



ORIGINAL RESEARCH ARTICLE

A RCT OF BALATAILA ABHYANGA VERSUS COCONUT OIL MASSAGE IN PHYSIOLOGICAL TRANSITION OF NEWBORN

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ABSTRACT

Background: Newborn care is of immense importance for the proper development and healthy life of a baby. Neonatal health is undoubtedly one of the most significant health challenges facing the developing world. After the birth the baby rely on external help and needs to adjust to live outside the womb & to develop a sense of security in newborn *abhyanga* is essential. It helps to prepare their bodies for movement and for relaxation. Ayurvedic classics explain the procedure of *Balataila abhyanga* in the management of newborn and explain that procedure of *abhyanga* can be practiced daily for newborn routine care. **Objectives:** To compare the *Bala taila abhyanga* and coconut oil massage in newborns **Methods:** Healthy full term newborns are selected and enrolled in two groups by block randomization method. Study group (Group A) for *Bala taila abhyanga* followed by *panchavalkala kwatha* snana and control group (Group B) were massaged with coconut oil followed by plain hotwater bath from 24hrs of birth to 7 day of life and followed up at 1 ½ month, 2 ½ month and 3 ½ month of baby age. Assessment was done by using parameters like systolic BP, Diastolic BP, respiratory rate, heart rate and weight. **Results:** Initially after first 7 days of therapy there were significant results in BP, HR in both groups but significant weight gain observed in group A. At follow ups when compared to both groups significant changes in respiratory rate and diastolic BP. Heart rate and weight remain insignificant. **Conclusion:** the effect of *bala taila abhyanga* and coconut oil massage in early newborn period is effective in physiological maintenance of HR and BP but significant weight gain in *abhyanga* group. Helped in preventing physiological weight loss. At the first and second follow up significant change in respiratory rate and at third follow up in diastolic BP. It can be inferred that the therapy may helped until the massage has been practiced.

Key words: Baby massage, *Balataila*, oil massage, coconut oil.

INTRODUCTION:

Infants between birth and first 28 days of life are called newborn babies or neonates that period truly constitute the foundation of human life.¹ Infants constitute 2.92% of the total population in India. Although the chance of survival of these newborns

has improved by 50% in the last 20 years, the first few hours, days and months of their lives are still an obstacle race.² About 40% of total infant mortality occurs in the first month of life the first week of life is the most crucial period in the life of an infant. In India 61.3% of all infant deaths occur

within the first month of life.³ Out of these, more than half may die during first week of birth. This is because the newborn has to adopt itself rapidly and successfully to an external environment. The risk of death is the greatest during the first 24-48 hours after birth.⁴ In some classics there is reference of the procedure of *balataila abhyanga* followed by *panchavalkala kwata snana* in newborn care, also determines the benefits of *abhyanga* in newborn care.⁵

Abhyanga is said to be the measure of gentle massage of oil all over the body followed by full bath.⁶ The body of newborn is smeared with medicated oil called *balataila* and gentle massage is given to the child. The procedure of *abhyanga* will alleviate the vitiation of *vata dosha*, occurred during the child birth.⁷ *Vata* is predominant in the skin, the oil- anointing is the best for skin, so one should adhere to it habitually, by resorting to anointing daily the body will have good tactile stimulation and good strength.

During delivery while passing through the birth canal the baby may experience exertion, to relieve such stress and strain, to promote good circulation, *abhyanga* is done.⁸ Neonatal massage has been a traditional practice in India and other neighboring countries. Massage therapy has been shown to improve the skin barrier function.⁹ There is reference of usefulness of *bala taila*, its ingredients and method of preparation and procedure of preparation of *bala taila*.¹⁰ Oil massage of newborns is reported to improve weight gain by better thermoregulation.¹¹ It gives the feeling of security and soothing experience both to the mother and the baby.¹²

MATERIAL AND METHODS

Study Design: A randomized controlled clinical study (unblind)

