



**CROSS-SECTIONAL STUDY ON THE ROLE OF AHARAJA NIDANA IN THE
AETIOPATHOGENESIS OF KOSHTASHAKHASHRITA KAMALA**

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Article Received on 09/09/2021

Article Revised on 30/09/2021

Article Accepted on 21/10/2021

ABSTRACT

Kamala is a *Pittaja Nanathmaja* as well as a *Raktapradoshaja Vikara* characterized by yellowish discoloration of *Netra, Nakha, Anana, Shakrit* and *Mutra*. *Kamala* is of 2 types, *Koshtashakhashrita kamala* and *Shakhashrita kamala*. *KoshtashakhashritaKamala* is both *Paratantra and Swatantra Vyadhi* i.e. It can manifest as a sequel of *Pandu roga* and also independently in *Pittolbana* person. Jaundice is the principal disease of liver results as an outcome of many hepatobiliary disorders. The incidence of jaundice is approximately 40,000 per 100,000 individuals of intensive care unit patients. Predominantly unconjugated hyperbilirubinemia has the similar presentation of *KoshtashakhashritaKamala*. In addition to the pathognomonic feature, the peculiar nature of the disease is that it also causes severe fatigue in the affected individuals, thus leading to decreased work efficiency, it also has a collective impact on the society's work outcome, as this disease is precipitated by the unhygienic food habits, housing and sanitary management in a developing nation like India. Keeping this under consideration an observational study was carried out to evaluate the role of Ahara in the aetiopathogenesis of *KoshtashakhashritaKamala*. A total of 51 subjects who were fulfilling the criteria for inclusion were selected for the study from the Outpatient Department of Kaya chikitsa, SJIM Hospital, Government Ayurveda Medical College, Bengaluru during 2020-2021. The diagnosed subjects of *KoshtashakhashritaKamala* were subjected to case proforma. The method of survey was by a questionnaire enlisting Aharaja nidanas mention for *Kamala* in the classics. The study showed that among 51 subjects, all the subjects were excessively involved in most of the Aharaja nidanas. In the study it was evident that Pittakara ahara plays significant role in manifestation of *Koshtashakhashrita Kamala*.

KEYWORDS: *Kamala, Kostashakashritha Kamala, Shakhashrita kamala, Aharaja nidana.*

INTRODUCTION

In Ayurveda our *Acharyas* have explained that *Raktadhatu* is formed from *Rasadhatu* through *Dhatuparinama krama*. In the process of *Dhatuparinama*, *Rasagni* and *Raktadhatwagni* assist in the formation of *Raktadhatu*. *Ranjaka pitta* does *Ranjana*(color) of *Rasadhatu* and helps in formation of *Raktadhatu*.^[1] *Raktadhatu* is formed in *Raktavaha Srotas*, the *moola* of *Rakta dhatu* is *Yakrit* and *Pleeha*. Both *Yakrit* and *Pleeha* are the sites of *Ranjaka pitta*.^[2] As *Kamala* is a *Rakta pradoshaja, Raktavaha sroto vikara*, *Yakrit* and *Pleeha* are involved in the pathogenesis of *Kamala*. '*Yakrit*' in contemporary science can be taken as 'Liver'. Liver plays a vital role in maintaining wide varieties of activities of our body such as metabolic functions, excretory functions, defensive functions, Secretion of Bile, blood coagulation, Detoxification Etc.^[3] Thus, any ailment of liver becomes favorable to the acceleration of pathogenesis of other diseases and thereby, Liver diseases easily contribute to

and get contributed by co-morbidities in many systemic diseases.

Kamala is a disease where in the *Raktadhatu* is vitiated primarily by *Pitta dosha* characterized by yellowish discoloration of *Netra, Nakha, Anana, Shakrit* and *Mutra*. *Kamala* is classified mainly into two types i.e. *Koshtashakhashrita kamala* and *Shakhashrita kamala*.^[4] *Koshtashakhasrita kamala* can also be a *Nidanarthakara roga*, when a *Pandu rogi* indulges in *Pittakara Ahara* and *Vihara*. *Pitta* gets aggravated and produces yellow discoloration on face along with stupor and loss of strength.^[5] *Acharya Vagbhata* described that it can also occur independently in *Pitta prakriti* persons by, excessive indulgence in *Pittala Ahara Viharas*.^[6]

