Risk Factors Affecting Khalitya (Hair Fall) As Per Deha Prakruti- A Case Control Study Among Adults

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ABSTRACT

Introduction- *Ayurveda* is the system of medicine for the concept of diseases and health. It is based on concept of *Dosha, Dhatu* and *Mala.* As we are following of western life style and food habits blindly, the equilibrium state of *Doshas* is rapidly disturbing and thus results in shortening of average life expectancy and also now prone towards the *Khalitya* (hair fall) in early age. **Aim & Objectives**- Aim- To assess risk factors associated with the *Khalitya (Hair fall)* in relation to different *Deha Prakriti*. Objectives- To define level of *Khalitya* (hair fall) in different *Deha Prakriti* with the use of hair pull test. To assess the effect of aharaj and viharaj factors in causing *Khalitya*. **Material and Methods**- Study design – It is an observational case control study. Male adults of age group between 20 to 50 years were selected. Convenient sampling was used. Cases (50) and controls (50) were selected in 1: 1 proportion. **Results and Discussion**- Age factor play an important role in Khalitya (p = 0.0365); as age increases the possibility of hair fall also increases. It is well known that, as the level of stress and anger increases, the propensity to develop Vata and Pitta also increases and thereby causes to hair fall. **Conclusions**- Age is the significant risk factor in causing Khalitya (hair fall); as age increases, there is increased tendency to have hair fall and thus in long run, this will contribute to increased proportion of male pattern baldness among adults.

Keywords: Lavana, Rasa, Vata Prakriti, Pitta Prakriti, Kapha Prakriti.

INTRODUCTION

Ayurveda is the system of medicine for the concept of diseases and health. It is based on concept of *Dosha, Dhatu* and *Mala.* Day by day our lifestyle is changing rapidly. As we are following of western life style and food habits blindly, the equilibrium state of *Doshas* is rapidly disturbing and thus results in shortening of average life expectancy and also now prone towards the *Khalitya* (hair fall) in early age. Therefore it is clear that modern life style with food transition and environment changes which would not be tolerated; hence it we are facing difficulties in maintaining good health. According to *Ayurveda* we can suggest to individual's good life styles, food and drinking habits connecting to their *Prakriti* as well as for their healthy hairs. Accordingly individuals can judge the type of food and other healthy habis to maintain his hairs in respect to *Daha Prakriti.*

Salt (*Lavana*) is an integral part of our diet. People consume salt in visible and non-visible way. World Health Organization recommended that, intake of dietary salt should be less than 5gms/day.[1] Healthy persons should consume salt and water to replace the amount lost daily through sweat and metabolism and to achieve a diet that provides sufficient amounts of other essential nutrients. Low salt intake improves blood pressure and can lower the risk of cardiovascular diseases and stroke. Proportion of salt consumption in India varies from state to state i.e. from 8.5 gm/day/person to 42.3 gm/day/person. Though the consumption of dietary salt in Indians is found minimum of 8.5 gm/day.[2] As per report of Nutrition Committee of American Heart Association, normal daily salt intake is 1.6 to 3 teaspoons of sodium chloride (NaCl) in United States of America. This is equivalent to 7.6-10 g of NaCl. The current mean level of daily salt (NaCl) consumption is almost 9 g in U.S.A. It an urban study in India reported that, a mean dietary salt intake of 8.5 g/day among Indians. [3]

Excessive consumption of salt is a common dietary practice among large proportion of people now a days. This is affecting the health of the people not immediately but steadily. In *Charak samhita, Acharya Charaka* had described the *"Ati-upayunjit Lakshana"* of *"Lavana Rasa".*[4] *Acharya* said that if people are consuming excessive salt and salty food for long duration, surely they will cause increased frequency of hair fall (*Khalitya*). According to *Acharya Charaka* salt is associated with hot and sharp properties.

