



UNIQUE JOURNAL OF AYURVEDIC AND HERBAL MEDICINES

Available online: www.ujconline.net

Research Article

TO STUDY THE EFFICACY OF TRIPHALA KASHAYA WITH MADHU IN BAHUPITTA KAMALA (JAUNDICE) OF NEONATES

Gurav Ananda Dadu¹, Lode Dattatraya Somaji^{2*}, Chavan Dattatraya Bhaurao³

¹Associate professor, Department of Kaumarbhritya tantra, Y. A. M. C. kodoli Ta. Panhala Dist. Kolhapur MS

²Assistant professor, Department of Kaumarbhritya tantra, G.S. Gune Ayurved college, Ahmednagar MS

³Assistant professor, Department of Kaumarbhritya tantra, Government Ayurved college, Nanded MS

Received 22-01-2014; Revised 21-02-2014; Accepted 19-03-2014

*Corresponding Author: **Dr. Lode Dattatraya Somaji.**

Assistant professor Department of Kaumarbhritya tantra, G.S. Gune Ayurved college, Ahmednagar MS Email: drdatta26@rediff.com, 09326179946

ABSTRACT

'Kama' means desire. The desire to do something is suppressed, in *kamala*. Alternately '*Kamala*' is the disease in which '*Kama*' vanishes. Haranchandra defined *kama* as a general word & directed to take its meaning as 'desire of food etc.' It gets vanished in *Kamala*. Jaundice is the "Yellow discolouration of plasma, skin and mucous membranes" due to increased bilirubin level in blood.⁶ The normal adult serum bilirubin level is less than 1mg/dL. Adults appear jaundiced when the serum bilirubin level is greater than 2mg/dL, and newborns appear jaundiced when it is greater than 7mg/dL. When the Phototherapy & *Triphala Kashaya* with *Madhu* was given for consecutive 6 days in selected cases, it was found that it is very effective for the treatment of *Bahupitta kamala* (jaundice) of neonates.

Keywords: *Kamala*, *bahupitta*, jaundice, neonate, *triphalala*.

INTRODUCTION

It is universally accepted that a child is very delicate and we have to handle it with great care hence we treat the child by laghu, mridu dravyas.¹

A playful child is a pride of home. An angel is synonymous for it. Many diseases cloud to deny this happiness by ruining the health of child. One of them is "*KAMALA*" (Jaundice). '*Kama*' means desire. The desire to do something is suppressed, in *kamala*. Alternately '*Kamala*' is the disease in which '*Kama*' vanishes. Haranchandra defined *kama* as a general word & directed to take its meaning as 'desire of food etc.' It gets vanished in *Kamala*.²

Kamala is described by Kashyapacharya. The symptomatology is quite similar with jaundice of neonates (unconjugated hyperbilirubinaemia) as this Granth is uniquely described for Pediatric population.³ Kashyapacharya also described the disease as one of the *lakshanas of Revati graham*.⁴ *Rigveda & Atharvaveda* clearly explained this disease & supplemented to treat it with rays of rising sun.⁵

Jaundice is the "Yellow discolouration of plasma, skin and mucous membranes" due to increased bilirubin level in blood. The normal adult serum bilirubin level is less than 1mg/dL. Adults appear jaundiced when the serum bilirubin level is

greater than 2mg/dL, and newborns appear jaundiced when it is greater than 7mg/dL.⁶

60% all term and 80% all preterm are affected by neonatal jaundice. Moreover 16% of these sufferer are cut off in buds from their lives due to kernicterus and associated Acute bilirubin encephalopathy. The survivor lands in C.P. and severe motor impairment.⁷

Ayurveda - a fine solution for healthy life; treats neonatal jaundice (unconjugated hyperbilirubinaemia) under the heading of *Bahupitta kamala*. For this treatment view nearly all *Acharyas* described in their *samhitas* the preventive role of *Triphala with madhu*.

*Triphalaya guduchya va darvya nimbasya va rasam !
Sheetam madhuyutam pratah kamalarta pibennara !!*

Ch. Chi. 16/62⁸

We decided to judge this kamalahari action of *Triphala* and choose it for trial.

It is important to remember that neonatal hyperbilirubinaemia is a medical emergency & delay in management can lead to irreversible brain damage or death.

Aims:

1. To study the efficacy of *Triphala kashaya in bahupitta Kamala* (Jaundice) of Neonates 2. To judge kwath administration in neonates & its tolerability.

