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CLINICAL EVALUATION OF KIRANTHY OIL IN THE PREVENTION OF KIRANTHY DISEASE AMONG CHILDREN UNDER ONE YEAR OF AGE

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ABSTRACT

Kiranthy is a common pediatric disorder observed during the period of the first three months (Kapuparuvam) in infants. According to Siddha medical literature, it is traditionally classified into two types: Senkiranthy (red) and Karunkiranthy (black), both of which are associated with birth-related hypoxia. Among Tamil community mostly in Northern and Eastern provinces of Sri Lanka, Kiranthy oil has been used as a traditional preventive remedy, although its efficacy has not been scientifically validated. Objective: To evaluate the effectiveness of Kiranthy oil in preventing Kiranthy disease among infants under one year of age. Methods: A descriptive cross-sectional study was conducted in two selected Medical Officer of Health (MOH) divisions. A total of 600 infants were enrolled. Data were collected through a structured questionnaire administered to mothers. Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medicine, University of Jaffna. Statistical analyses included the calculation of Odds Ratio (OR), Relative Risk (RR), and p-values to determine significance. Results: A strong positive association was identified between Kiranthy diet intake by pregnant mothers and the incidence of Kiranthy disease in infants, with a Relative Risk (RR) of 6.52, indicating significantly higher risk. Additionally, infants who received Kiranthy oil application showed a statistically significant reduction in disease incidence ($p = 0.05$). Conclusion: This study provides preliminary scientific evidence supporting the traditional use of Kiranthy oil for the prevention of Kiranthy disease. The findings suggest that Kiranthy oil plays a significant protective role in early pediatric care within the Siddha medical system. Further controlled studies are recommended to confirm and expand upon these findings.

Key words: Kiranthy, Relative Risk, Siddha medical

INTRODUCTION

Kiranthy is a pediatric disorder mentioned in Tamil folk medicine, associated with symptoms like restlessness, sleep disturbances, bloating, inconsolable crying, and sometimes febrile episodes. Traditional Siddha and village medical practices emphasize prevention through dietary regulation and topical oil applications. Kiranthy oil is applied externally to regulate body heat and promote neuromuscular health. Siddha texts emphasize that Kiranthy occurs immediately after birth, and describe it under the category of illnesses originating in utero (Karuvil Thondrum Noigal) and manifesting soon after birth (Murugesamuthaliyar, 2007). Kiranthy is a common disorder observed in infants. It refers to an inflammation of the infantile skin, typically affecting the scalp and body (Ponnaiah, 1936).According to the Siddha system, the cause of Kiranthy lies in the imbalance of the three fundamental humours – Vaatham, Pitham, and Kabam, occurring due to maternal dietary and

lifestyle irregularities during pregnancy. Siddha places great importance on maternal nutrition and prescribes month-wise herbal interventions to support fetal development. Two variants of Kiranthy – Senkiranthy and Karunkiranthy – are described in Siddha texts. These conditions correlate closely with birth asphyxia and hypoxic-ischemic encephalopathy (HIE) in modern medicine. The classical Siddha text Balavagadam, dedicated to pediatrics, classifies infantile diseases based on age and symptoms, including:

- Karuvil Thondrum Noigal (intrauterine diseases),
- Mantham (gastrointestinal disorders),
- Kanam (respiratory illnesses),
- Karappan (skin disorders).

The lines from classical Siddha literature describe the signs of Senkiranthy in vivid detail:

- "Pillai pirantha udan azuthu, Piragu midaru thanai katti"-Crying immediately after birth followed by a sudden cessation, correlating with primary apnoea – the initial lack of breathing after birth (Rajantheran et al., 2018; Kumar A.S., 2012).
- "Mella poonai kural pondru"-Soft, cat-like cry, suggestive of weak or abnormal neonatal cry, often associated with esophageal atresia or tracheoesophageal fistula, both linked with birth asphyxia.
- "Vidaama neermmalam vayiroothy"-Refers to retention of urine and stools, indicating renal injury or necrotizing enterocolitis, common in asphyxiated neonates.
- "Thulli kai kaal sivaeri"- Describes exaggerated limb movements, possibly reflecting vasomotor instability or peripheral circulatory sluggishness (e.g., acrocyanosis, lividity). These movements may be a fetal response to hypoxic distress.
- "Summa kidakum thanil"-Depicts lethargy, characteristic of progressive neonatal hypoxia. Modern literature confirms that after an initial hyperactivity, reduced or absent motor activity follows in severely asphyxiated infants (Singh, 2004).
- "Kallamanna Senkiranthy Thanaai Kandukolle" -Serves as a clinical caution, urging physicians to retrospectively diagnose Senkiranthy when the described signs are observed.

The second form, Karunkiranthy, presents more severe signs:

- "Muzhanga azhuthu mulai unna"-A vigorous cry followed by refusal to suckle, matches modern signs of central nervous depression in HIE.
- "Moorchai yary mudal vethumbum"-Denotes irritability, jitteriness, and fever, reflecting neurological instability. Elevated temperatures post-hypoxia have been linked with adverse outcomes (Flanaroff & Martin, 2015).
- "Kozhugan thirava vai varatchi Kondey atharam karuperum"- Suggests inability to open eyes, dry lips, and cyanosis, correlating with central cyanosis and dehydration in severely asphyxiated neonates.
- "Azhungi alarum kural kammum"-Indicates a vigorous cry followed by silence, a hallmark of apnoeic episodes.
- "Athiga maaga vayiroothum"-Describes severe abdominal distension, commonly caused by necrotizing enterocolitis, oliguria, or paralytic ileus in birth asphyxia.
- "Puzhungum valikkum karunkiranthy"-Signifies convulsions and spasms, with seizures occurring in nearly 50% of HIE cases within 6–12 hours of birth (Singh, 2004).
- "Polla thenavum pugandranarey"-Refers to poor prognosis, with persistent neurological deficits beyond 7 days often resulting in long-term neuromotor disabilities. In modern neonatology, birth asphyxia results from reduced oxygen (hypoxia) and accumulation of carbon

dioxide (hypercapnia), leading to acidosis and systemic complications:

• Anaerobic metabolism leads to lactic acid buildup.

• Pulmonary vasoconstriction raises pulmonary artery pressure.

• Right-to-left shunting reduces oxygen delivery to vital organs.

• Organ damage affects CNS, cardiovascular, renal, gastrointestinal, hematologic, and dermatologic systems.

Although healthy term infants possess some capacity to withstand transient hypoxia during labor, prolonged or severe asphyxia can exceed this threshold and lead to irreversible damage. The quality of resuscitation and early neonatal management significantly determines outcomes (Kliegman et al., 2015).

Objective

The objective of this study was to evaluate the clinical efficacy and safety of "Kiranthy Oil" in the management of Kiranthy, a common neonatal condition traditionally treated within the Siddha medical system.

Study Design

This was a descriptive clinical study conducted in the Jaffna district, specifically within the Kopay and Manipay MOH divisions. The study adhered strictly to the ethical guidelines of the Faculty of Medicine, University of Jaffna, and was conducted beginning in 1999.The study protocol, including case report forms, regulatory clearance documents, product-related information, and the informed consent form (in Tamil), were submitted to the Ethical Review Committee of the University of Jaffna. Ethical approval was obtained prior to the commencement of the study.

MATERIALS AND METHODS

Inclusion Criteria

A total of 600 infants of both sexes, from birth to one year of age, were enrolled in the study. Inclusion was contingent upon informed consent being provided voluntarily by the parents or legal guardians.