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It is neither very heavy nor very greasy. Salt is however responsible for the accumulation of *Doshas* if not used properly. In a small dose, salt can even be used continuously in the preparations of food items but such continuous use in large dose is harmful. According to *Acharya Vagbhata,* when salt used in excess, it causes to increase in '*Asra*' (blood) and '*Pavana*' (*Vata*), leading to frequent hair fall, baldness, graying of hair, wrinkles of the skin, thirst, leprosy (i.e. skin diseases), poison effect and diminution of strength of the body. [5]

So, based on this background, it is a need of hour to explore the effect of *aharaj* and *viharaj* factors in causing *Khalitya*. Hence present study was undertaken to assess some risk factors affecting *Khalitya* (hair fall).

Aim- To assess risk factors associated with the *Khalitya* (Hair fall) in relation to different *Deha Prakriti*.

Objectives-

- To define level of *Khalitya* (hair fall) in different *Deha Prakriti* with the use of hair pull test.
- To assess the effect of *aharaj* and *viharaj* factors in causing *Khalitya.*

MATERIAL AND METHODS

Study design- A observational case control study.

Study population- Male adults of age group between 20 to 50 years.

Sampling and sample size: Convenient sampling was used.

- This was a case control study undertaken to evaluate risk factors among cases and controls selected in 1: 1 proportion.
- Case - subjects having hair fall (Positive result on hair pull test).
- Control - Subjects without having hair fall (Negative result on hair pull test).
- Total 100 subjects (50 cases and 50 controls) were interviewed (Marathi/Hindi questionnaire) using predesigned and pretested semi structured proforma.
- The questionnaire includes topics related to socio-demographic information like age, occupation, details of deha prikriti and aharaj and viharaj factors among the study subjects.

Inclusion and exclusion criteria-

- Male adults of age group between 20 to 50 years and those given consent for interview were included in study. Other subjects who denied consent will be excluded from the study.

Study plan-

Assessment of Khalitya- Identification of *Khalitya* was done with the help of Hair pull test in the study subjects.

1. Hair pull test- Approximately 20-60 hairs are grasped between the thumb, index and middle fingers from the base of the hairs near the scalp and firmly, but not forcefully, tugged away from the scalp. If more than 10 % hairs are pulled away from the scalp, this constitutes a positive pull test and implies active hair falling. This simple test measures the severity of hair loss. This is also known as the

'traction test' or 'Sabouraud's sign' or the 'pull-out sign. Pre-requisite is that, the patient must not shampoo for at least a day prior to the pull test. [6]

2. Selection of cases having hair fall (positive on hair pull test) and controls without khalitya (Hair loss) on hair pull test - Cases were selected based on Hair pull test- Pull test-approximately 20-60 hairs are grasped from the proximal portion of the scalp and tugged from the proximal to the distal end.

3. Measurement of frequency of salt and salty food consumption- In present study as per questionnaire, approximate salty food consumption was asked with the help of sub questions in the form of average frequency (In a frequency of daily, weekly and monthly consumption) to get an approximate estimate of high salty food intake in an individual.

4. Measurement of frequency of junk food and spicy food consumption- In this study according to questionnaire, approximate salty food consumption was measured with the help of sub questions in the form of average frequency (In a frequency of daily, weekly and monthly consumption) to get an approximate estimate of junk food consumption in an individual.

5. First we assessed *Khalitya* (Hair fall) with the help of hair pull test and examination of the *Prakriti* of 100 subjects by *Darshan* (inspection), *Sparsh* (touch), and *Prashna* (question) with the structured questionnaire. Samples were divided in two groups according to age group to observe *Prakriti* for *Khalitya* in relation to hair fall. The questionnaire, which is prepared for the assessment of *Prakriti* based on distinctiveness described in standard textbooks of Ayurveda.

Statistical analysis –

MS-Excel 2010 was used for data analysis. Appropriate tabular presentations were displayed wherever necessary. An effort was made to compare cases and controls according to different *Deha Prakriti.* Chi-square test was used to analyze association between *Khalitya* as a outcome and its risk factors. Level of significance was kept at 5 % (p=0.05) in Univariate analysis.

