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A clinical comparative study of *Patolakaturohinyadi Kashaya* and *Trayantyadi Kashaya* in *Koshtashakhashrita Kamala* w.s.r. to Hepatocellular Jaundice

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A B S T R A C T

In our *Samhita*, *Kamala Vyadhi* is briefly described. *Kamala* is a *Pittaja Nanatmaja Vyadhi* as well as *Raktapradoshaja Vyadhi*. *Charaka* has considered *Kamala* as advanced stage of *Pandu Roga*. *Sushruta* and *Vagbhata* has considered *Kamala* as a separate disease and *Sushruta* also told it is due to further complications of *Pandu Roga*, *Kamala* can be compared with Jaundice (Hepatocellular Jaundice) in contemporary science. Contemporary science has limitations in treating *Kamala Vyadhi* but *Ayurvedic* literature clearly explained pathology and treatment of *Kamala Vyadhi* in detail.

Key words: *Kamala, Kosthashrita Kamala, Rakta Pradoshaja Vyadhi, Pittaja Nanatmaja Vyadhi,* Jaundice, Hepatocellular Jaundice, Bilirubine, Bile.

INTRODUCTION

In our *Samhita* explained that *Raktavaha Srotas* take active part in the production of *Rakta Dhatu* and the *Moola* of them is *Yakrit* and *Pleeha*. Both *Yakrit* and *Pleeha* are also the sites of *Ranjaka Pitta* and store houses for the *Rakta Dhatu*. *Kamala* is explained in the *Rakta Pradoshaja, Raktavaha Sroto Vikara*. *Kamala* is considered as a *Paittika Roga* caused by *Rakta Dushti* due to vitiated *Pitta* and vice versa.[1] The root word "*Kāmu*", which means *Kānthi* by suffixing "*Nhin*"

Pratyaya, forms the term *Kamala*. Thus, the term *Kamala* is *Kāmu + Nhin* (*kalaha*).[2] The literary meaning of *Kamala* is "*Kaamam Lunati Iti Kaamalati*" Here *Kāmam* means *Itcha* or desires, and *Lāti* means *Runaddhi* or *Bādhanti* or to diminish. Etiological factors which causes *Raktadushti* like *Ushna, Vidahi, Dadhi, Taila, Drava, Snigdha, Kshara, Anupa Mamsa Sevana, Krodha* and *Sharad Kala* etc. are almost similar to that of *Pitta Prakopas*, which causes *Kamala*.[3] The above-mentioned *Nidanas* causes *Pitta Prakopa* and *Rakta Dusti*. When *Rakta* is vitiated the *Srotases* through which it circulates (*Raktavaha Srotas*) also gets vitiated ultimately leading to vitiation of *Moolasthanas* i.e., *Yakrit* and *Pleeha* and causing *Kamala*. Thus, the *Nidanas* of *Rakta Dusti* also causes *Kamala* and shows *Lakshanas* like *Dourbalya, Alpagni, Aruchi, Haridra Netra, Mutra, Twak, Nakha* etc. Therefore, our *Acharyas* has mentioned *Shodhana Chikitsa* (*Virechana*) and *Shamana Chikitsa* are successful in *Kamala* by removing to *malas* from the body and correction of *Agni*. The drugs which have *Guna Karma* of *Katu Rasa, Tikta Rasa, Kashaya Rasa, Rechana Guna, Bhedana Guna, Pittahara* and *Kaphahara Guna* which

are helpful to reduce the *Kamala* symptoms by their *Guna Karma*. Among them *Patolakaturohinyadi Kashaya* and *Trayantyadi Kashaya* these drugs have *Kamalahara* properties like *Ushna*, *Laghu*, *Ruksha Guna*, and having *Tikta-Katu Rasa Dravyas* (ingredients of internal medication) enhances digestive capacity by hepato- protective action and *Pittashamaka Guna*. Hence these drugs were selected for ongoing study. In modern science *Kamala* is can be taken with Hepatic jaundice also known as Hyperbilirubinemia, is defined as a yellowish discoloration of the body tissue resulting from the accumulation of excess bilirubin. Deposition of bilirubin happens only when there is an excess of bilirubin, and this indicates increased production or impaired excretion. The normal serum levels of bilirubin are less than 1 mg/dl. However, the clinical presentation of jaundice with peripheral yellowing of the sclera, also called scleral icterus, is best appreciated when serum bilirubin levels exceed 3 mg/dl. The most common signs of jaundice in adults are a yellowish discoloration of eye (sclera) and skin, urine (bilirubinuria) and pale, (acholia) fatty stool (steatorrhea). Despite abysmal record maintenance in the most states of the country, it is unambiguous that the incidence of jaundice has shown a steady and alarming increase. Death to all due to jaundice has been doubled over last two decades. The statistics of the study conducted by the National Institute of Communicable Diseases (NICD) show that jaundice is a major public health problem in India. An annual incidence of 2.76 per 1000 population were stated.