Nidana is one among *Nidana Panchakas* which help in the accurate understanding and diagnosis of diseases.^[7] *Nidana* are the factor that leads to *Dosha Prakopa* further leading to *Dosha-Dushya Sammurchana* or *Sthana Samshraya*, wherein the vitiated *Doshas* take

shelter in the *Dhatus* and in turn vitiate them to cause different diseases. It is always better to identify these in the earlier stages of the disease and cease them from further accelerating the condition and knowing these factors also helps in preventing a disease. *Ayurveda* considers *Ahara* (food) as one of the three supporting pillars.^[8] *Ahara* has been given prime importance since Vedic Period. It is considered as *Brahma* in *Upanishad*. *Acharaya Kashyapa* gives it the name “*Mahabhaisajya*”.^[9] That which is responsible for the growth, development and enhancement of *Ojas*. *Ahara* ✓ when followed accordingly nourishes the body, the same ✓ when improperly followed becomes the cause for a disease. ✓

AIM AND OBJECTIVES

- To compile and assess the role of *Aharaja Nidana* in *Koshtashakahashrita kamala*
- To interpret the *Aharaja Nidana* and *Samprapti* of *Koshtashakahashrita kamala*.

MATERIALS AND METHODS

Patients

The subjects who registered in the OPD of Sri Jayachamarajendra Institute of Indian Medicine, Bengaluru during 2020-2021 were the primary source of data. 51 subjects who were fulfilling the criteria for

inclusion were selected for the study randomly irrespective of religion, educational, professional background and economic status. Informed consent was taken after explaining the purpose of the study in detail in non-technical terms verbally. The study being part of PG study was approved by Institutional Ethics Committee of Government Ayurveda Medical College, Bengaluru.

Inclusion criteria

- Subject aged between 18-70 years.
- Subject presenting with the signs and symptoms of *Koshtashakahashrita kamala*.
- Subject of all gender were taken for study.

Exclusion criteria

- Pregnant women

Study Design

A special case proforma was prepared with details of history taking, physical signs and symptoms as mentioned in our classics along with questionnaire. The subjects were free to withdraw from survey or they had the right to not to answer any question at any given time and were assured of confidentiality of data. The data recorded and further analyzed.

Questionnaire

ITEM NO.	QUESTIONS	R	F	S	O	N	D
1	How often do you consume food that are <i>Katu rasa pradhana</i> ? (pungent/spicy in taste)						
2	How often do you consume food that are <i>Amla rasa pradhana</i> ? (sour in taste)						
3	How often do you consume food that are <i>Lavana rasa pradhana</i> ? (salty in taste)						
4	How often do you consume food items that are <i>Ushna guna pradhana</i> ? (hot in nature)						
5	How often have you noticed symptoms like burning sensation in chest, epigastrium & throat, sour belching after consuming certain food items? (<i>Vidhahi aahara</i>)						
6	How often do you take food that are <i>Thikshna guna</i> ?						
7	How often do you consume <i>sesamum</i> (<i>Tila</i>)						
8	How often do you consume <i>flax seeds</i> (<i>Atasi</i>)						
9	How often do you consume <i>curds</i> ? (<i>Dadhi</i>)						
10	How often do you consume alcohol or other fermented drinks? (<i>Madhya, Sura, Sukta</i> and <i>Aranala</i> etc drinks)						

Regularly (R)	3-4 times a week
Frequently (F)	1-2times per week
Sometimes (S)	1-2 times in a month
Occasional (O)	Occasional
Never (N)	Never
Duration (D)	Since when you are practicing these habits

Diagnostic criteria

Diagnosis was made on the basis of signs and symptoms of *koshtashakahashrita kamala* explained in the classics.