Objectives:

The pros and cons of treatment and its results on the diseases *Bahupitta Kamala* (Jaundice) of neonates are the objectives.

Material: -

→Patients suffering from neonatal jaundice.

→Drugs: - a) *Triphala kashaya* b) *Madhu*

All these drugs are described in detail vide infra. We prepared the *kashaya* & administered it freshly to the neonate by orally; daily in the morning by adding honey for palatability and as an *anupaan or prakshep dravya* in 1/8th part of *kashaya approx.*

1. Phototherapy unit (over head, single surface): - Phototherapy is given classically 1 hour twice in day (very low dose) for both patient of control and trial group to make baseline correction.

Methodology-

Patients: - we have selected randomly patients suffering from neonatal jaundice by adopting following criteria: -

* Criteria for selection of patient.

1. Age between 2-8 days
2. Weight between 2.5 - 4 kg
3. S. B.L. > 8 mg%
4. As we rejected Rh & ABO-HDN Patients Hb% is voided.

*Criteria for rejection of patient: -

1. Age below 2days & above 8 days.
2. Weight < 2.5 kg. & > 4 kg.
3. S.B.L. < 8 mg%.
4. Rh & ABO-HDN Patients.
5. Any medical emergency& problem having surgical intervention.
6. Patients with complications are also dropped out.

Criteria for assessment: -

Objective: -

Decreased S.B.L. (Serum Bilirubin Level) – Indirect and total.

Subjective: -

1. Increased alertness & activities.
2. Decreased durations of jaundice
3. Decreased skin colour with relative to S.B.L. by Krammer’s rule.

METHODS:

For Treatment purpose neonates of both sexes (M/F) are selected and all patients are grossly divided into two Groups: - 1) Trial group 2) Control group.

Method of Allotment of Group:

Patients for both groups are randomly selected. Two types of treatment were given for both groups as follows: -

1) Trial Group: - Patients received: -

- 1) Phototherapy - 1 hour B.D.
- 2) *Triphala kashaya* with *Madhu*.

Rout of administration: - Oral.

Dose: - according to weight 1ml/ kg.

Duration: - *kwath* given O.D. x 6 days.

Anupan: - *Madhu*.

2) Control Group: - Patients received: -

- 1) Phototherapy - 1 hour B.D.

Method of Assessment of Result:

*During the treatment period following criteria are adopted to assess effect: -

Day I of Treatment	-	S. Bilirubin level
Day III of Treatment	-	S. Bilirubin level
Day VI of Treatment	-	S. Bilirubin level

Major criteria for assessment: -

1) Upashaya and anupshaya assessment: -

Upashaya is divided into 3 groups: -

1. *Alpa* : -where TSB decreased by >1 mg% in 6 days.
2. *Madhyam*: - where TSB decreased by >5 mg% in 6 days.
3. *Uttam*: - where TSB decreased by >10 mg% in 6 days.

Anupashaya: - where TSB not decreased in 6 days.

2) Total fall & peak assessment: -

1. Ist day – VIth day: -TSB level: - To assess fall in jaundice.
2. IInd day – Ist & IInd day – VIth day: - TSB level: - To assess rise on middle (peak) in jaundice.
3. Ist day – VIth day: -UCB level: - To assess fall in jaundice.
4. IIndday–Ist&IIndday–VIthday: - UCB level: -To assess rise on middle (peak) in jaundice.

Minor criteria for assessment: -

1. Skin colour assessment: - By Krammer’s rule of skin colour estimation.
2. Activities: - activities are noted in grades.
 - is denoted for absent activities ,
 - + for diminished activities
 - ++ for normal activities.

Observations:

After every day follow up of patients, following observations are made.

Table 1: Age Wise Classification of Patient in Both Groups:

Age groups	2d	3d	4d	5d	6d	Total
Trial	0	7	15	7	1	30
Control	2	5	20	3	0	30
Total	2	12	35	10	1	60

$\chi^2=10.12$ D.F.= 4. $p=13.28$ (at .01)
 $\chi^2 < p$; → Both groups are same.

Table 2: Sex wise Classification of Patient in Both Groups:

Sex	T	C	Total
Male	22	17	39
Female	8	13	21
Total	30	30	60

$\chi^2=1.82$ and D.F.=1 $p=2.71$ (at0.10)
 $\chi^2 < p$ → insignificant group difference. Hence equal sex distribution.