OBJECTIVES OF THE STUDY

1. To study the efficacy of *Patolakaturohinyadi Kashaya* in *Kosthashakhashrita Kamala* w.s.r to Hepatocellular jaundice.

2. To study the efficacy of *Trayantyadi Kashaya* in *Kostha Shakhashrita Kamala* w.s.r to Hepatocellular jaundice.

3. To compare the role of *Patolakaturohinyadi Kashaya* and *Trayantyadi Kashaya* in the management of *Kosthashakhashrita Kamala* w.s.r to Hepatocellular jaundice.

MATERIALS AND METHODS

Inclusion Criteria and Exclusion Criteria

Factors	Inclusion Criteria	Exclusion Criteria
Age	20 – 60 years	<20 years, >60 years
Symptoms	*Haridra Netra*	Neurological diseases
	Haridra Nakha	Blood disorders
	Haridra Mutra	HIV, HbSAG
	Haridra Twak	Pregnant women
	Aruchi	Systemic illness like T.B etc.
	Hrullasa	
	Dourbhalya	
Others	Willing for written consent	Not willing for willing consent

Diagnostic Criteria

The diagnosis will be made on the basis of signs and symptoms of *Kamala* and laboratory investigations.

Subjective Parameters

- *Haridra Netra, Mutra, Twak, Nakha.*
- *Dourbalya*
- *Alpagni*
- *Aruchi*
- *Hrullasa*

Objective Parameters

- Hb% (above 9 gm%)
- LFT
- Urine Bile pigment (present/ absent)
- Urine Bile salt (present / absent)

Design of study

- Study type : interventional
- Allocation : Randomized

Akshata et al. A clinical study of Koshtashakhashrita Kamala w.s.r. to Hepatocellular Jaundice

ISSN: 2456-3110 **ORIGINAL ARTICLE** December 2023

- Endpoint Classification: Efficacy study

- Intervention model : Double Group

- Masking : open label, pre-test and post test design.

Intervention

1. Group A: 20 diagnosed subjects of *Kamala* given Patolakaturohinyadi *Kashaya* in dose of 15ml twice daily, before food for 7 days.

2. Group B: 20 diagnosed subjects of *Kamala* given Trayantyadi *Kashaya* in the dose of 15ml twice daily, before food for 7 days.

- **Total duration of study -** 14 days

- **Interventional period -** 7 days

- **Follow-up -** 7 days after treatment.

OBSERVATION AND RESULTS

A total number of 40 subjects fulfilling the inclusion criteria were studied.

- Number of subjects registered for the study - 42

- Number of subjects completed the study - 40

- Number of dropout - 2

Showing the Incidence of subject on basis of Age.

Age	Group A	Percentage	Group B	Percentage
20-30	04	20%	00	0%
31-40	04	20%	08	40%
41-50	09	45%	09	45%
51-60	03	15%	03	15%
Total	20	100%	20	100%

Showing the Incidence of subject on basis of Gender.

Gender	Group A	Percentage	Group B	Percentage
Male	14	70%	11	55%
Female	06	30%	09	45%
Total	20	100%	20	100%

Showing the Incidence of subject on basis of *Agni*.

Agni	Group A	Percentage	Group B	Percentage
Sama	03	15%	02	10%
Vishama	05	25%	06	30%
Manda	11	55%	10	50%
Teeksna	01	5%	02	10%
Total	20	100%	20	100%

Showing the Incidence of subject on basis of symptom of *Haridra Netra*.

Haridra Netra	Mean	t value	P value	Result
Group A	0.65	2.809	0.0078	Significant
Group B	0.2			

Showing the result after the treatment in *Haridra Nakha*.

Haridra Nakha	Mean	t value	P value	Result
Group A	0.25	1.798	0.0801	Significant
Group B	0.05			

Showing the result after the treatment in *Haridra Twak*.

Haridra Twak	Mean	t value	P value	Result
Group A	0.1	0.5878	0.5602	Significant
Group B	0			

Showing the result after the treatment in *Haridra Mutra*.