Trial Drug Details: Bala taila B.R. 26/273-283

Ingredients of Panchavalkala Kvatha

Drug	Latin name	Part	Quantity
Vata	<i>Ficus</i>	Stem	1 part
Ashwatha	<i>Ficus religiosa</i>	Stem	1 part
udumbara	<i>Ficus racemosa</i>	Stem	1 part
Plaksha	<i>Ficus lacor</i>	Stem	1 part
Parisha	Thesposia	Stem	1 part

Method of preparation:

The drugs that are to go into the composition of particular kwatha choorna are taken and cleaned. They are completely dried and powdered separately and then mixed. Choorna was coarse, Then 16 parts of water was added and boiled the mixture on mandagi (low flame). The decoction thus prepared was filtered and be made used within 24 hours after it has cooled

Study sample: The newborn babies will be selected from Neonatology department of *kaumarabhritya*, Belgaum

Sample size: 60 newborn babies

Ethics committee approval letter no: IEC 11 PG-KC 08

Inclusion Criteria:

- The normal newborn babies with more than 36 and less than 40 weeks of gestation
- Informed consent from parent prior to delivery
- Born by normal vaginal route and LSCS
- Expected fetal weight more than or equal to 2500 gm.
- With low risk pregnancy

Exclusive Criteria:

- Antenatal complications in mother (diabetes, hypertension, etc.)
- Complications during labor
- Preterm gestation
- Presence of meconium in the liquor
- Presence of congenital anomalies
- Requiring immediate NICU care
- Requiring bag and mask/ intubation during resuscitation
- If the baby develops any of the complications like respiratory distress, septicemia, pathological and exacerbated physiological jaundice etc. then it will be excluded from the study.

Grouping:

Balataila Group: The babies of this group were treated with *Balataila abhyanga* followed by *Panchavalkala kwatha snana* for 7 days daily once for 15 min.

RESULTS:

Coconut oil Group:

The babies of this group were treated with Coconut oil massage followed by hot water bath for 7 days daily once for 15 min.

Follow Up and Duration:

First Follow Up (At 1 ½ month of age): Blood pressure, Heart rate, respiratory rate and weight were recorded

Second Follow Up (At 2 ½ month of age): Blood pressure, Heart rate, respiratory rate and weight were recorded

Third Follow Up (At 3 ½ month of age): Blood pressure, Heart rate, respiratory rate and weight were recorded

Assessment Criteria:

- 1) Blood pressure
- 2) Respiratory rate
- 3) Heart rate
- 4) Weight

Table.1. effect of *Bala taila* group 2nd day of life- 7th day of life

	Systolic BP	Diastolic BP	HR	RR	Weight
Mean BT	69.23333	51.6	148	49.4	2961.667
Mean AT	64.7	49.36667	125.2	47.13333	3058.5
Mean of differences	-4.533	-2.233	-22.80	-2.267	96.83
SD	8.488	9.332	6.467	9.120	109.9
SE	1.550	1.704	1.181	1.665	20.07
P value	0.0066	0.2002	< 0.0001	0.1839	< 0.0001
P value summary	**	Ns	****	Ns	****

Significantly different (P < 0.05)	Yes	No	Yes	NO	YES
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Table 2: effect of coconut oil group from 2nd day of life- 7th day of life

	Systolic BP	Diastolic BP	HR	RR	Weight
Mean BT	71	51.66667	145.7	49.76667	2823.667
Mean AT	63.8	47.93667	125.8	50.2	2856.667
Mean of differences	-7.267	-3.567	-19.90	0.4333	33.00
SD	12.80	9.069	8.181	10.63	164.5
SE	2.337	1.656	1.494	1.941	30.00
P value	0.0042	0.0397	< 0.0001	0.8249	0.2808
P value summary	**	*	****	Ns	Ns
Significantly different (P < 0.05)	Yes	Yes	Yes	NO	NO