Table 11: Classification on level of UCB on 3th day of Rx: -

Patient's Group	2 mg	4 mg	6 mg	8 mg	10 mg	12 mg	14 mg	16 mg	18 mg	20 mg	22 mg	Total
Trial	1	2	2	6	6	4	4	2	0	3	0	30
Control	0	0	5	6	11	7	2	1	1	0	1	30
Total	1	2	7	12	17	11	6	3	1	3	1	60

Table 12: Classification on level of UCB on 6th day of Rx: -

Patient's Group	0 mg	2 mg	4 mg	6 mg	8 mg	10 mg	12 mg	14 mg	16 mg	Total
Trial	2	5	11	4	4	3	0	1	0	30
Control	0	1	10	4	7	4	2	1	1	30
Total	2	6	21	8	11	7	2	1	1	60

t-test applied to the difference values of UCB on 1st day & 6th day for assessment of velocity of fall in both groups.

t=3.1 D.F.=58; p= 2.66 (at0.01)

As t>p; →fall in TSB is significant to in trial group.

Table 13: Trial group: -

Inference- effect on Complete recovery		inference- effect on PEAK		inference- Effect on slope	
TSB(1-6)	UCB(1-6)	TSB(3-1)	UCB(3-1)	TSB(3-6)	UCB(3-6)
8.12	7.77	-5.85	-5.72	2.27	2.05
7.3	7.51	-3.33	-3.38	3.97	4.13
13.08	12.71	-11.66	-11.61	1.42	1.1
5.9	6	-0.9	-1.82	5	4.18
10.53	10.02	-4.56	-4.87	5.97	5.15
10.7	11.6	-8.5	-8.5	2.2	3.1
1.1	1.4	8	8.6	9.1	10
-0.5	-1.4	0.1	-2.8	-0.4	-4.2
5.2	6.1	-4.1	-4	1.1	2.1
4	3.3	1.8	1.1	5.8	4.4
20.7	19.5	-14	-14.7	6.7	4.8
6	5.4	1	1.2	7	6.6
8.1	8.74	-4.3	-3.7	3.8	5.04
6.7	5.02	-1.2	-0.9	5.5	4.12
7.8	7.6	-5	-4.8	2.8	2.8
3.2	2.8	-0.9	-0.4	2.3	2.4
1.2	1.5	0.9	0.8	2.1	2.3
10.6	11.26	-0.6	-1.26	10	10
6.3	6.81	7	6.42	13.3	13.23
8.49	8.76	-0.37	-1.09	8.12	7.67
5.6	4.89	3.4	3.16	9	8.05
9.3	7.5	1.2	2.63	10.5	10.13
8	6.46	1.7	2.56	9.7	9.02
8.14	7.04	-5.2	-3.79	2.94	3.25
9.4	7.16	-6.3	-5.72	3.1	1.44
6	4.2	4.1	5.73	10.1	9.93
5.5	6.7	-1.9	-2.87	3.6	3.83
11.9	11.72	-4.5	-4.74	7.4	6.98
10	10	3.1	2.96	13.1	12.96
4.8	4.7	4.3	5.5	9.1	10.2

Effect on complete recovery:

t-test applied to the difference values of TSB on 1st day & 6th day for assessment of velocity of fall in both groups.

t=3.37 D.F.=58; p= 2.66 (at 0.01)

As t>p; →fall in TSB is significant in trial group.

t-test applied to the difference values of UCB on 1st day & 6th day for assessment of velocity of fall in both groups.

t=3.1 D.F.=58; p= 2.66 (at0.01)

As t>p; →fall in TSB is significant to in trial group.

