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## ***Sharir Kriyatmak Study of Bodhak Kapha (Saliva) in Prameha (Diabetes Mellitus)***

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### **ABSTRACT**

*Prameha* is fast growing health hazard and silent killer. India has more diabetes than any other country in the world. In *Ayurveda Prameha* is also called as *Maharoga* as it affects multiple body organs and sites. All *hetus* which leads to *Prameha* (Diabetes mellitus) vitiates the *kapha dosha* maximum. Hence in *Prameha* (Diabetes mellitus) all types of *kapha dosha* are imbalanced. In *Ayurved Samhitas* relation between *kapha dosha* and *prameha* (Diabetes mellitus) are described. If does not treated it can leads to many complications. Diabetic patient have big problem of taste. To know the graveness of the disease and to understand the role of etiological factor as *Bodhak kapha* for preventive aspect of this disorder.

**Aim:** To study the *Bodhak Kapha* in patients suffering from *Prameha*.

**Material and Methods:** Patients who had classical signs and symptoms of *Prameha* were selected for the study from O.P.D. and I.P.D. of our Hospital and *madhumeha* camp was arranged at our hospital. Age group 30 to 70 years male and female patients were selected. The known cases of *Prameha* patients were subjected for the study.

**Observation and result:** Statistical analysis shows that the taste appreciation function of *bodhak kapha* is more get affected in group patients who have uncontrolled blood sugar level.

**Conclusion:** This study concluded that *bodhak kapha* qualitatively get affected in *Prameha* (Diabetes mellitus).

### **KEYWORDS**

Prameha, Bodhak kapha, Rasadnyan, Taste appreciation, Touch sensation.



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## INTRODUCTION

In Ayurveda *Dosha*, *Dhatu* and *mala* are described as the basic roots of human living body<sup>1,2</sup>.

*Dosha*, *Dhatu*, *Malas* are three fundamental groups. *Doshas* are of two types *Sharirika* (Somatic) *dosha* viz. *Vata*, *Pitta* and *Kapha* and *Manasika* (Psychic) *dosha* viz. *Raja*, *Tama*. *Dhatus* are of seven types viz. *Rasa*, *Rakta*, *Mamsa*, *Medas*, *Asthi*, *Majja* and *Shukra*. *Malas* are of three types *Purisha*, *Mutra* and *Sweda*. Out of these three fundamental groups, *doshas* are gives due importance since they are body controllers. *Charaka-Samhita* straight away quotes that a physician has to knows status of *dosha* in living body and intensity of vitiation of *dosha* is always and always due to imbalance of *doshas*<sup>3</sup>.

*Kapha dosha* again classified in five types namely *Avlambak*, *Kledak*, *Bodhak*, *Tarpaka* and *Shleshka*.<sup>4</sup>

Among these, *Bodhak kapaha* is located at base of tongue and plays an important role in perception of taste together with nourishment and lubrication. *Bodhak kapaha* is correlated with saliva (*lalarava*) which is secreted by salivary glands<sup>5</sup>. Major salivary glands are located near the jaw. And many other tiny glands are located throughout mouth and throat. *Kapha dosha dushti* is one of the major factors in

*Prameha*<sup>6</sup>. All *hetus* which leads to *Prameha* (Diabetes mellitus) vitiates the *kapha dosha* maximum. Hence in *Prameha* (Diabetes mellitus) all types of *kapha dosha* are imbalanced. In *Ayurved Samhitas* relation between *Kapha dosha* and *Prameha* (Diabetes mellitus) are described. Hence the present study is taken to establish the relationship between diabetes mellitus and *Bodhak kapha* (saliva) for developing new therapeutic ideas based on *Bodhak kapha* (saliva) for diabetes mellitus.

## AIM

To study the *Bodhak Kapha* in patients suffering from *Prameha*.

## MATERIALS AND METHODS

Patients who had classical signs and symptoms of *Prameha* were selected for the study from O.P.D. and I.P.D. of our Hospital and *Madhumeha* free checkup camp was arranged at our hospital. Age group 30 years to 70 years male and female patients were selected. The known cases of *Prameha* patients were subjected for the study.