Table 3: Showing the effect of Balataila and Coconut oil on respiratory rate

1 st follow up	Systolic BP	Diastolic BP	HR	RR	Weight
Mean ± SE of Group A	1.700 ± 1.772	0.8667 ± 1.769	16.90 ± 1.299	8.700 ± 0.9324	384.8 ± 43.67
Mean ± SE of Group B	1.067 ± 1.457	1.067 ± 1.457	17.40 ± 1.665	12.03 ± 1.196	395.3 ± 59.79
Difference in Mean	0.6333 ± 2.293	0.2000 ± 2.291	0.5000 ± 2.112	3.333 ± 1.517	10.50 ± 74.04
P value	0.7834	0.9307	0.8137	0.0320	0.2093
P value summary	Ns	Ns	Ns	*	Ns
Significantly different? < 0.05)	No	No	No	Yes	No

Table 4: Showing the effect of Bala taila and Coconut oil on respiratory rate

2 nd follow up	Systolic BP	Diastolic BP	HR	RR	Weight
Mean \pm SE of Group A	2.833 \pm 1.489	0.4333 \pm 1.463	17.70 \pm 1.055	12.20 \pm 0.9889	840.5 \pm 52.73
Mean \pm SE of Group B	2.833 \pm 1.489	0.7000 \pm 1.128	18.33 \pm 1.675	15.37 \pm 1.138	743.0 \pm 55.84
Difference in Mean	0.700 \pm 1.985	1.133 \pm 1.847	0.6333 \pm 1.979	3.167 \pm 1.508	97.50 \pm 76.80
P value	0.7257	0.5419	0.7502	0.0401	0.2093
P value summary	Ns	ns	ns	*	ns
Significantly different? (P < 0.05)	No	No	Yes	Yes	Yes

Table 5. showing the effect of Balataila and Coconut oil on diastolic BP

3 rd follow up	Systolic BP	Diastolic BP	HR	RR	Weight
Mean \pm SE of Group A	1.533 \pm 1.782	2.100 \pm 1.422	16.30 \pm 1.701	5.320	1410 \pm 86.46
Mean \pm SE of Group B	3.500 \pm 2.202	2.867 \pm 1.544	18.27 \pm 1.679	0.9713	1263 \pm 87.14
Difference in Mean	1.967 \pm 2.833	4.967 \pm 2.099	1.967 \pm 2.390	11.90	147.2 \pm 122.8
P value	0.4903	0.0213	0.4140	0.0870	0.2354
P value summary	Ns	*	Ns	ns	ns
Significantly different? (P < 0.05)	No	Yes	No	No	No

DISCUSSION:

Newborn care is one of the important basic care and massage has been practiced in the past and present. It is effective and economically cheaper method is essential considering the economic status of the individuals. Prevention of neonatal morbidity is also a factor that has to be born in mind.

Discussing the classical texts of *Ayurveda*, the care of newborn includes *abhyanga*, *snana*, *jatakarma* etc, as part of routine care of newborn. *Snehana* (oleation) brings softness in the skin of body. *Snehana* in the form of *Abhyanga* is one of the

most important procedures practiced till today from the days of Ancient *Acharyas*. *Ayurveda* has given more stress on the preservation of the health and curing the disease. To get a perfect physical and mental health, it is essential to follow a prescribed regimen everyday which includes personal hygiene, care of various organs and exercise. Due to *abhyanga* skin becomes soft, beautiful and increases strength and reduces stress. *Balataila* is the best *vata shamaka*

Discussion on Systolic BP:

In group A the mean score was increased by 4.5% i.e. the results were significant ($P < 0.0066$). This shows that ingredients of *Balataila Yava, agaru* by virtue of their *lekhana* properties removes unwanted depositions from skin, enters *sookshmasrotas* (minute channels). In group B the mean score was 7.2% which was also statistically significant ($p < 0.0042$) this shows that coconut oil penetrates easily into the skin and cause vasodilatation.

Discussion on Diastolic BP

In group A the mean score was increased by 2.2% i.e. the results were significant ($P < 0.0066$). This shows that *Balataila* by virtue of its *sukshmaguna* the medicated oil can enter even the subtle structures as it is lipid soluble hence clears the *srotas* (channels). In group B the mean score was 3.5% which was also statistically significant ($p < 0.0397$). This shows that by painless, gentle and no forceful technique has been believed to provide relaxation and therefore able to maintain normalcy.