Table 14: Control group: -

Inference- effect on Complete recovery		inference- effect on PEAK		inference- Effect on slope	
TSB(1-6)	UCB(1-6)	TSB(3-1)	UCB(3-1)	TSB(3-6)	UCB(3-6)
6.7	8.73	-0.1	-1.7	6.6	7.03
4.7	3.6	-1.9	-0.5	2.8	3.1
6	5.86	-4.8	-5.76	1.2	0.1
-4.6	-4.64	3.7	3.54	-0.9	-1.1
4.5	4.13	1.8	2.68	6.3	6.81
2.8	2.59	-0.3	0.01	2.5	2.6
2.7	2.81	7.8	7.06	10.5	9.87
4.65	4.5	-5.5	-5.4	-0.85	-0.9
5.7	5.5	0	0.28	5.7	5.78
5.7	6.3	4	3.35	9.7	9.65
0.7	0.34	-0.4	-0.39	0.3	-0.05
2.9	2.65	-0.2	-0.73	2.7	1.92
-1.3	-2.26	0.6	0.98	-0.7	-1.28
3.8	2.68	8.7	9.2	12.5	11.88
6	5.95	2.5	2.69	8.5	8.64
4.9	5.76	-3.5	-4.43	1.4	1.33
7.9	7.3	-2.2	-2.99	5.7	4.31
6.1	6.26	-2.4	-2.36	3.7	3.9
2	1.85	0	-0.49	2	1.36
1.7	2.56	-0.3	-1.04	1.4	1.52
5.8	5	-6.7	-7.24	-0.9	-2.24
1.2	1.11	1.4	0.91	2.6	2.02
11.7	11.32	-3.98	-3.98	7.72	7.34
3.8	3.09	-0.3	-1.24	3.5	1.85
1.6	3.55	-2.8	-3.64	-1.2	-0.09
4.2	5.19	0.7	0.11	4.9	5.3
5.6	5.1	1.3	1.86	6.9	6.96
10.6	10.44	-4.5	-4.8	6.1	5.64
-7	-5.6	12	11.9	5	6.3
8.74	8.32	-2.56	-2.5	6.18	5.82

Effect on PEAK:

t-test applied to the difference values of TSB on 1st day & 3rd day for PEAK evaluation in both groups.

t=1.36 D.F.=58; p= 2.66 (at 0.01)

As t<p; →Effect on PEAK of TSB is insignificant in trial group.

t-test applied to the difference values of UCB on 1st day & 3rd day for PEAK evaluation in both groups.

t=1.27 D.F.=58; p= 2.66 (at 0.01)

As t<p; → Effect on PEAK of UCB is insignificant in trial group.

Effect on SLOPE:

t-test applied to the difference values of TSB on 3rd day & 6th day for evaluation of effect on SLOPE in both groups.

t=1.93 D.F.=58; p= 2.66 (at 0.01)

As t<p; →Effect on slope of TSB is insignificant in trial group.

t-test applied to the difference values of UCB on 3rd day & 6th day for evaluation of effect on SLOPE in both groups.

t=1.68 D.F.=58; p= 2.66 (at 0.01)

As t<p; → Effect on slope of UCB is insignificant in trial group.

Table 15: Classification on the basis of activity on 1st day of Rx:

Group	-	+	++	Total
Trial	27	3	0	30
Control	29	1	0	30
Total	56	4	0	60

Table 16: Classification on the basis of activity on 3rd day of Rx:

Group	-	+	++	Total
Trial	21	9	0	30
Control	20	9	1	30
Total	41	18	1	60

Table 17: Classification on the basis of activity on 6th day of Rx:

Group	-	+	++	Total
Trial	1	17	12	30
Control	2	20	8	30
Total	3	37	20	60

Table 18: Classification as per H/o assault in perinatal period: -

Group	Fever	miBA	moBA	mssl	Oxytocin	No assault	Total
Trial	6	4	1	5	4	14	34
%age	17.65	11.76	2.94	14.70	11.76	41.17	
Control	10	5	3	7	5	6	36
%age	27.77	13.80	8.33	19.44	13.88	16.66	
Total	16	9	4	12	9	20	70

DISCUSSION

The treatment has high significance with 99% effectiveness. While treating neonatal jaundice by *Triphala kashaya with madhu* we observed the following inferences.

1) Age:- Ref. Table No. 1.

66% of patients were developed jaundice on 4th day of age with SBL as high as 22 mg% irrespective to non-physiological or physiological.

2) Sex:- Ref. Table No. 2.

Both trial and control group has male sex patients in preponderance over female stating hyperbilirubinaemia's greater affection in male neonates. There are 65% male patients & 35% patients are of female sex.

3) As per Upashaya and Anupashaya:- Ref. Table No. 3.

It is concluded that both group received phototherapy so SBL of patient felled considerably. But the patients of trial group have greater decrease in fall.

The status of *Upashaya* is judged by fall in SBL. If it is > 1 then *alpa*, >5 mg then *madhyam* and if it is >10 mg % then it is *Uttam Upashaya*.