Haridra Mutra	Mean	t value	P value	Result
Group A	0.75	3.111	0.035	Significant
Group B	0.3			

Akshata et al. A clinical study of Koshtashakhashrita Kamala w.s.r. to Hepatocellular Jaundice

ISSN: 2456-3110   **ORIGINAL ARTICLE**   December 2023

Showing the result after the treatment in *Daurbalya*

Daurbalya	Mean	t value	P value	Result
Group A	0.1	2.626	0.0124	Significant
Group B	0.45			

Showing the result after the treatment in *Alpagni*.

Alpagni	Mean	t value	P value	Result
Group A	0.15	0.4673	0.6429	Not Significant
Group B	0.1			

Showing the result after the treatment in *Aruchi*.

Aruchi	Mean	t value	P value	Result
Group A	0.1	0.5878	0.5602	Significant
Group B	0			

Showing the result after the treatment in *Hrullasa*.

Hrullasa	Mean	t value	P value	Result
Group A	0.3	0.7166	0.478	Significant
Group B	0.2			

Showing the Incidence of subject on basis of Total bilirubin.

Total Bilirubin	Mean		t value	P Value	Result
	BT	AT			
Group A	1.3	0.45	7.768	< 0.0001	H.Significant
Group B	1.15	0.1	11.92	< 0.0001	H.Significant

Showing the result after the treatment in Total bilirubin.

Total Bilirubin	Mean	t value	P value	Result
Group A	0.45	2.626	0.0124	Significant
Group B	0.1			

Showing the result after the treatment in Direct bilirubin

Direct Bilirubin	Mean	t value	P value	Result
Group A	0.35	2.494	0.0171	Significant
Group B	0.05			

Showing the result after the treatment in SGOT

SGOT	Mean	t value	P value	Result
Group A	0.3	2.147	0.0382	Significant
Group B	0.05			

Showing the result after the treatment in SGPT

SGPT	Mean	t value	P value	Result
Group A	0.45	2.135	0.0392	Significant
Group B	0.15			

Showing the result after the treatment in Alk. Phosphatase.

Alkaline Phosphatase	Mean	t value	P value	Result
Group A	0.2	0.369	0.7136	Not Significant
Group B	0.25			

Showing the result after the treatment in Bile pigment.

Bile Pigment	Mean	t value	P value	Result
Group A	0.3	2.147	0.0382	Significant
Group B	0.05			

Showing the result after the treatment in Bile salt

Bile Salts	Mean	t value	P value	Result
Group A	0.3	2.147	0.0382	Significant
Group B	0.05			

Akshata et al. A clinical study of Koshtashakhashrita Kamala w.s.r. to Hepatocellular Jaundice

ISSN: 2456-3110   **ORIGINAL ARTICLE**   December 2023

DISCUSSION

When *Pandu Rogi* or patient who cured from *Pandu* continues to take *Pitta Vardhaka Ahara* then this causes excessive aggravation of *Pitta Dosha* and gives rise to *Kamala*. When patient of *Pandu Roga* or person affected with other *Roga* consumes *Amla*, *Teekshna*, *Vidhahi*, *Kshara* etc. *Pitta Vardhaka Ahara,* that may lead to initiation of *Kamala*. *Ranjaka Pitta* and its *Sthana Yakrit* are also involved in its *Samprapti*. *Ranjaka* refers to bile pigments. *Pitta* refers to bile salts. Bile salts have choleretic action that stimulates the secretion of bile from liver. It is this *Ranjaka Pitta*, which provides an exceedingly valuable tool for the diagnosis of both *Koshtashakashrita* and *Shakhashrita Kamala*.

Aetiological factors which causes *Rakta Dushti* like *Ushna*, *Vidahi*, *Dadhi*, *Taila*, *Snigdha*, *Kshara*, *Anupa Mamsa Sevana*, *Krodha* and *Sharat Kala* etc. are almost similar to that *Pitta Prakopas*, which causes *Kamala*. These *Nidanas* causes *Pitta Prakopa* and *Rakta Dushti*, when *Rakta* is vitiated the *Srotases* through which it circulates also gets vitiated ultimately leading to vitiation of *Mulasthanas* i.e., *Yakrit* and *Pleeha* and causing *Kamala*. Thus, *Nidanas* of *Rakta Dushti* also causes *Kamala* indirectly.