RESULT AND DISCUSSION

Table 1: Distribution of subjects as per classification of age and occupation

Parameter		Cases (50)	Controls (50)	χ^2 test and p Value
Age (in completed years)	21 to 30	11	23	χ^2 value 6.617, p value = 0.0365
	31 to 40	21	13	
	41- 50	18	14	
Occupation	Private job	9	6	χ^2 value 2.302, p value =
	Govt. employee	11	10	

	Business	12	16	**0.6802**
	Farmers	5	8	
	Self employment	13	10	
Total		50	50	100

Table 2: Distribution of study subjects as per Deha prakruti and development of Khalitya

Deha prakruti	Cases	Controls	χ^2 test and p Value
Pitta	24	12	
Kapha	16	18	**χ^2 value 7.45,**
Vata	10	20	**p value = 0.0241**
Total	50	50	

Table 3: Distribution of study subjects as per aharaj factors causing Khalitya

Parameter	Frequency	Cases (50)	Controls (50)	χ^2 test and p Value
Type of food	Veg	19	33	**χ^2 value=7.85,**
	Mixed	31	17	**p value = 0.0050**
Junk food / Packaged food consumption	Daily	21	11	
	Once in a week	17	15	**χ^2 value= 7.25,**
	Once in a month	12	24	**p value = 0.0266**
Spicy food consumption	Daily	22	27	
	Once in a week	15	11	**χ^2 value=1.16 ,**
	Once in a month	13	12	**p value = 0.5583**
Salty food consumption	Daily	31	17	
	Once in a week	9	11	**χ^2 value= 8.78,**
	Once in a month	10	22	**p value = 0.0123**
Salt consumption	< 5 grams	8	39	**χ^2 value = 38.57 ,**
	> 5 grams	42	11	**p value < 0.00001**
Total		50	50	100

Table 4: Distribution of study subjects as per Viharaj factors causing Khalitya

Parameter	Frequency	Cases (50)	Controls (50)	χ^2 test and p Value
Atiushna Jal Snana	Yes	33	14	**χ^2 value=14.49, p value = 0.0001**
	No	17	36	
Ksharyukta Jal snana	Yes	37	7	**χ^2 value 36.52, p value = 0.00001**
	No	13	43	
Atap sevan	Yes	7	4	**χ^2 value=0.91, p value = 0.3376**
	No	43	46	
Dandruff/ Scalp infection	Yes	42	23	**χ^2 value =15.86, p value = 0.00006**
	No	8	27	
Addiction	Yes	36	12	**χ^2 value 23.07, p value = 0.00001**
	No	14	38	
Total		50	50	100

Note- Addiction includes (Smoking, Alcoholism, Tobacco product chewing etc.)

This study was carried out 100 adult subjects with the objective to assess the risk factors associated with Khalitya (Hairfall).

Table no. 2 shows that there is *pitta* predominance among the subjects showing significant difference among the study subjects as per the *deha prakriti*. (p value = 0.0241)

Vata properties like *Ruksha, Khara* and *Parusha* dominates in *Vata Prakriti* subjects; therefore their hairs are affected with above mentioned qualities of *Vata dosha*. These qualities may harm the hairs as well as scalp '(Keshbhumi)'. Subjects with *Pitta prakriti* have more 'Khalitya' (hair loss) compared to other two *Prakriti*. Age factor may be responsible for 'Khalitya' (hair loss) as shown in table no.1. (p = 0.0365); as age increases the possibility of hair loss also increases. [7,8]

Type of occupation was not found to have significant association with hair fall, as depicted in table 1 (p value = 0.6802). It is well known that, as the level of stress and anger increases, the propensity to develop Vata and Pitta increases and it finally causes to hair fall. There were many loopholes to understand nature and extent of hair loss in relation to Prakriti. Ayurveda has specific identification of individuals on the basis of physical and mental constitution as Prakriti.

