ayurveda*. *Charaka* has used *ojus* for both *prakrutha kapha* and for *bala*<sup>5</sup>. *Ashtanga Sangraha* describes *rasatmaka ojus* as a type of *ojus* and according to him, *dasa moola siras* which spreads whole over the body carries *rasarooopi ojus* throughout the body. In this context *Arunadatta* commented that the *rasa swabhavi ojus* that is formed after the separation of *ahararasa* from *kitta*.

*Acharya Delhana* in *Nibandha samgraha* commentary explains that *ojus* is *jeeva sonita*. *Hemadri* also supports the opinion of *ojus* as *rasa*, *jeevasonita* and *prakrutha kapha*. According to *Vagbhata*, *Hemadri* and *Delhana*, *ojus* is the *sara* of *sukra*. *Delhana* and *Bhavamisra* opine that *sukra* is *ojoposhana* and according to *Chakrapani*, *sukra* is *ojojanana*. *Kasyapa* has included *ojas* as the *sara* and according to *Sargdhara*, *ojus* is considered as the *upadhathu* of *sukra dhathu*. But according to *Ashtanga hridaya*, *ojus* is considered as the *mala* of *sukradhathu*.

Since the quantity of *para ojus* is fixed, any alteration in the quantity of *ojus* does not influence *para ojus*. Depreciation of *ojus* is of three types; *oso visramsa*, *ojo vyapath* and *ojo kshaya*. *Ojus* undergoes *kshaya* by anger, worry, grief, exertion etc. and by *kshaya* the person becomes fretful, debilitated, worries much again and again, feels discomfort in the sense organs and develops bad complexion, poor mentation and dryness<sup>6</sup>.

Hypothyroidism is a hypo metabolic clinical state resulting from inadequate production of thyroid hormones for prolonged periods or rarely from resistance

of the peripheral tissues to the effects of thyroid hormones<sup>7</sup>.

The worldwide prevalence of primary hypothyroidism is 1:100 but increases to 5:100 if patients with subclinical hypothyroidism are included. The female male ratio is approximately 6:1<sup>8</sup>. The various causes of primary hypothyroidism are spontaneous atrophic hypothyroidism, thyroid failure following surgical treatment and hashimoto's thyroiditis.

Subclinical hypothyroidism also known as compensated hypothyroidism is a condition associated with a raised serum concentration of TSH but a normal serum free thyroxine (T<sub>4</sub>). It is common, affecting about 10% of women above the age of 55 years. Autoimmunity is the commonest cause of subclinical hypothyroidism. Patients with subclinical hypothyroidism progress to overt hypothyroidism, the rate of progression is higher in patients with thyroid autoantibodies and higher TSH levels. Only a small minority of patients with subclinical hypothyroidism have symptoms. Autoimmunity is the commonest cause of subclinical hypothyroidism. Patients with subclinical hypothyroidism progress to overt hypothyroidism. The risk increases with increasing levels of TSH.

In *Ayurvedic* view, hypothyroidism can be taken as a *santharpana janya vikara* with *kapha pradhana tridosha dushti*. According to *Ayurveda*, *agni* is the chief factor which is directly related with all basic pathogenesis. There is a close resemblance between the functions of thyroid hormone and function of *agni*.

### Background and Rationale

The overall prevalence rate of thyroid function abnormalities in Kerala was found to be 15.7% more in females (16.9%) than in males (13.9%). The subclinical hypothyroidism was commonest thyroid abnormality (7.15) followed by overt hypothyroidism (4.2%). Patients with untreated hypothyroidism had worse quality of life, predominantly fatigue, compared to healthy patients without hypothyroidism.

As per *Ayurveda*, *ojus* is the essence of all the seven *dhathus* and is said to be the *sareera rasa sneha* where *prana* exits. Hypothyroidism is characterized with *agnimandya* at *koshta* and *dhathu* levels. In hypothyroidism, slowing down of metabolism can be related to

impairment of *agni*, So the proper *dhathu parinama* does not occur as a result there is impairment of *ojus* also. *Ojus* is the inevitable factor which maintains the homeostasis of the human body. Its normalcy is very essential for the proper physiological functioning and its derangement results in various diseases.

There were no previous studies done to see the relation between *ojus* and hypothyroidism, as in hypothyroidism *ojus* is very much affected.

### Methodology

- Type of study - Observational study.
- Study setting - GAVC, Kannur
- Study population - subclinical Hypothyroid subjects who were under medication
- Sample size - 15
- Sampling technique - Consecutive sampling

### Inclusion Criteria

- Individuals of age group between 15-60 years,
- diagnosed cases of subclinical hypothyroidism who were under treatment

### Exclusion Criteria

- Pregnant and lactating women
- subjects with mental illness,
- subjects taking medicine for other systemic illness
- alcohol and tobacco addicts

### Materials and Methods

1. Research proforma
2. *Ojus* assessment tool

Research proforma contains questions regarding demographic data and self-prepared symptom rating scale for

hypothyroidism. Symptoms like generalized weakness, weight gain, cold intolerance etc. were assessed.

