

EFFICACY OF AYURVEDIC TREATMENT FOR *KIKKISA*: A SYSTEMATIC REVIEW AND META-ANALYSIS

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ABSTRACT

Introduction: The woman is beautiful thing created in the world. For the cosmetic point of view woman should be taken into care for preventive measures not to develop the disease Kikkisa. Ayurveda offers several formulations for the management of Kikkisa. So the aim of this work was to review and Meta-analyze the effectiveness of different Ayurvedic managements in Kikkisa. **Materials and methods:** Relevant Ayurvedic treatise, text book of Ayurveda, Ayurvedic Pharmacopoeia of India, previous available research work were thoroughly studied along with extensive exploration of various search engines such as Google search, Medscape, Pubmed and other relevant databases using keywords like Kikkisaroga, striae gravidarum etc. Main outcome measures were severity of itching, number, color and length of Kikkisa. These parameters were graded from 0-4 according to severity. Number, color and length were assessed by taking photographs of the affected part. **Results:** Of 19 articles identified, 10 articles were finally selected for review. Of the 10 studies, 07 Randomized and 03 Non Randomized controlled clinical trials on 06 Taila, 02 Ghrit, 02 Lepa, 02 Cream and 01 Ointment with a total of 370 patients were included. Statistically significant results were obtained in favor of most of the Ayurvedic formulations in subjective and objective parameters. **Conclusion:** Among this review study, Karaveera-karanja patra siddha Taila, Kumaryadi Cream, Chandan mrinala Lepa etc. are suggested as the treatment of choice for Kikkisa. No adverse events were observed in all trials.

Key words: Chandan mrinala Lepa, Karaveera-karanja patra siddha Taila, Kikkisa, Kumaryadi Cream

INTRODUCTION:

Kikkisa is a one type of skin ailment that occurs during pregnancy and mentioned in the disorders of pregnancy by the various *Acharyas*. *Acharya Charaka*, Both *Vagbhata*, *Harita*, *Bhela* and their commentators like *Chakrapani*, *Gangadhar*, *Indu*, *Arundatta* and *Jaydev Vidhyalankar* have described *Kikkisa* in the pregnancy disorder. Due to pressure of developing foetus, the *Doshas* reach to the *Hridaya* and produce *Kandu* and *Vidaha*, which develop *Kikkisa*. *Arundatta* gives detail description about the disease. He says that normally in the hip region, breasts region and in abdominal region wrinkle or crease type markings (*Valivishesha*), like

the linear lining marking at that time, which is called *Kikkisa*.¹ Above said causative factors and symptomatology of *Kikkisa* are having a very close resemblance with *Striae Gravidarum* (S.G.) as described in modern texts of obstetrics.² Though it is considered as a common physiological change observed during pregnancy, it gains medical attention as the remnant scars greatly influence the appearance and attitude of the woman. More over it is imperative to avoid unnecessary chemicals during pregnancy as it may cause adverse effects to the fetus. Therefore *Ayurveda* can suggest an alternative choice of treatment with minimal side effects. This review article is aimed to explore ayurvedic approach towards *Striae Gravidarum* and herbal formulations

utilized so far in successful treatment of Striae Gravidarum i.e. *KikkisaRoga*.

METHODOLOGY

Search strategy: The review of literature was carried out in two phases using DHARA portal, Google Scholar, Ayurveda Research Database (ARD) and hand search. Here, the term hand search is meant for searching the articles from cross-references of the articles selected for review and is a process of purposeful selection of articles at the stage of eligibility and inclusion which did not typically undergo the process of identification and screening. Key words used for the purpose of this literature review include “*Kikkisa*,” “*Striae Gravidarum*,” and “*Ayurveda*”. Of 19 articles obtained from allDHARA (n = 02), Google Scholar (n=2), ARD (n=2) and hand search (n = 13), 10 articles were finally selected for this review. This study adopted a narrative review approach instead of a quantitative approach as used in meta-analysis. Hence, no statistical analysis was carried out in this review. Figure 1 is a flowchart showing the selection of articles for this review

Inclusion and Exclusion Criteria: Research works published in only English language were included in the review. Furthermore, original researches were only recruited for the purpose of review which precludes review articles and theoretical research. The studies which did not fall in these categories were excluded from the review.