- ✓ *Haridra varnata of netra, twak, nakha, anana* (Yellowish discolouration of sclera, skin, nail and face)
- ✓ *Durbalendriya* (Diminished perception power of sense organs)

- ✓ *Bheka varna twacha* (Yellowish appearance of the body, which resembles the colour of the frog in rainy season)
- ✓ *Dourbalya* (weakness)
- ✓ *Raktapeeta shakrt, mutra*. (reddish yellow color stool and urine)
- ✓ *Aruchi* (tastelessness)
- ✓ *Sadana* (body ache)

- ✓ *Tandra* (stupor)
- ✓ *Avipaka* (indigestion)
- ✓ *Daha* (burning sensation in the body)
- ✓ *Trishna* (Polydipsia)

Investigations

Subjects were screened for

- 1) Total Bilirubin
- 2) Serum Bilirubin-Direct
- 3) Serum Bilirubin- Indirect
- 4) Total Serum Protein
- 5) SGOT
- 6) SGPT
- 7) ALP
- 8) Urine-Bile Salts, Bile Pigments

RESULTS AND DISCUSSION

Table 1: Distribution of subjects as per Sharirika prakruthi in percentage.

Shariraja Prakruthi	No of Subjects	Percentage
Pitta- Vata	29	56.86
Pitta-Kapha	16	31.4%
Kapha-Vata	4	7.84%
Total	51	100%

a) Out of 51 subjects, 57% (29) of subjects belonged to *Pitta-vata Prakruthi*, followed by 31.4% (16) of subjects to *Pitta-Kapha Prakruthi* and 8% (4) to *Kapha Vata Prakruthi*. Majority in the *Pitta-vata Prakruthi* was in concordance with the prevalence of Koshtashakashrita kamala as Kamala is a Pitta pradhana Vyadhi and more prevalent in Pittaja Prakruti person.

Table 2: Distribution based on Lakshanas in the sample.

Lakshana	No of Subjects	Percentage
Haridra Netra	51	100%
Rakta peeta Shakrit	51	100%
Haridra Mutra	51	100%
Haridra twak	51	100%
Haridra Nakha	29	56.9%
Haridra Anana	32	62.74%
Bekavarna	0	0%
Dourbalya	51	100%
Aruchi	51	100%
Avipaka	44	86%
Daha	13	25.5%
Sadana	45	88%
Hatendriya	6	11.8
Trishna	22	43%
Balakshaya	51	100%
Karsha	7	14%

b) Data for lakshana showed, 100% (51) subjects had Haridra netrata, Haridra shakrit, Haridra mutra, Haridra twak, Dourbalya, Aruchi, Balakshya, 88% (45) suffered from sadana, 56.9% (29) showed Haridra Nakha, 62.74% (32) exhibited Haridra Anana, 86% (44) had Avipaka, 25.5% (13) experienced Daha,

Table 3: Distribution of subjects as per Total Bilirubin in percentage.

Total Bilirubin	No of Subjects	Percentage
1-5	40	78.43%
5-10	9	17.65%
10-15	0	0%
15-20	2	3.9%
20-25	0	0
Total	51	100%

c) The data showed among 51 subjects, 78.43% (40) of subjects were between 1-5 mg/dL, 18% (9) subject's value were between 5-10, 4% (2) were between 15-20. Normal serum bilirubin concentration ranges from 0.3-1.3 mg/dl, about 80% of which is unconjugated. Jaundice becomes clinically evident when the total serum bilirubin exceeds 2 mg/dl. A rise of serum bilirubin between the normal and 2 mg/dl is generally not accompanied by visible jaundice and is called *latent jaundice*. Increased total bilirubin count more than >1.3mg/dL seen in 98% of subjects.

Table 4: Distribution of subjects as per Direct Bilirubin in percentage.

Direct Bilirubin	No of Subjects	Percentage
0.1-0.5	4	7.8%
0.5-1	10	19.6%
1-5	35	68.6%
5-10	2	3.9%
10-15	1	1.96%
Total	51	100%
Within normal values(<0.6mg/dl)	7	14%
Increased count(>0.6mg/dl)	44	86%

d) The data showed among 51 subjects, 69% (35) of subjects count were between 5-10mg/dl, 20% (10) were between 0.5-1mg/dl, 8% (4) of subjects count were between 0.1-0.5mg/dl. 14% (7) of the subject's direct bilirubin count were within normal range i.e., <0.6mg/dl. 86% (44) of subjects had increased direct bilirubin levels.

Table 5: Distribution of subjects as per Indirect Bilirubin in percentage.