Status of *ojus* is assessed by a validated questionnaire developed by Dept. of *Kriya Sareera*, GAVC, Kannur as a part of MD dissertation work. It contains 37 questions based on physical, intellectual and attitude.

The collected data was tabulated using SPSS 16.0, and analyzed using appropriate statistical tests. Demographic data and other relevant information were analyzed with descriptive statistics. Relationship between score of *ojus* and TSH value and relationship between score of *ojus* and symptoms of hypothyroidism and were analyzed using Spearman correlation coefficient formula. Relationship with chronicity of hypothyroidism and score of *ojus* was analyzed using Kruskal-wallis statistical test.

The changes (one tailed) with p value <0.05 will be considered as statistically significant.

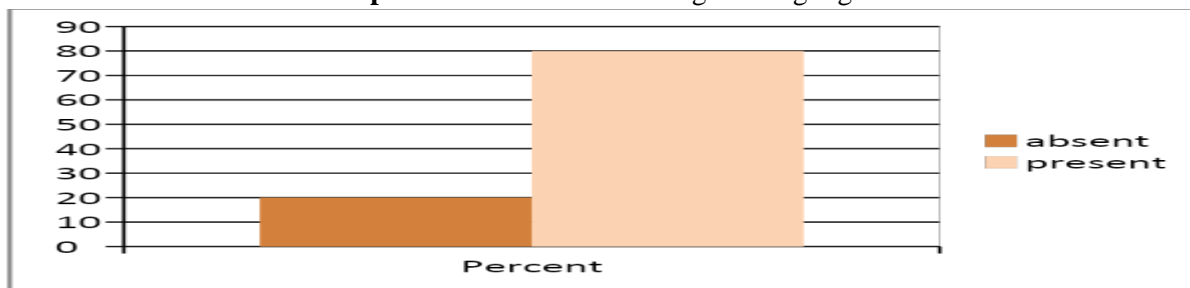
### Observation And Analysis

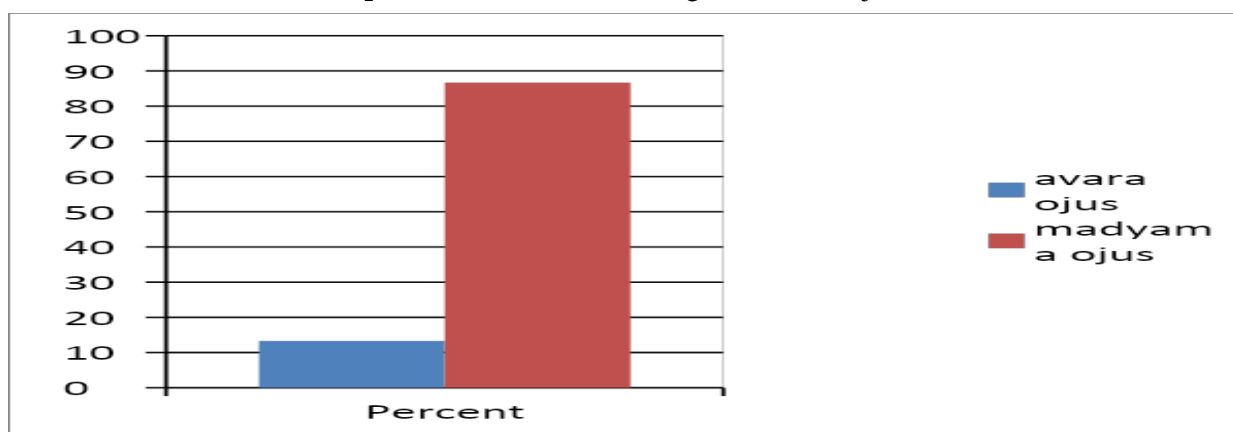
The subjects who presented at *Kriya sareera* OPD of GAVC, Kannur were screened with diagnostic criteria and those who fulfilled the inclusion criteria were registered for the study.

Demographic data: out of 15, subjects 10 were in the age group of 30-45 years which marked the highest. 14 were female subjects and 10 from rural areas.

Out of 15 subjects 66.7% belongs to subclinical hypothyroidism grade 1 category. Generalized weakness is present in 60% subjects and occasionally present in 40% subjects. Constipation is occasionally present and cold intolerance is present in 66.7% subjects. Increased hair falls and poor mentation is present in 60% subjects.