## CONSENT

A well informed written consent of all patients included in my study was taken before the study.

## SAMPLE SIZE



60 Patients

### GROUP A

*Prameha* (Diabetes mellitus) patients who having good control on blood glucose level.

### GROUP B

*Prameha* (Diabetes mellitus) patients who not having good control on blood glucose level.

### INCLUSIVE CRITERIA

1. Known *Prameha* (Diabetes mellitus) patients.
2. Gender: Both male and female patients will be selected.
3. Age: Patient between ages 30 – 70 years.
4. Presence of cardinal symptoms of *Prameha* described in *Ayurvedic* text.
5. All patients of controlled and uncontrolled blood sugar level type-2 Diabetes mellitus (Non –insulin dependent)

### EXCLUSIVE CRITERIA

1. Age of patient less than 30 years and more than 70 years.
2. Emergency cases in diabetes mellitus.
3. Patients having any other major systemic diseases.
4. Patients having chronic and infectious disorders.
5. Patient having dental problems and oral cavity disorders.
6. Patient who are addicted to tobacco, cigarette, alcohol.

### INVESTIGATIONS

- Blood Sugar : Fasting and Post prandial

- HbA1c
- Urine : Routine and Microscopic
- Saliva glucose level
- Saliva pH

### CRITERIA OF ASSESMENT

Criteria for Diagnosis of *Prameha* by classical sign and symptoms:

- *Prabhut mutrata* (Polyuria)
- *Avil mutrata* (Turbidity in urine)
- *Pipasa adhikya* (Polydypsia)
- *Kshudha adhika* (polyphagia/Increase in appetite)
- *Kar pada suptata* (Numbness in palm and foot)
- *Sweda adhikya* (Excessive perspiration)
- *Daurbalya* (Weakness)
- *Alasya* (General debility)

According to sign and symptoms of *Prameha*, it can be correlated with DM. So according to modern science criteria for Diagnosis of *Prameha*, By American Diabetic Association which is accepted by WHO was followed:

- Above Sign and Symptoms of *Prameha* .
- Blood sugar levels -Patients having random blood sugar level > 200 mg/dl.

FBS > 126 mg/dl or

PPBS > 200 mg/dl

### Objective Parameters

- **Test for glucose in saliva** -GOD/POD Enzymatic test





• **Kapha dosha parikshana:** Classical symptoms of *kapha dosha kshaya, vridhi and prakop*

• **Bodhak kapha function test as per Ayurveda**

**1. Rasadnyana parikshana (taste appreciation test)**

**Material:**

All following drugs which are used for taste appreciation are taken in powdered form. Drugs selection was done on the basis of pradhanatva (dominancy) of rasa present in it according to Vagbhatacharya<sup>127</sup>.

1. *Madhur rasa* (sweet): *Guda* (jiggery)
2. *Amla rasa* (sour): *Amlika* (tamarind)
3. *Lavana rasa* (salty): *Saindhav* (black salt)
4. *katu rasa* (pungent): *Nimba* (Neem)
5. *Tikta rasa* (bitter): *Maricha* (black paper)
6. *kashaya rasa* (astringent): *Behada* (Bellric myrobalan)

**Table 1** Type of touch its *Pradhana guna* and *mahabhuta*

Types of touch felt by tongue	<i>Pradhana Guna</i>	<i>Pradhana mahabhuta</i>	Substance used for touch sensation test
Solid	<i>Sandra</i>	<i>Pruthvi</i>	Apple fruit
Liquid	<i>Drva</i>	<i>Aap</i>	Water
Smooth	<i>Shlakshna</i>	<i>Aap + Aakash</i>	<i>Ghruta</i>
Rough	<i>Khara</i>	<i>Vayu</i>	Puffed Rice

Above selected substances were gives solid, liquid, smooth, rough type of touch to our tongue at the time of eating.

**Method**

1. Asked patient to close their eyes.

Drinking water

Small cotton swab

Six cards with sweet, sour, salt, pungent, bitter, astringent printed on them.