Indirect Bilirubin	No of Subjects	Percentage
0.1-1	4	7.8%
1-5	44	86.27%
5-10	3	5.9%
Total	51	100%
Within normal values(<0.9mg/dl)	3	6%
Increased count(>0.9mg/dl)	48	94%

e) The data showed among 51 subjects, 86.27 % (44) of subject's count were between 1-5mg/dl, 8% (4) were between 0.1-1mg/dl, 6% (3) were between 5-10mg/dl. 94% (48) of subjects had elevated indirect bilirubin levels i.e., count >0.9 mg/dl, 6% (3) of subjects count were within normal.

Table 6: Distribution based on Urine bile salts.

Bile salts	No of Subjects	Percentage
Present	39	76.5%
Absent	12	23.5%
Total	51	100%

f) The data showed among 51 subjects, Urine bile salts test was positive in 77% (39) of subjects.

Table 7: Distribution based on rine bile pigments.

Bile pigments	No of Subjects	Percentage
Present	39	76.5%
Absent	12	23.5%
Total	51	100%

g) The data showed among 51 subjects, urine bile pigments test was positive in 77% (39) of subjects.

Table 8: Distribution of subjects as per Ashana in percentage

Aharaja Nidana	No of Subjects	Percentage
Adhyashana	20	39.21%
Pistanna	14	27.5%
Ajeernashana	17	33.33%
Vishamashana	37	72.54%
Atimamsasevana	25	49%

h) Out of 51 subjects, 73% (37) were indulged in *Vishamashana*, 49% (25) were indulged in *Atimamsasevana*, 39% (20) indulged in *Adhyashana*, 33% (17) indulged in *Ajeernashana*, 28% (14) indulged in *Pistanna* (food prepared from flour).

Table 9: Distribution of subjects as per viharaja nidana in percentage.

Vihara Nidanas	No of Subjects	Percentage
Ativyayama	22	43.14%
Atisanthapa	14	27.45%
Ativyavaya	0	0%
Divaswapna	24	47%
Vegavidharana	22	43.14%

i) Among 51 subjects, 43% (22) indulgence were seen in *Ativyayama* & *vegavidharana*, 47% (24) indulgence in *Divaswapna*, and 27% (14) indulgence in *Atisantapa*.

Table 10: Distribution of subjects as per Aharaja nidana in percentage.

	Regularly	Frequently	Sometimes	Occasionally	Never
Katu Rasa	35% (18)	33% (17)	31% (16)	0	0
Amla Rasa	25% (13)	53% (27)	20% (10)	2% (1)	0
Lavana Rasa	59% (30)	29% (15)	12% (6)	0	0
Ushna Guna	51% (26)	43% (22)	6% (3)	0	0
Vidahi	6% (3)	18% (9)	61% (31)	16% (8)	0
Thikshna	18% (9)	14% (7)	55% (28)	14% (7)	0
Tila	0	2% (1)	14% (7)	50% (25)	35% (18)
Atasi	0	0	2% (1)	20% (10)	78% (40)
Dadhi	39% (20)	33% (17)	20% (10)	8% (4)	0
Madhya	16% (8)	20% (10)	6% (3)	4% (2)	55% (28)

j) Data on Aharaja nidana showed, the use of *Ati Katu rasa*, among 51 subjects, 35 % (18) of the subjects had regular (3-4 times a week) consumption of *Katu rasa Aahara*, 33% (17) had frequent (1-2times per week) consumption of *Katu rasa* and 31% (16) included sometimes (1-2 times in a month) in their diet.

Amla rasa: 53% (27) of subjects were habituated to take *Ati Amlarasa* frequently, 25% (13) of subjects were Regularly partaking in *Amla rasa* and 20% (10) included sometimes in their diet, 2% (1) were occasionally consuming *Amla pradhana aahara*.

Lavana rasa: 59% (30) of subject were regularly intaking *Ati Lavana rasa*, 29% (15) subjects were taking frequently, 12% (6) were sometime indulged in *Ati Lavana sevana*.

Ushna guna: 51% (26) of subjects were regular intaking *Ushna guna yukta aahara*, 43% (22) were frequently consuming, 6% (3) were sometime indulged in *Ati ushna Ahara*.

Vidahi: 61% (31) of subjects were involved sometime in consuming *vidahi Aahara*. 18% (9) were sometime involved in *Vidahi Aahra sevana*, 16% (8) occasionally indulged in *Vidahi Ahara*. Only 6% (3) of subjects were indulged regularly in *vidahi aahara sevana*.