Exclusion Criteria

Infants were excluded from the study if they presented with:

• Severe infections

• Endocrine disorders

• Parental refusal to provide consent

Formulation of Kiranthy Oil

Table 1: Ingredients of Kiranthy Oil

Source: Ola leaf manuscript – Late Dr. Kasthury Muthukkumaru, Jaffna

Serial No.	Botanical Name	Quantity
01	Zingiber officinalis	10g
02	Piper nigrum	10g
03	Costus speciosus	10g
04	Curcuma longa	10g
05	Terminalia chebula	10g
06	Cuminum cyminum	10g
07	Nigella sativa	10g
08	Elettaria cardamomum	10g
09	Pongamia glabra	10g
10	Myristica caryophyllus	10g
11	Acorus calamus	10g
12	Glycyrrhiza glabra	10g
13	Santalum album	10g
14	Coscinium fenestratum	10g
15	Alpinia galangal	10g
16	Quercus infectoria	10g
17	Myristica officinalis	10g
18	Eugenia caryophyllus	10g
19	Anethum graveolens	10g
20	Helicteres isora	250g
21	Carum copticum	
22	Areca catechu	
23	Alpinia galanga (repeated	
24	Onion	

Preparation Method for Herbal Oil

1. Add Gingelly Oil

Pour one bottle of gingelly (sesame) oil into a clean container.

2. Heat the Oil

Place the container on low flame and heat the oil gently.

3. Add Herbal Powder

Once the oil is warm, add the dried herbal powder into the oil while stirring slowly.

4. Remove from Heat

After adding the herbal powder, remove the container from the flame to avoid overcooking or burning the ingredients.

5. Add Ground Onion

While the oil is still warm, add freshly ground onion paste into the mixture.

6. Mix Thoroughly

Stir the mixture slowly and continuously to ensure the onion paste blends well with the herbal oil.

7. Filter the Oil

Allow the mixture to cool slightly, then filter the oil using a clean cloth or strainer to remove any solid particles.

8. Collect and Store

Collect the filtered oil in a dry, clean container and store it in a cool, dark place.

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Study Population and Grouping

• Total infants enrolled: 600

• Group A (Intervention group): 530 infants who used Kiranthy oil

• Group B (Control group): 70 infants who did not use Kiranthy oil

Participant Selection and Consent

• Infants were selected from families residing in the Manipay and Kopay MOH areas.

• Informed consent was obtained from the mothers and grandmothers. They were provided clear instructions on the usage of Kiranthy oil and the importance of regular follow-up.

• The families were informed that the infant would be followed from birth up to one year of age as part of the study.

Data Collection and Monitoring

• A patient information sheet was filled for each infant, documenting demographic and clinical details.

• The researcher conducted regular follow-ups and observations on both groups (users and non-users of Kiranthy oil).

• Observational data included general health status, frequency of illness, skin

condition, growth pattern, and developmental milestones.

Exclusion and Withdrawal Criteria

Certain infants were excluded or withdrawn from the study during the follow-up period due to the following reasons:

1. Change in Kiranthy oil usage status:

Infants initially in the non-user group who started using Kiranthy oil during the follow-up period were withdrawn from the study.

2. Migration out of study area:

Some infants' mothers, after the 42-day puerperium period, moved to other MOH areas (outside Manipay or Kopay), resulting in withdrawal from the study due to follow-up challenges.

These factors were considered as limitations in the study.

RESULTS:

Table -2: Before & After use of Kiranthy oil

	Kiranthy oil use – Number of children		
Weeks	Before Kiranthy disease	After Kiranthy disease	Total
<6	28 (57.2%)	21 (42.8%)	49
7-11	281 (98%)	06 (2%)	287
12-16	160 (93%)	12 (7%)	172
>17	06 (66.7)	03 (33.3%)	09
Total	475 (91.8%)	42 (8.2%)	517

91.8% preventive method 8.2% curative purpose

Table -3: Accurrence of Kiranthy disease in & age groups

Weeks	Number	%
<6	21	22.1
7 -11	06	6.3
12- 17	53	55.8%
18 -23	12	12.6
24 – 29	02	2.1
>30	01	1.0