**Graph 1: Distribution according to Weight gain**



**Graph 2:** Distribution according to Status of ojus**Table 1:** Distribution according to constipation

Sl no:	constipation	Percentage
1	Present	13.3
2	Occasionally present	66.7
3	Absent	20.0

**Table 2:** Distribution according to cold intolerance

Sl no:	Cold intolerance	Percentage
1	Present	66.7
2	Occasionally present	20.0
3	Absent	13.3

**Table 3:** Distribution according to generalized weakness

Sl no:	Generalized weakness	Percentage
1	Present	60.0
2	Occasionally present	40.0
3	Absent	0

**Table 4:** Distribution according to mood changes

Sl no:	Mood changes	Percentage
1	Present	73.3
2	Occasionally present	20.0
3	Absent	6.7

**Table 5:** Distribution according to Poor mentation

Sl no:	Poor mentation	Percentage
1	Present	60.0
2	Occasionally present	13.3
3	Absent	26.7

## Results

Significance between score of *ojus* and symptoms of hypothyroidism was assessed using spearman correlation coefficient and the level of significance was found to be 0.002. Significance between score of *ojus* and TSH value was analyzed using spearman correlation coefficient and it was found to be insignificant. Chronicity of Subclinical hypothyroidism and score of *ojus* was analyzed using kruskal-wallis statistical test and the result was found to be not significant.

## DISCUSSION

The P value observed in the analysis is 0.002, which shows that there is a statistically significant association between subclinical hypothyroidism and status of *ojus*. Due to modernization and lifestyle changes, incidence of subclinical hypothyroidism is increasing. Generalized weakness, poor mentation, mood changes, dry and coarse skin, giddiness are the features of Hypothyroidism. *Vyadhithendriya, durmana, rooksha sareera, durbala, kshama* are the *lakshanas* of *ojo kshaya*. These *ojo kshaya lakshanas* can be seen in hypothyroidism also. Along with *ojo kshaya lakshana*, certain *rasakshaya lakshanas* are also seen in hypothyroidism. Weight gain was observed in 80% subjects and this may be due to *dhathwagni mandya*. Initially the *dhatu parinama* process takes place normally, which further decreases at the level of *mamsa* and *medas*, forming *mamsa* and *medas* excessively resulting in weight gain.

Generalized weakness and poor mentation were present in 60% subjects. *Dehashthithi nibandhana* is the function of *ojus* that means it controls the working of the body. When there is *ojokshaya*, it disturbs the normal functioning of both *manas* and *sareera*. Generalized weakness and poor mentation can be due to *ojo kshaya* in subclinical hypothyroidism.

*Ojus* is said to be the *sareera rasa sneha* where *prana* exists. In *ojo kshaya* there is *rookshatha* and dry and coarse skin are present in 50% subjects with subclinical hypothyroidism and *rasa kshaya lakshanas* like *sabda-sahishnutva* is present in 50% subjects.

Because of the subjects in the study group who were undergoing medication for hypothyroidism, so that the relationship between score of *ojus* and TSH value was found to be insignificant. Also, there is no relationship between chronicity of hypothyroidism and score of *ojus*. This may be due to medicine consumption for hypothyroidism and small sample size.

## CONCLUSION

*Ojus* is the *prasada bhaga* of all *dhathus* and it greatly depends upon the proper functioning of *agni*. *Agni mandya* accounts for the cause of different diseases. *Dhathwagni mandya* was observed in subclinical hypothyroidism. *Dhathwagni mandya* leads to production of impaired *ojus* and thus features of *ojo kshaya* observed in subclinical hypothyroidism. Along with *ojo kshaya*, *rasa kshaya lakshanas* are also observed in subclinical hypothyroidism. Out of the 15 subjects, 14 were female and 10 belong to 30-45 years of age group.

*Ojo kshaya lakshanas* are seen in subjects with subclinical hypothyroidism. *Ojus* is responsible for normal physical and mental wellbeing of an individual and thus in *ojo kshaya*, *lakshanas* affecting both *sareera* and *manas* like *vyadhitendriya*, *rookshatha*, *kshamatha*, *durmana*, *durbala* are seen.

Relationship between score of *ojus* and symptoms of subclinical hypothyroidism are statistically significant.

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## Annexure

### 1. Research Proforma

Preliminary data

1. Name:
2. Age: 15-30    31-45    46-60
3. Sex: male/female
4. Marital status: single/married/widow/divorced
5. Domicile: urban/rural
6. Religion: Hindu/Muslim/Christian/others
7. Occupation: office work/manual labour/housewife/ others
8. Definitions of hypothyroidism:

Diagnosis	TSH	thyroxine levels
Subclinical hypothyroidism		
Grade-1	above upper limit (4-10mU/L)	normal
Grade -2	10.1-20mU/L	normal
Grade-3	>20mU/L	normal