Data extraction and analysis: In the first phase, the articles were identified based on the objectives of the study. In the second phase, the research works identified on the basis of study objectives were pooled together for the purpose of screening by reading the titles and thereafter the abstracts. Research works were excluded at this stage which was not satisfying the inclusion criteria. After this, the eligible research works were further screened by reading the full texts and, those not meeting the inclusion criteria were excluded. By the end of this process, the eligible full text research works meeting the inclusion criteria were included in the study.

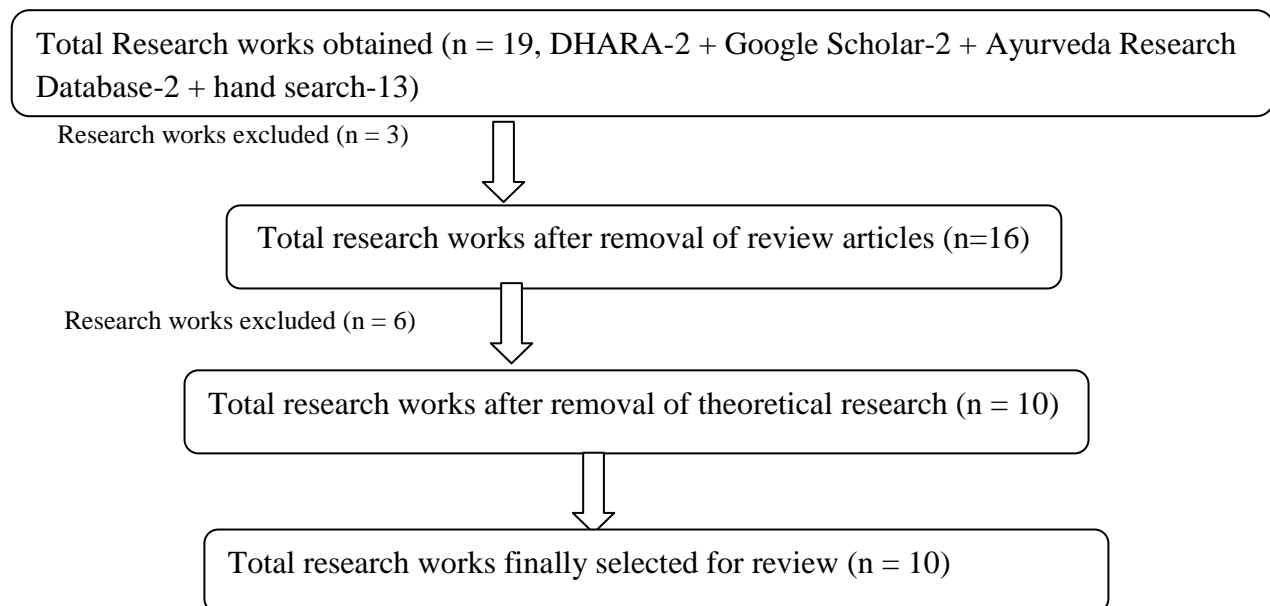


Figure 1: The selection of articles for review

RESULTS

Of 19 articles identified, 10 articles were finally selected for review. Out of 10 studies, 07 Randomized and 03 Non Randomized controlled clinical trials on 06 *Taila*, 02 *Ghrit*, 02 *Lepa* and 02 Cream with a total of 370 patients were included. Out of 10 studies, 3 studies (n=3) were exclusively focused on Primigravidae and the rest 7 studies (n=10) were focused on both Primigravidae and Multigravidae. Statistically significant results were obtained in favor of most of the Ayurvedic formulations in subjective and objective parameters.