Table -4 : Food habit with Kiranthy disease

Food habit with Maternal period	Kiranthy disease	No Kiranthy disease
Psidiumguajava(Guava)	59 (62.1%)	36 (27.8%)
Syzygium cumini (Black plum)	26 927.3%)	69 (72.6%)
Ananas comosus (Pineapple)	09 (9.4%)	86(90.5%)
Mangifera indica (Mango)	20(21%)	75 (78.9%)
Solanum melongena (Brinjal)	85 (89.4%)	10(10.5%)
Solanum lycopersicum (Tomato)	80(84.2%)	15(15.7%)
Zea mays (Corn)	51 (53.6%)	44(46.3)
Arachis hypogaea (Pea nut)	51(53.6%)	15(15.7%)
Shrimp	63(66.3%)	13(13.6%)
Crab	59(62.2%)	36 (37.8)
Goat Maton	55 (57.6%)	40(42.1%)
Chicken	68 (71.5%)	27(28.4%)
Beef	38(40%)	57 (60%)
Sardine fish	50(52.6%)	45(47.3%)
Keeri fish	27(28.4%)	68(71.5%)
Pala fish	56(58.9%)	39(41%)
Tin fish	63(66.3%)	32(33.6%)
Dried fish	73(76.8%)	22(23.1 %)
Keliru fish	07(7.3%)	88(92.6%)

Table 5: Association between Kiranthy Diet Intake and Kiranthy Disease

	Existence of Kiranthy	Nonexistence of Kiranthy	Total
Kiranthy Diet Intake	88	307	395
No Kiranthy Diet Intake	7	198	205
Total	95	505	600

Statistical Analysis:

• Relative Risk (RR) = (88 / (88 + 307)) ÷ (7 / (7 + 198))

• RR = 6.52 → This indicates a strong association between intake of the traditional Kiranthy diet and the occurrence of Kiranthy disease. Infants whose mothers consumed the Kiranthy diet were 6.52 times more likely to develop Kiranthy disease compared to those whose mothers did not

Table 11: Association between Kiranthy Oil Usage and Kiranthy Disease

	Existence of Kiranthy	**Nonexistence of Kiranthy**	**Total**
Kiranthy Oil Used	42 (8.1%)	475 (91.9%)	517
Kiranthy Oil Not Used	53 (63.9%)	30 (36.1%)	83
Total	95	505	600

Statistical Analysis:

• Chi-square test with Yates's correction

• Degrees of freedom (df) = 1

• Chi-square (χ^2) = 3.0

• P-value = 0.05 → Result is just statistically significant

DISCUSSION

In Siddha literature, Kiranthy disease in infants is traditionally observed during the Kappuparuvam period, typically within the first three months of life. This classical understanding is supported by the findings of the present study. Notably, a significant 55.8% of infants were affected by Kiranthy disease between 12 to 17 weeks (approximately 3 to 4 months), aligning with the Siddha concept.

The study also revealed a strong correlation between maternal intake of Kiranthy diet and the occurrence of Kiranthy disease in infants. Statistical analysis using Relative Risk (RR) showed a value of 6.52, indicating a strong positive association. This suggests that infants whose mothers consumed a Kiranthy-promoting diet during the postnatal period had a markedly higher risk of developing the disease. Importantly, the use of traditional Siddha-based Kiranthy oil demonstrated statistically significant effectiveness in the prevention of Kiranthy disease. With a p-value of 0.05, the application of Kiranthy oil showed meaningful protective effects against the condition. These findings not only validate the traditional practices in Siddha medicine but also emphasize the scientific

relevance and preventive potential of Kiranthy oil in early infant care.

CONCLUSION

The study reinforces traditional Siddha knowledge regarding Kiranthy disease and its association with maternal diet and infant care. A strong link was observed between maternal Kiranthy diet intake and infant illness, while the use of Kiranthy oil significantly reduced disease incidence. These findings validate the continued use of this oil in postnatal infant care and suggest it as a scientifically grounded preventive measure.

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