Thikshna guna: 55% (28) of subjects were involved sometime in consuming *Thikshna aahara*. 18% (9) of subjects were indulging regularly in *thikshna aahara*. 14% (7) were occasionally indulged.

Tila: 50% (25) were intaking *Tila* occasionally, 35% (18) had no indulgence in *Tila*, 14% (7) were sometime indulging in *Tila*.

Atasi: 78% (40) has no history of consuming *Atasi*, 20% (10) had occasionally consumed *Atasi*.

Dadhi: 39% (20) of subjects were taking *Dadhi* regularly, 33% (17) frequently and 20% (10) were sometime involved in intake of *Dadhi*. 8% (4) were occasionally consuming *Dadhi*.

It was observed that the average consumption of above said food articles, such as *Ati katu*, *Amla*, *Lavana Rasa sevana*, *Ushna*, *Vidahi*, *Thikshna Guna yukta Ahara*, *Tila*, *Dadhi*, *Atasi* in 51 subjects were since 16years 6 months. Lowest duration seen was 2 years while longest seen was 40 years duration.

Madhya: 55% (28) of Subjects had no history of alcohol consumption, 16 % (8) subjects were regularly intaking alcohol, 20% (10) of subjects were frequently taking alcohol, 4% (2) were occasionally involved in consuming *Madhya*.

It was observed that the average consumption of alcohol and other fermented drinks in 51 subjects were for 13 years 7 months. Lowest duration seen was 4 years while longest seen was 30 years duration.

By Observing above data, the indulgence in *Ati Katu*, *Amla*, *Lavana*, *Ushna*, *Thikshna*, *Vidahi*, *Dadhi* and *Madhya* had significant role in manifesting *Koshthashakashrita Kamala*. It was observed the above said food article were not only used in excess quantity and quality but also were being consumed for over long duration without being counter balanced with opposite *Rasa* or *Guna Yukta ahara*.

All these *Ahara* causes *Pitta vruddhi*, *Rakta vaha Sroto Vaigunya*, *Rakta dhatu Dushana*. Resulting in increased *Rakta* and *mamsa dhatu dagdata*, the term *Rakta Dagdatha* with particular reference to *Kamala* is excessive destruction or lysis of *Rakta Dhatu* (erythrocytes). This *Rakta Dagdatha* leads to increased production of *Mala Rupi Pitta*. This increased *Pitta* starts accumulating in *Pitta stana* causing *Haridra Netra*, *Haridra Twak*, *Anana*, *Nakha* externally, and also causes *Vidagda*, *Avipaka*, *Aruchi*, *Dourbalya*. And this *Pitta* is excreted through *Mutra* and *Purisha* resulting in *Rakta Peeta Shakrit Mutra*.

CONCLUSION

Koshthashakashrita kamala is *Pitta Pradhana*, *Rakta Pradoshaja Vikara*. It is both *Paratantra* and *Swatantra vyadhi* i.e. It can manifest as a sequel of *Pandu roga* or it can also manifest independently in *Pittolbana* person by excess consumption of *Pittakara Ahara* and *Vihara*. *Ati Katu*, *Amla*, *Lavana*, *Ushna*, *Thikshna*, *Vidahi*, *Dadhi* and *Madhya* when consumed in excess quantity, quality,

for long duration without being counter balanced with opposite *Rasa* or *Guna Yukta ahara* was found to result in *Koshthashakashrita kamala*. Study reveals that the major etiological factors described in the classics are *Pitta vardhaka ahara* and *vihara*, the observations found in the study are concordant to these descriptions.

Total bilirubin, direct bilirubin, indirect bilirubin, SGOT and SGPT were raised in diagnosed cases of *koshtha shakashrita kamala*. By this, it may be corelated to following condition according to allopathic system of medicine they are, predominantly unconjugated hyperbilibinaemias such as hemolytic jaundice, hemoglobinopathis, hepatitis, Wilsons disease, hepatoma, hepatocellular Ca.

By this particular research study, the fact about the role of *ahara* in *Koshthashakashrita kamala* was revalidated and an assisting tool for the diagnosis of *Koshthashakashrita kamala* was constructed. This research work mainly intends to create awareness among the public regarding the disease and its *nidanans* to convey a pro-vigilant, prevention of the *Koshthashakashritha kamala*.

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