**Method**

1. Asked the patient to rinse his/ her mouth.
2. For first time gives the patient *madhur* rasa and asked to him to indicate the taste experienced by him.
3. Again asked him to rinse mouth and gives all the rasa drugs one by one.
4. The *tikta* rasa (Bitter taste) given at the end of all rasa.
5. After every taste appreciation asked the patient to rinse mouth.

**2. Samvedana parikshana (touch sensation)**

**Material**

All following drugs are selected for touch sensation. Drug selection was done on the basis of *pradhana* (dominant) *Guna* and *mahabhuta* present in it. [ Table No. 1 ]

2. Then all substance was given to the patient one by one.
3. After every substance asked patient to indicate the feel of touch experienced by him



## OBSERVATION AND RESULT:

### • Comparison of average SGL values of Group A and Group B patients

**Table 2** Comparison of average SGL values of Group A and Group B patients

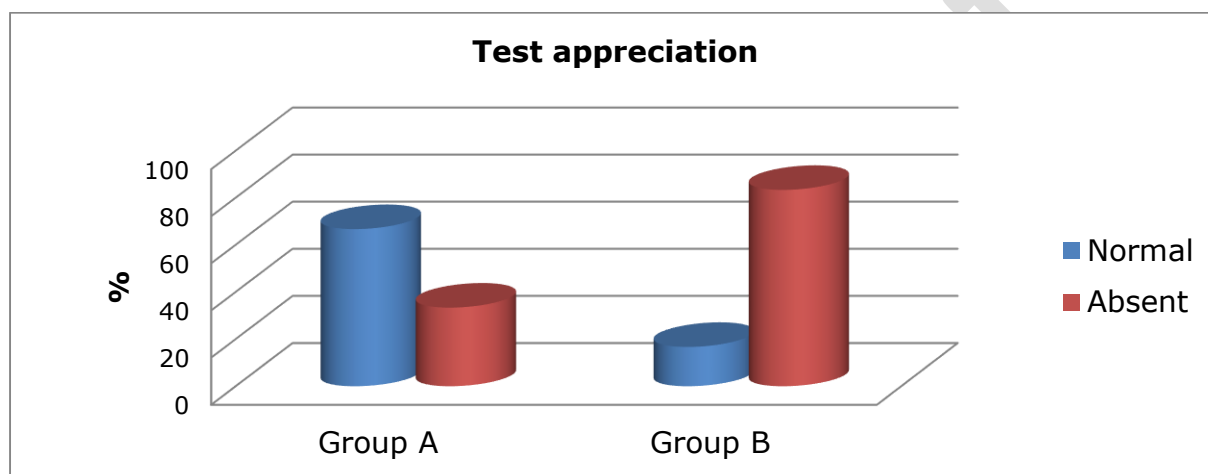
SGL	Group A	Group B
Mean	7.73	15.8
SD	3	11.04

The present study shows, in group A salivary glucose level ranged from 2.3- 16 mg/dl with a mean of 7.73 and SD of 3. In

group B salivary glucose level ranged from 2.3- 41.1 mg/dl with a mean 15.8 and SD of 11.04.

Statistically Group B SGL average value is significantly high than Group A patients ( $t=3.79$ ,  $p<0.01$ ). [Table No. 2]

### • Comparison of Test appreciation of Group A and Group B patients



**Figure 1** Comparison of Test appreciation of Group A and Group B patients

**Table 3** Comparison of Test appreciation of Group A and Group B patients

Test appreciation	Group A		Group B	
	N	%	N	%
Normal	20	66.7	5	16.7
Abnormal	10	33.3	25	83.3
Total	30	100.0	30	100.0

The present study shows, in group A 66.7% patients having normal taste appreciation and only 10% patients having abnormal taste appreciation and in group B 83.3% patients having abnormal taste appreciation and only 16% patients having normal taste appreciation.

