



**A CLINICAL STUDY “TO COMPARE THE EFFECT OF *BALA (KSHEERBALA) TAILA ABHYANGA* AND *TIL TAILA ABHYANGA* IN LOW BIRTH WEIGHT BABIES”**

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**ABSTRACT**

Low birth weight is associated with increased morbidity, physical and developmental retardation and reduced survival and quality of life. *Ayurveda* describes that low birth weight like conditions are caused by *Vaata prakopa* and undernutrition in utero under the different headings. *Ayurveda* prescribes *Abhyanga* (oil massage) in neonatal care, known for positive health effect in infants? Hence to compare the effect of *Bala Taila* and *Til Taila* study was conducted. Both groups received *Abhyanga* after birth up to 28 days. Anthropometric parameters were measured before and after treatment. Both groups showed equal change in parameters. No adverse events were noted.

**INTRODUCTION**

Low birth weight is a hard social indicator<sup>1</sup>; as birth weight is the single most important marker of adverse perinatal, neonatal and infantile outcome. Over 80% of all neonatal deaths occur among the LBW babies. Low birth weight is associated with increased morbidity, physical and developmental retardation and reduced survival and quality of life. In India, its incidence is about 25-35% i.e. 6-8 million LBW infants are born annually.<sup>[2]</sup>

*Ayurveda* describes that low birth weight like conditions are caused by *vata prakopa* and undernutrition in utero under the different headings like *Garbhashosha*, *Yamagarbha*, *Upavishtaka/ Nagodar*, *Garbhopaghatkar Bhava*, *Apurna Divas Prasav* etc.<sup>[3]</sup>

*Ayurveda* has described neonatal and infant care in details. Many of its regimes are for prevention of diseases. One of it is *Abhyanga* (oil massage).<sup>[4]</sup> *Abhyanga* in the neonatal and infancy period has been practiced globally. The positive effects studied normal as well low birth weight or preterm infants are better growth, good sleep, better strength, less jaundice and prevention of diseases without any adverse effects.<sup>[5,13,14]</sup> It is also effective against *Vaata*.

The effect of massage is found oil specific.<sup>[6]</sup> *Ayurveda* also describes *Til Taila* (sesame oil) as a best amongst vegetable oils. But *Ayurveda* specifies '*Bala Taila*' for

*Abhyanga* in neonates, instead of *Til Taila*.<sup>[4]</sup> The reasons remain obscure. *Bala* (*Sida cordifolia*), as a name suggests is a drug used to increase strength, promote growth and it is also best in '*Vaatashamana*'.<sup>[7]</sup> Among different *Bala Taila*, *Taila* prepared with only *Bala* with milk also known as *Ksheerbala Taila*<sup>[8]</sup> was selected for its simple formulation. Hence to find efficacy of *Bala (ksheerbala) Taila* over *Til Taila* clinical trial is undertaken and effect have been evaluated.

**MATERIAL AND METHODS**

60 neonates of age group 1-3 days, with Birth Weight in between 1.5 to 2.5 kg, born at Govt. Ayurved College, Nanded were selected for the study with legal consent. They were randomly allotted to both groups A & B. Group A received *Bala Taila Abhyanga* while Group B received *Til Taila Abhyanga*.

Eligible participants included 60 vaginally delivered neonates who were clinically stable and exclusively breast-fed. Neonates requiring parenteral nutrition or any other special medical support were excluded from study.

*Abhyanga* was carried out by research scholar for first 15 minutes  $\pm$  1 minute with 10 ml oil, twice a day, with moderate and light (for chest & abdomen) pressure with straight and circular by research scholar initially then by mother up to 28th day. Procedure was taught to mother during hospital stay. Weight and other anthropometric

parameters were measured with standard procedure before and after study and once a week in between.

Variables such as sex, age, religion, season, socioeconomical status, Ballard score, Ponderal index were observed. Study was approved by Institutional Ethical Committee.

## OBSERVATIONS

**Table 1: Weight of infants (in kg) in both groups.**

Weight gain	Mean	SD	SE	t value	t table	P value
Group A	1.284	0.247	0.045	28.482	2.05	P < 0.05
Group B	1.227	0.181	0.033	36.956	2.05	P < 0.05

**Table 2: Comparison of weight gain in both groups by unpaired t test.**

Weight gain	Mean diff.	Comb SD	SE	t value	t table	P value
Before - After	0.057	0.216	0.056	1.021	2.01	P>0.05

## RESULTS

Both groups were homogenous for the sex wise distribution, age wise distribution, religion wise distribution, distribution according to birth season, distribution according to economical status, as random selection into groups were made. Both the Groups showed significant weight gain. Mean weight gain in both groups was 1.284 Kg & 1.227 Kg respectively with p value less than 0.05. But when compared for weight gain, group with *Bala Taila Abhyanga* showed weight gain of 1.28 kg which is statistically equal to weight gain in the group with *Til Taila Abhyanga* which is 1.22kg. It was supposed that *Bala taila*, which is a combination of *Bala* and *Til Taila*, will augment the effect of *Til Taila* by its growth promoting, *Vaatashamana* and nourishing properties. The present study, do not support this hypothesis.

## DISCUSSION

Low Birth Weight babies who received either *Bala Taila* or *Til Taila* for *Abhyanga* exhibited equal weight gain. This weight gain effect is supposed to be due to following mechanisms. First is prevention of loss of calories by *Abhyanga* and second is nutritive aspect of *Abhyanga*. Oil application conserves internal body heat probably by reducing insensible water losses.<sup>[12]</sup> It also reduces convective heat loss.<sup>[7]</sup> Hence fewer calories are required to maintain body temperature. *Abhyanga* also calms baby and adjusts its behavioral pattern.<sup>[10,13]</sup> Baby can easily adjust its state behaviour and less time is spent in crying. Although crying is a necessary and very adaptive behavioural state, it can be detrimental if prolonged or frequent. This can magnify the energy expenditure of an infant by as much as 200%.<sup>[10,11]</sup> Hence adjusted behaviour will conserve this energy expenditure. Topically applied oil can be absorbed in neonates and is probable available for nutritional purposes.<sup>[12]</sup> Massaged oil can be absorbed percutaneously to significant degrees in the newborn. Weight gain due to *Abhyanga* is related to change in vagal tone during the massage and changes in gastric motility. Stimulation of vagal activity leads to more

## Statistical analysis

The data were analyzed using Chi-square test for data analysis of qualitative variables and mean values were compared using independent Student t-test. Differences were considered significant at p-values of less than 0.05.

efficient food absorption through increased gastric motility and the release of food absorption hormones such as insulin.<sup>[14,15]</sup>

It was supposed that *Bala Taila*, which is a combination of *Bala* and *Til Taila*, will augment the effect of *Til Taila* by its growth promoting, *Vaatashamana* and nourishing properties. The present study, do not support this hypothesis.

This study can be made more impressive and correct by taking third group, which should not receive *Abhyanga*, to obtain the normal growth curves for the demographical area. But it is not ethical, as *Abhyanga* is a part of tradition and already has shown many positive effects.

## CONCLUSION

Low birth weight is associated with increased mortality, morbidity and complications. As per *Ayurveda*, Low birth weight is *Vaata Pradhan* and caused by under-nutrition. *Abhyanga*, described in neonatal care, is useful in *Vaatashaman* and gives nourishment to tissues. *Abhyanga* is useful to promote growth in low birth weight babies. And this effect is similar for *Bala Taila Abhyanga* and *Til Taila Abhyanga* for given parameters.

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