Table 1: Studies showing the role of Ayurvedic formulations on Kikkisa

Sr. No.	Author	Journal and YOP	Study type	Methodology	Major outcomes
1	Dr. S. S. Rana, Dr. M.A. Pandya ³	Ayurveda Research Database, 2004	Randomized Clinical trial	Patients age group between 20 – 40 years having classical signs and symptoms of <i>Kikkisa</i> were selected and <i>Kikkisahara</i> ghrita and <i>Kikkisahara</i> Cream treatment was given. Primi Gravidae were selected for preventive treatment and Multi Gravidae and Multiparawere selected for Curative treatment. PREVENTIVE GROUP: Primi Gravidae Patients were selected in this group and therapy was given in between 6 th month to 8 th month of the pregnancy to prevent the occurrence of <i>Kikkisa</i> . CURATIVE GROUP: In this group Multi Gravidae and Multipara were selected and therapy was given to evaluate the curative effect of therapy. PLACEBO GROUP: This group was divided in two sub groups i.e. Group Plp: for the placebo of preventive group and Group Plc: for the placebo of curative group.	Highly significant (P<0.001) results were found in <i>Kandu</i> , <i>Vidaha</i> in <i>Udara</i> , <i>Rekha Swarupa Twak Sankocha</i> (RSTS) in <i>Udara</i> , <i>Vaivarnyata</i> in Preventive and Curative groups. Statistically insignificant (P>0.01) results were found in <i>Kandu</i> , <i>Vidaha</i> in <i>Udara</i> , RSTS in <i>Udar</i> , <i>Vaivarnyata</i> .
2	Jalpa Joshi, Shilpa Donga, Meera Pandya ⁴	AYU 2008 Volume:29 Issue:4;p.260-265	Randomized Clinical trial	64 patients age group between 20 – 45 years having classical signs and symptoms of <i>Kikkisa</i> irrespective of the Gravidae were selected for clinical study, and were randomly divided into three groups. Each group was further divided into two sub-groups i.e. preventive and curative. In group A, 10 gm of <i>SavarnakaraGhrita</i> (Kolambu - decoction and <i>Madhura Oushadhas</i> like <i>Shatavari</i> , <i>Atibala</i> , <i>Gokshur</i> , <i>Yashtimadhu</i> , <i>Priyal</i> , <i>Draksha</i> , <i>Sharkara</i>) was given twice a day for oral administration for two months. In group B,	Comparison between all the groups indicates that <i>Savarnakar</i> Cream (Group-B) has given maximum relief in both preventive and curative aspects and followed by <i>SavarnakarGhrita</i> (Group-A)