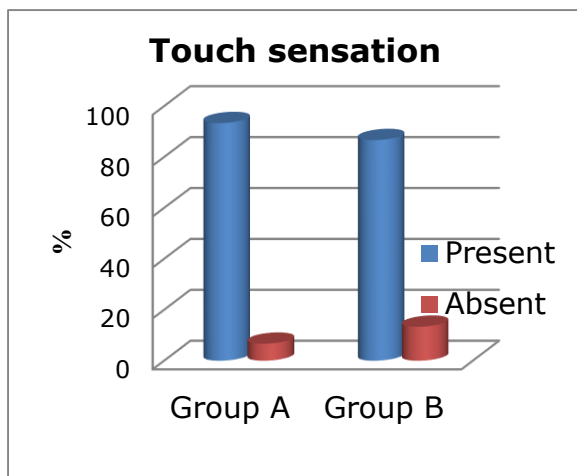
Statistically Group A patients have significantly high proportion of normal test

of appreciation than Group B ( $Z=3.92$ ,  $p<0.01$ ). [Table No. 3] [Fig No. 1]

### Comparison of Touch sensation of Group A and Group B patients

**Table 4** Comparison of Touch sensation of Group A and Group B patients

Touch sensation	Group A		Group B	
	N	%	N	%
Present	28	93.3	26	86.7
Absent	2	6.7	4	13.3
Total	30	100.	30	100.
		0		0



**Figure 2** Comparison of Touch sensation of Group A and Group B patients

The present study shows, in group A 93.3% patients having touch sensation present in them while 6.7% patients having touch sensation absent in them and in group B 86.7% patients having touch sensation present in them and 13.3% patients having touch sensation absent in them.

Statistically there is no significant difference observed in proportion of Touch sensation in both group ( $Z=0.86$ ,  $p>0.05$ ). [Table No. 4] [Fig No. 2]

## DISCUSSION

In present study, vitiation of *bodhak kapha* is considered with respect to *kshaya*, *vrudhhi* and *prakopa* symptoms of *kapha dosha* described by *acharyas*, test for function of *Bodhak kapha* was performed in which *rasadnyana parikshana* (taste appreciation) and *samvedana parikshana* (touch sensation) was done, and saliva

analysis (saliva glucose level) also included.

For this study I did two groups of patients with the help of glycosylated haemoglobin (HbA1c). Patients of DM who had report in range of 6-10% are taken in group A as having good control on serum glucose level. Patients who had report of HbA1c above 10% are considered in group B as uncontrolled serum glucose level.

Then saliva analysis was done for both groups. Saliva glucose estimation was done with help of GOD/POD enzymatic test method and observations were found as patients in group A had salivary glucose level ranged from 2.3-16 mg/dl. It shows that there is significant positive correlation between HbA1c and saliva glucose. Saliva pH was done with the help of digital pH meter.

*Kapha* is stated to be developed with a predominance of the *Aap* (water) and *Prithvi* (earth) *bhutas*. *Kapha* has five types name as *Tarpaka*, *Bodhaka*, *Kledaka*, *Avlambaka* and last one *Sleshaka*.

All soft organs are made up by *kapha dosha* and it plays an important role in taste appreciation, nourishment and lubrication. *Prameha* (Diabetes mellitus) is one of the complex systemic diseases. In *Ayurveda* *Prameha* is also called as *Maharoga* as it affects multiple body organs and sites.



We see in *Prameha nidana* big *hetu* is *aasyasukham*. So *aasyasukha* is from *jivha indriya* (tongue) and the *Bodhak kapha* is located at tongue. Therefore in this present study *Bodhak kapha parikshana* was done. The main functions of *bodhak kapha* are *rasadnyanam* (taste appreciation) and *samvedana* (touch sensation).

For taste appreciation six *rasa* substances are selected on the basis of *pradhanatva* (dominant *rasa* present in it). *Samyaka-rasa-dnyanam* is function of *Bodhak kapha*. *Samyaka* means the all *rasa* are recognized by tongue with help of *Bodhak kapha*. If there is any one *rasa* is not recognized by tongue considered as abnormal *rasadnyanam* (taste appreciation).