Treatment of choice for *Kamala* is *Mrudu-Virechana* as *Virechana* is best therapeutic procedure for *Pittadosha*. *Virechana* is a specific treatment for *Pitta Doshas* and *Pitta Samsarga Doshas*. *Virechana Dravyas* will have properties of *Ushna*, *Tikshna*, *Sukshma*, *Vyavayi* and *Vikasi Guna*. These drugs consist of *Prithvi* and *Jala Mahabhutas*. *Virechana* drugs have a specific property of removing the *Doshas* from lower part of the body (*Adhobhaga*). Many more *Shamana Oushadhi* are also explained in the treatment of *Kamala*. Among the *Shamanoushadhi* many more *Kastaushadhis* and *Rasaushadhis* which containing properties of *Rechana Karma*, *Bhedhana Karma*, *Pitta Shamana Guna*, *Rakta Shodhaka Guna* should be given as line of treatment for *Kamala*.

Haridra Netra, *Nakha*, *Twak*, *Mutra*, *Dourbalya*, *Alpagni*, *Aruchi*, *Hrullasa* were the subjective parameters taken up for present study. Results

obtained were interpreted for within the group and between group changes. A significant improvement was seen after the treatment in both groups by giving *Patolakaturohinyadi Kashaya* and *Trayantyadi Kashaya*

In *Bahu Pitta Kamala* the drugs which act on liver as *Yakritottejaka* and *Yakrit Shodhana* given which leads to normal flow of bile. *Tikta Rasa Dravyas* are used because they are *Pitta Shamaka* in nature. *Patolakaturohinyadi Kashaya* have *Kapha-Pittahara* and *Tridoshahara* property. *Patola*, *Katuki*, *Chandana*, *Patha* have *Kapha Pitta Shamaka* property. *Murva* and *Guduchi* have *Tridoshahara* property and *Guduchi* is mainly act as *Pitta Shamaka* as *Pitta* is main *Dosha* in *Kamala Roga*. So, this drug *Patolakaturohinyadi Kashaya* used in *Kamala Roga*.

Trayantyadi Kashaya is a formulation which is explained in *Astanga Hridaya* for treatment of *Kamala*. These drugs contain *Tikta, Katu Rasa Pradhanya Dravyas* which are useful in symptoms of *Aviapaka*, *Aruchi* as they pacify the vitiated *Doshas* and promote the *Dhatu Poshana* and thus reducing the *Dourbalya*. As *Tikta Rasa* is *Rakta Shodhaka* and *Pitta Shamaka*, it attributes to the reduction in *Haridra* of *Netra, Nakha, Twak, Mutra*, etc., The hepatoprotective and hepato stimulant properties of the formulation are responsible for the better result in alleviation of elevated SGOT, SGPT, Total, Direct Bilirubin, Bile pigment and Bile salt level reduction in *Haridra* of *Netra, Nakha, Twak, Mutra,* etc., The hepatoprotective and hepato stimulant properties of the formulation are responsible for the better result in alleviation of elevated SGOT, SGPT, Total, Direct Bilirubin, Bile pigment and Bile salt level.

CONCLUSION

Kamala Roga is *Pitta Pradhana*, *Rakta Pradoshaja Vikara* which manifest the *Haridrata* of *Netra*, *Nakha, Mutra, Twak* etc. as a *Pratyatma Lakshana*. In *Koshtashakashrita Kamala Chikitsa Shamanoushadi* plays important role especially the drug which contents *Tikta, Katu Rasa, Rakta Shodhaka* property*, Virechana* property. So, both *Patolakaturohinyadi Kashaya* and *Trayantyadi Kashaya* have significant improvement. Both the *Patola Katurohinyadi Kashaya* and *Trayantydi*

ORIGINAL ARTICLE December 2023

Kashaya have shown significant result. But *Trayantydi Kashaya* shows more significant than *Patolakaturohinyadi Kashaya* because *Trayantydi Kashaya* have the drug *Trivrit* which considered as a best drug for *Rechana*.

Statistically this study was found significant showing good results in subjective and objective parameters in both the groups. After giving the *Trayantyadi Kashaya* the bilirubin level come to normal range, it also helpful in reducing the symptoms of *Haridra Netra, Haridra Mutra, Haridra Nakha* etc. In *Kamala, Yakrit* get effected, *Yakrit* is helpful in purifying the blood, so *Trayantyadi Kashaya* has the *Raktashodhaka* property, and it helpful in clean gut and it is anti-oxidant property. *Trayantydi Kashaya* contains *Triphala* drug which is *Rasayana* and hepatoprotective. *Kamala is Pittaja Nanatmaja Vyadhi* and *Raktapradoshaja Vyadhi Trayantydi Kashaya* is *Pitta Kaphahara* and *Anulomana* which is helpful in remove the waste product from the gut and liver by detoxifying it. It acts on *Antar, Bahir* and *Madyama Rogamargas*. So, to treat the *Kamala* we can use *Trayantyadi Kashaya* as a one of the treatable drug.

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