				<i>Savarnakara</i> cream (Aqua extract was get from the fresh leaves of <i>Nimba</i> , <i>Sursa</i> , <i>Kola</i> and <i>Manjistha Churna</i>) in sufficient quantity was given for local application twice a day for two months. In group C, wheat flour capsule (500 mg) was given twice with <i>KrishnaMruttikaLepa</i> twice a day for two months.	
3	Kamini Dhiman, Manjusri Sahoo, K.S. Dhiman ⁵	Ayu-Vol. 30, No. 3 (July-September) 2009	Randomized clinical trial	Patients between the age group of 20-40 years having pregnancy between 5-8 months and having classical signs and symptoms of <i>Kikkisa</i> were advised to use 5ml of <i>Karaveer Taila</i> locally on the abdomen as <i>Abhyanga</i> 2 times a day for a period of 2 months. 30 patients were simply randomized to following 2 groups (15 patients in each group). 1. Preventive group (Having no stretch marks) 2. Curative group (Already having stretch marks)	Effect of therapy on various clinical features like <i>Kandu</i> ($p<0.001$) and Colour of <i>Kikkisa</i> ($p<0.001$), No. of <i>Kikkisa</i> ($p<0.01$) and in Length of <i>Kikkisa</i> ($p<0.05$) showed statistically significant result.
4	Pawar Preeti Pralhad, Kadam Sujata, Gaikwad Manoj Vitthal, Shamkuwar Manoj Keshao ⁶	IAMJ:Volume 1;Issue6;Nov-Dec2013	Randomized Clinical trial	Patients who were primigravidae and having abortion before 24 weeks with complaints of striae, with or without symptoms of itching, burning sensation and discoloration were selected. In group A, (n=30) local application i.e. <i>Mrudu Abhyanga</i> (massage) of <i>Darvimadhuk Siddha Taila</i> 1-3 ml twice daily for 3-4 minutes from onset of 7th month of pregnancy till delivery was done. In group B, (n=30) only observation was done without any local application from onset of 7th month of pregnancy till the delivery.	Statistically significant difference seen between group A and Group B i.e. $p<0.0001$ in the symptoms of itching, burning sensation and discoloration.
5	Patel Hemant kumar, Dr Shilpa Donga, Dr Laxmipriya Dei ⁷	Ayurveda Research Database, 2014	Randomized single blind clinical trial	Pregnant women of age group between 20-40 years and having pregnancy from 6 th months onwards. Primigravidae and Multi gravidae and clinically diagnosed and confirmed cases of <i>Kikkisa</i> were selected and randomly divided into two groups: Group A: <i>Kumaryadi</i> Cream and in Group B: <i>Karaviradi</i> Cream approximate 10 gm applied twice a day Local Application on the area of abdomen, thigh and breast (where possibilities of <i>Kikkisa</i> appears) for two months.	In group A, statistically significant results were found in all symptoms like <i>Vidaha</i> , <i>Twakbheda</i> , <i>RSTS</i> and <i>Vairupyata</i> except <i>Kandu</i> . In group B, statistically significant results were found in all symptoms except <i>RSTS</i> and <i>Vairupyata</i> . Comparison between Group A (<i>Kumaryadi</i> Cream) and Group B (<i>Karviradi</i> Cream) a shows that only on <i>Vidaha</i>

					statistically significant occurrence was found in Group B in comparison to Group A while in other symptoms there were not statistically significant differences in occurrence in both the groups
6	Chandel Akanksha et.al. ⁸	Int. J. Res. Ayurveda Pharma, 6(1),Jan-Feb 2015	Non-randomized Clinical trial	30 patients with age group of 20 to 35 years having symptoms of <i>Kikkisa</i> on abdomen in 2 nd and 3 rd trimester were treated with external application of <i>NimbaTaila</i> twice a day before food for two months.	Statistically significant results were obtained in all the subjective and objective criteria such as <i>Kandu</i> (Z-4.882, p 0.001), <i>Daha</i> (Z -4.660, p 0.001), <i>Vaivarnya</i> (discoloration) (Z -4.660, p 0.001), variable area of lesion t = 2.023, P = 0.052 except in width of lesion t = 1.874, P = 0.071 and length of lesion t = 1.564, P = 0.129
7	Dr. Surekha Hiwale et.al. ⁹	World Journal of Pharmaceutical Research, Vol 6, Issue 3, 2017;p.713-722	Randomized Controlled Clinical Trial	Primigravida of Gestational age 24 wks and Second or multi gravida having previous gestation before 24 weeks upto 35 years old were included for study. Group A- Trial Group was given <i>Malati-madhuk</i> Ointment and Group B-Control Group was not given any local application	Itching in group A reduced significantly as per the gestational age than Group B. Abdominal striations in group A were much less than that in group as per the gestational age. Discolouration over abdomen and thigh in group A was significantly less than that in group B. Striations over thigh in group A were much less than that in group as per the gestational age. Symptom <i>Vidaha</i> was found in patients of group A and Patients of group B.
8	Anjumani Deka Kaushalya Khakhlary ¹⁰	Int J Ayu Pharm Chem 2017 Vol. 7 Issue 2	Randomized Clinical trial	A total number of 40 patients, 20 each in Primigravida and Multigravida were taken in the study. The trial drugs <i>KaraveeraTaila</i> and <i>KaraveeraKaranjaPatra Siddha Taila</i> is applied topically over abdominal skin twice daily with soap water by rubbing from 2 nd trimester of pregnancy upto delivery In the Ladies of age group of 20-35 years and in 2 nd and 3 rd trimester of	<i>Karaveera Karanja Patra Siddha Taila</i> is found to be more effective in both the groups Primigravida& Multigravida in comparison with <i>Karaveera Patra Siddha Taila</i> and in Primigravida it is more effective in curative aspect, in Multigravida it is more effective in preventive