The study designated on a scale to examine the hair fall with the help of hair pull test on which ayurvedic theory of effecting hair fall can be proved of having higher proportion of hair fall in subjects with predominance of Pitta Prakriti as compared to *Vata* and *Kapha Prakriti*. Thus, it has been focused that, in Ayurveda, *Pitta* (fire) is considered to be the root factor that governs skin and hair health. An imbalance of the same (i.e. excess *Pitta*) can lead to issues like premature hair loss and early greying. *Aacharya Charaka* stated that the *Paitik Prakriti* individuals are having very aggressive mentality. *Sharangadhara* had explained that these subjects are having more anger. *Aacharya*

sushruta also commented that *Pitta Prakriti* is the leading cause of anger. All these attributes affects growth of hairs and thus results in *Khalitya* (Hair fall).

In present study, it was seen that maximum proportion of subjects those consuming Mixed diet, Junk food, Packaged food, Salty food and Salt consumption more than 5 grams per day were found to have prominent impact on hair fall which was significantly contributing to male pattern baldness in future. It was also observed that, viharaj factors viz. *Atiushna jal snan, Ksharyukta jal snan,* frequent scalp fungal infections causing Dandruff and Addictions were significantly associated with increased frequency of hair fall.

CONCLUSIONS

- It was concluded that, age is the significant risk factor in progression of *Khalitya* (hair fall); as age increases, there is increased tendency to have hair fall and thus in long run, this will contribute to increased proportion of male pattern baldness among adult population.

- It was also observed that, junk/packaged food, salt and salty food consumption were the leading food etiologies of *Khalitya* (hair fall) among study subjects.

- Subjects with predominant *Pitta prakriti* who takes junk/packaged food and salty food frequently, would aggravate hair fall and would be more prone to have excess hair fall in future; thus concluded that, the *aharaj* and *viharaj* factors in addition to deviant *Deha prakruti* are having an important etiological role in development of *Khalitya* (Hair fall). Thus, it also corroborates with the theory of *Ayurveda* that, *Pitta Prakriti* subjects with other contributing co-factors are more prone for developing *Khalitya.*

Limitation- *Manas hetus* and hair fall could not be studied in detail as *manas hetus* are mostly subjective and detailed psychological scale assessment would be required to assess its role in relation to *Khalitya* (hair fall); there may be scope to explore these factors further.

Conflict of interest

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REFERENCES

1. Radhika G, Sathya RM, Sudha V, Ganesan A, MohanV. "Dietary salt intake And hypertension in an urban population south India population." J of Asso of Physicians of india, June 2007;55:405-11.
2. Sohel Reza Choudhary. Technical working group Meeting on Regional action plan and targets for prevention and control of Non communicable diseases. Bankok, Thailand, 11-13 June 2013, Session 1 Salt / Sodium Intake.
3. Ragavendra R. Baliga & Jagat Narula /Salt never calls itself sweet/Indian J Med Res 129, May 2009, 473-74.
4. Ravi Dutta tripathi, 5th edition 2005, *Vimana Sthan, Rasaviman Adhyay*, 18th *shlok*, page no. 552-553
5. K R Shrikant Murti/*Astang. Hridayam*/First volume/2013/ *Chaukhambha prakashan*/ 10/ 13/ 145.
6. Francisco M. Camacho-Martinez. Hair loss in women. *Semin Cutan Med Surg.* 2009;28:19–32.
7. Mukesh Gupta. A study on anatomical characteristics of eye with reference to *Deha Prakriti. Journal of Ayurveda.* Vol-3 / July-Sep 2009. Jaipur/National institute of *Ayurveda.*
8. Drirk Kranz.Body image. Young men's coping with Androgenetic alopecia-(HNS). Sept. 2011. Volume 8/issue 4/343-348.