Discussion on Weight

In group A the mean score was increased by 96.83% i.e. the results were significant ($P < 0.0001$). The weight gain velocity over 7 day period was significantly higher. This shows that *guru, snigdha* properties of *Balataila* may take care of *dhatupushti*. *Jeevaneeya* (life promoting action) *gana dravya* indicative of their capability to bring out cell division i.e. they generate the healthier tissues. *Abhyanga* increases in vagal activity, which in turn may lead to increased gastric motility and thereby weight gain.¹³ In group B the mean score was 33.0% which was not statistically significant ($p < 0.2808$) Coconut oil contains short and medium chain fatty acids, improves digestion and helps to gain weight.

Discussion on Heart rate

In group A the mean score was increased by 22.80% i.e. the result were significant ($P < 0.0066$). This shows that being ingredient of *Balataila, Saindhav lavana* is *srotoshodhaka* and may help for the generation of healthy impulses. In group B the mean score was 19.90% which was highly significant ($p < 0.0001$). Significantly higher as compared to group A. This shows that coconut oil massage increases the blood flow and stroke volume of heart

Discussion on Respiratory rate In group A the mean score was increased by 2.2% i.e. the results were significant ($P < 0.0066$). This shows that *Balataila* contains *Go-dugdha* has the property of *jeevana* i.e. it will supply essential requirements, oxygen and nutrients etc. to all the vital tissues by improving the posture and encourages deep breathing and gas exchange.¹⁴ In group B the mean score was 0.4% which was also statistically significant ($p < 0.8249$) This shows that coconut oil contains Lauric acid gives vital immune building properties in baby.

Effects of therapies:

Group A: (During 7 days of therapy)

It can be inferred from this data that *Balataila* has pronounced effect in systolic Blood pressure ($P < 0.0066$) good weight gain ($P < 0.0001$)

Group B: (During 7 days of therapy)

Newborns in group B also showed that highly significant from this data that Coconut oil has pronounced effect in systolic BP ($P < 0.05$), Diastolic BP ($P < 0.05$) and heart rate ($P < 0.0001$)

Group A and B (During 7 days of therapy)

It can be inferred that the *abhyanga* with *Balataila* and *snana* with *Panchavalkalakwatha* is superior to Coconut oil massage and plain hot water bath so far

as other parameters like Systolic and diastolic BP, HR and RR are concerned, changes remains insignificant.

Group A and B at first follow up:

The results of trials of group A when compared with the trials of group B at first follow up shows highly significant improvement in weight ($P < 0.05$). Among the newborns of group A in comparison to newborns of group B, it can be inferred that the *abhyanga* with *Balataila* is superior to Coconut oil massage so far as other parameters like Systolic and diastolic BP, HR and RR are concerned, changes remains insignificant.

Group A and B at second follow up:

The results of trials of group A when compared with the trials of group B at second follow up shows highly significant improvement in HR, RR and weight. Among the newborns of group A in comparison to newborns of group B, it can be inferred that the *abhyanga* with *Balataila* is superior to Coconut oil massage so far as other parameters like Systolic and diastolic BP are concerned, changes remains insignificant.

Group A and B at third follow up:

The results of trials of group A when compared with the trials of group B at third follow up shows highly significant improvement in diastolic BP, HR, RR and weight. Among the newborns of group A in comparison to newborns of group B, it can be inferred that the *abhyanga* with *Balataila* is superior to Coconut oil massage so far as other parameter like Systolic BP are concerned, changes remains insignificant.

Overall effect:-

On analysis of physiological measures, there was statistically significant difference between *Balataila* and coconut oil at 7 day period in weight gain i.e. reduction of physiological weight loss. There was no

significant difference in weight at follow ups, though babies in the *Balataila* group had a better weight gain velocity as compared to the coconut oil group, the difference was not statistically significant.

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