For test of touch sensation four types of touch as solid, liquid, smooth and rough are used. When patient said he felt all types of touch then it is considered as touch sensation present and if there is any one type of touch was not felt it also considered as touch sensation absent. Group A patients who have good control on serum glucose level they have low saliva glucose level with normal taste appreciation. Both the groups patients having normal touch sensation means the glucose level in saliva does not affect this *samvedana* (touch sensation) function of the *Bodhak kapha* as said by S. G. Vartaka<sup>7</sup>. Therefore i think as we know the function of carrying sensation

is a function of *vata dosha*. Hence this function cannot be included in the functions of *bodhak kapha*.<sup>8</sup> Group A – Patients with good control on Serum glucose level and low saliva glucose level having maximum symptoms of *kapha vriddhi* and minimum symptoms of *kapha prakopa*. It indicate that group A patients are in *kapha dosha vriddhi* stage means there is no need of *shodhana chikitsa* only *shamana chikitsa* with proper diet will also give better results. Group B – Patients who don't have control on serum glucose level with raised saliva glucose level having maximum symptoms of *kapha prakopa* and minimum symptoms of *kapha vriddhi*. It indicates that group B patients' needs *shodhana chikitsa* followed by *shamana chikitsa* which gives better result. Only *shamana chikitsa* are not able to manage *parakopa avastha* of *kapha dosha*. In both groups, a patient with old age (65-70 year) having maximum symptoms of *kapha kshaya* because of an old age there is natural *vata prakopa* occurs.

## CONCLUSION

The study entitled “*SHARIR KRIYATMAK STUDY OF BODHAK KAPHA (SALIVA) IN PRAMEHA (DIABETES MELLITUS)*” was undertaken for study. Following conclusion are drown-





- Mostly Diabetes affects the people living a sedentary life and positive family history plays a major role in its development. So, Diabetes is a disease of people living a sedentary life with unhealthy lifestyle.

- Patients having Diabetes history with controlled serum glucose level maximum 66.66% patients shows *kapha vriddhi lakshane* and normal *bodhak kapha* functions and patients having diabetes history with uncontrolled serum glucose level maximum 56.66% patients are *kapha dosha prakopa* stage and abnormal *bodhak kapha* functions.

- Also there is significant difference found in analysis of saliva i.e. saliva glucose level. Patients with uncontrolled serum glucose also found in raised saliva glucose level.

- There is no significant difference found in pH of saliva in both Diabetic with controlled serum glucose level and diabetic with uncontrolled serum glucose level.

- As the difference in results function of *Bodhak kapha* and analysis of saliva between diabetic with controlled serum glucose level and with uncontrolled serum glucose level is statically significant, so it is concluded that there is relation found between *bodhak kapha* (saliva) and *Prameha* (Diabetes mellitus).

Our study indicate that *bodhak kapha* qualitatively get affected in *Prameha*

(Diabetes mellitus). Furthermore, lager studies are needed to evaluate the causative mechanisms responsible for these changes as and possible treatment options.



## REFERENCES

1. Ambikadatta shashtri- Sushruta samhita-1(Hindi translation) Varanasi, Chaukhamba surbharti prakashan 2014, Sutrasthana 15/3 page no - 73
2. Vaidya Ganesh Krishna Garde-Ashtanga Hridaya Published by- Anmol Prakashana Pune 2, edition-2009, Sutrasthana 11/1 page no-51
3. Dr. Ravidatta Tripathi- Charak Samhita, Chaukhamba surbharti prakashan, edition 2010 Sutrasthana 18/48 page no - 281
4. Kaviraj atridev Gupta-Ashtangasangraha Published by- Krushnadas akadami Varanasi, edition-2002, Sutrasthana 20/4 page no- 160
5. Vaidya. Rnjeetrai Desai- Ayurvediya kriyasharir, Shree vaidyanath Ayurveda bhavan limited, edition 2008, page no- 743, 801
6. Dr. Ravidatta Tripathi- Charak Samhita, Chaukhamba surbharti prakashan, edition 2010 Nidansthana 4/5 page no – 502
7. Shan. G. Vrtak-Doshadhatumalavidnyanam, page no – 86
8. Dr. Ravidatta Tripathi- Charak Samhita, Chaukhamba surbharti prakashan, edition 2010 Sutrasthana 12/2 page no -185