- a. Overall 33.33% patient relived as *alpa Upashaya*, from it 62% are from trial group and 38% are from control group.
 - b. 45% cases are relived as *Madhyam Upashaya*, from it 62% are from trial group and 38% are from control group.
 - c. 15% cases relived as *Uttam Upashaya* out of which 77% are from trial group and 23% are from control group.
 - d. 6.6% patient are without relief out of which 75% are from control group and 25% from trial group.
- 4) When we correlates skin color examination on 1st day. There are 63.33% patients with skin color by Krammer's Rule in Trial group and 53.33 patients in control group. On 3rd day of treatment – 50% patients have skin colour 15 mg% in trial group and 43.33% have 15 mg % control group.

On 6th day of treatment 73.33% patients have 5mg % approximate skin colour in trial group and 60% have 5mg% approx skin colour in control group.

- 5) The overall effect of treatment is assessed by TSB level analysis for that the observations on 1st day and 6th day are subtracted from each other. The value remained is denoted x_1 for trial group and x_2 for control group and unpaired 't' test applied which after solving stated that the difference is highly significant. The values are included in master chart.
- 6) The effect on peak development is assessed by subtracting 1st value from 3rd day value and applying unpaired 't' test for it. There is no significance. The values are included in observation chart.
- 7) Unpaired 't' test is applied to 'UCB' level also and by subtracting the values as processed previously with TSB. There is no significance. The values are included in observation chart.
- 8) The effect on slope is assessed by subtracting 6th value from 3rd day value and applying unpaired 't' test for it. There is no significance. The values are included in observation chart.
- 9) Unpaired 't' test is applied to 'UCB' level also and by subtracting the values as processed previously with TSB. There is no significance. The values are included in observation chart.

These Observations States That:-

- a. *Triphala* is effective in neonatal hyperbilirubinaemia with combination to phototherapy. The fall in TSB is enhanced as compared to control group. The fall seems to be in significant by unpaired 't' test with level 0.01% (i.e. 99%).
- b. Development of peak on middle of treatment is also hampered in trial groups. It states that there is continuous fall in TSB within treatment period.

- c. Same results are stated on unconjugated values. No effect seen on conjugated fraction of bilirubin drastically. It may be due to continued unconjugated bilirubin load on hepatocytes making excessive conjugation. The fall in unconjugated bilirubin may be increased as there is cut off of enterohepatic circulation.
- d. Neonates tolerate well the treatment. No sign of dehydration observed. No e/o vomiting; aspiration; pneumonitis; observed during treatment span.

CONCLUSION

1. When the Phototherapy & *Triphala Kashaya* with *Madhu* was given for consecutive 6 days in selected cases, it was found that it is very effective for the treatment of *Bahupitta kamala* (jaundice) of neonates.
2. The effect of only Phototherapy for consecutive 6 days was lower in comparison with the cases who received the Phototherapy & *Triphala Kashaya* with *Madhu*. The cases of both groups have their significant effect; however the effect of trial group is higher than control group because of *yakrittotejak srotoshodhak* effect of *Triphala*.
3. *Triphala* decreases total serum bilirubin and do not make it to rise in later days within treatment. This decrease is may be due to suppressed enterohepatic recirculation. Hypolipidemic activity of *Triphala* may be useful as the increased lipids causes depletion of Albumin bound bilirubin.

REFERENCES

1. Charak-Samhita, Charak Chandrika Hindi Commentary By Bramhanand Tripathi, Edition 2012, Choukhamba Prakashan Cha.Sha. 8/65 (page no. 981)
2. Charak-Samhita, Charak Chandrika Hindi Commentary By Bramhanand Tripathi, Edition 2012, Choukhamba Prakashan Cha. Chi. 16 (page no. 596)
3. Kashyapa samhita , satyapal bhashagacharya, reprint 2008, choukhamba prakashan, ISBN 81-86937-67-6 ka. Su. 25 (page no. 35).
4. Kashyapa samhita , satyapal bhashagacharya, reprint 2008, choukhamba prakashan, ISBN 81-86937-67-6 ka. kalpa. Revatikalpa (page no. 193).
5. Vd. Ramgopal shastri, Vedon mein ayurved, 1 st edition 1956, madanmohan publication, (page no. 111)
6. John p cloherty, manual of neonatal care, 5 th edition 2004, Lippincott Williams publication. (page no.185)
7. Behrman et al , Nelson textbook of pediatrics, 17/e edition 2004 ISBN 81-8147-069-9 (page no. 593).
8. Charak-Samhita, Charak Chandrika Hindi Commentary By Bramhanand Tripathi, Edition 2012, Choukhamba Prakashan Cha. chi. 16/62 (page no. 602)

Source of support: Nil, Conflict of interest: None Declared