9. Duration: 0-5 years/5-10 years/ 10-15 years/more than 15 years
10. Treatment history:
11. Clinical presentations of thyroid cases

no	Clinical presentations	Present	Absent	Occa: present
1	Generalized weakness			
2	Weight gain			
3	Mood changes			
4	Dry skin			
5	Constipation			
6	Menorrhagia			
7	Cold intolerance			
8	Poor mentation			
9	Headache			
10	Increased hair fall			
11	Hoarseness of voice			
12	Palpitations			
13	Impaired hearing			
14	Giddiness			
15	Coarse skin			
16	Pedal edema			
17	Slow movements			
18	Cold skin			
19	Bradycardia			

### 2. QUESTIONNAIRE TO ASSESS THE STATUS OF OJUS

1. Are you afraid to have visit to a hospital?  
a)always afraid    b) sometimes afraid    c) never afraid
2. Do you have the feeling of fear when you are being watched by someone else?

- a) Always fears b) sometimes fears c) never fears
3. Do you feel any anxiety about misfortunes that will befall on you?  
a) Always anxious b) sometimes anxious c) never anxious
4. Do you get tense about travelling outside alone?  
a) Always get tensed b) sometimes get tensed c) never get tensed
5. Do you have the feel of easy dislocation of joints?  
a) Always feel b) sometimes feel c) never feel
6. Do you feel weary?  
a) Always feel b) sometimes feel c) never feel
7. Do you feel any difficulty in moving your body?  
a) Always feel b) sometimes feel c) never feel
8. Do you feel heaviness in your body?  
a) Always feel b) sometimes feel c) never feel
9. Do you feel any change in complexion during the last six months?  
a) Always feel b) sometimes feel c) never feel
10. Do you feel exhausted even in the beginning of a heavy work?  
a) Always feel b) sometimes feel c) never feel
11. Do you always feel lazy?  
a) Always feel b) sometimes c) never
12. Do you feel drowsy while doing things?  
a) Always b) sometimes feel c) never feel
13. Do you often yawn?  
a) Always yawn b) sometimes yawn c) never yawn
14. Do you feel sleepy even after having a sound sleep?  
a) Always feel b) sometimes feel c) never feel
15. Have you been losing consciousness frequently during the last six months?  
a) Always lose b) sometimes lose c) never lose
16. Do you feel that your body is getting slim during the last six months?  
a) Always feel b) sometimes feel c) never feel
17. Are you not able to enjoy even joyful moments?  
a) Always able to enjoy b) sometimes able to enjoy c) never able to enjoy
18. Do you feel that your body is dry?  
a) Always feel b) sometimes feel c) never feel
19. Do you feel that your lips are always dry?  
a) Always feel b) sometimes feel c) never feel
20. Do you feel thirsty even after drinking enough water?  
a) Always feel b) sometimes c) never
21. Do your nails break easily?  
a) Always break easily b) sometimes break easily c) never break easily
22. Do you have hair loss?  
a) Always have b) sometimes have c) never have
23. Do you have constipation?  
a) Always have b) sometimes have c) never have
24. Does your body have inflammation that appears and disappears abruptly?



a)Always have b)sometimes have c)never have

25. Do you feel you don't have the required firmness in your body?

a)Always have b)sometimes have c)never have

26. Do you feel difficulty in doing daily chores?

a)Always feel b)sometimes feel c)never feel

27. Can you bend down and straighten up with ease?

a) Can Always bend b)s Can sometimes bend c) Can never bend

28. Do you feel any difficulty in lifting even one kilogram weight?

a)Always feel b)sometimes feel c)never feel

29. Do you feel any difficulty while getting up from an armless chair?

a)Always have b)sometimes have c)never have

30. Do you feel any difficulty in getting up from bed?

a)Always have b)sometimes have c)never have

31. During the last six months have you felt you have reduced your voice while talking?

a)Always feel b)sometimes feel c)never feel

32. In the past six months have you felt any strain in talking?

a)Always feel b)sometimes feel c)never feel

33. Is your daily routine disturbed due to lack of memory?

a)Always disturbed b)sometimes disturbed c)never disturbed

34. Do you find any difficulty in taking decisions regarding day today matters?

a)Always feel difficulty b)sometimes feel difficulty c)never feel difficulty

35. Do you find situations in which you don't remember the tasks to be done one after another?

a)Always find b)sometimes find c)never find

36. Are you able to pray with concentration?

a)Always able to b)sometimes able to c)never able to

37. Are you able to do things with concentration?

a)Always able to b)sometimes able to c)never able to

**Source of Support: Nil**

**Conflict of Interest: None Declared**

How to cite this URL: Anju Aravind T et al: An Observational Study To Assess The Status Of Ojus In Subclinical Hypothyroidism. International Ayurvedic Medical Journal {online} 2020 {cited March, 2020} Available from: [http://www.iamj.in/posts/images/upload/2944\\_2951.pdf](http://www.iamj.in/posts/images/upload/2944_2951.pdf)