				pregnancy having striae gravidarum over abdomen were selected	aspect.
9	Sandip A. Deshmukh ¹¹	ADJIM, Jan - March 2017; Vol. 2 Issue 1	Non-randomized Clinical trial	30 Cases of Primigravida of any age taken and treated with <i>Karanja Patra Siddha Taila</i> is applied on <i>Udara</i> in the form of <i>Abhayanga</i> in dose of 5 to 10ml/day from the 5 th month of pregnancy upto 9 th month of pregnancy	It is concluded by that use of <i>Karanj Patra Siddha Taila</i> having 100 % results in <i>Kandu&DahaLakshana</i> . No significant results were obtained as size & number of <i>Kikkisa</i> formation considered
10	Swetha Naik A.D, Padmasarit ha.K, Ramesh. M ¹²	IAMJ: Volume 6, Issue 6, June, 2018	Non-randomized clinical trial	A total of 20 patients were selected & were administered <i>ChandanamrinalaLepa</i> for a period of 45 days respectively.	In <i>Kandu, Vidaha, Rukshata, Vaivarnyta, Rekha Swarup</i> and <i>Twak Sankocha</i> showed statistically significant result (P=<0.001) before and after treatment.

DISCUSSION:

Four distinct categories have been studied in this review which includes Primigravidae, Multigravidae, Preventive treatment and Curative treatment. Among these studies three research works were carried out only on Primigravidae, other three research works were highlight the comparison between Primigravidae and Multigravidae rest four studies were carried out irrespective of gravidae.

Formulations for treatment of Kikkisa on Primigravidae: Three studies were focused on Primigravidae. In these three studies, three different drugs have been studied for their clinical efficacy against *Kikkisa* among Primigravidae; *Karanjapatra Siddha Taila*, *Darvi-Madhuk Siddha Taila* and *ChandanamrinalaLepa*. Statistically significant results were obtained in all these studies in subjective as well as the objective parameters. In addition to the significant efficacy of these drugs, the probable mode of action has also been delineated. In *Karanjapatra Siddha Taila*, *Karanja* is the best *KandughnaDravya*& is mentioned in the *Kandughna Gana* by Acharya Charka by its *Kaphashamak* property as well as *Katu, TiktaRasa&KatuVipaka* it helps to reduce *Kandu* in *Kikkisa*. Acharya Shushruta mentioned *Karanja* in *AraghavadhadiGana*& in the properties of this *Gana* he mentioned *Kandughna* action so above yoga helps to reduce *Kandu*. *Kandu* is the symptom due to *TwakRukshata&Snehan* effect of *KaranjaPatraSiddhaTaila* helps to reduce *Kandu*. *Tikta&KashayaRasa* of *Karanja* have *Dahashamak* property. In *Darvi-Madhuk Siddha Taila*, *Snigdha guna* of *Madhuka* and *TilaTaila* helps to maintain elasticity of the skin. *Darvi* also has *Kandughna*(anti-itching) property. *Laghu, RukshaGuna, UshnaVirya, KatuVipaka* and *Srotogamitva* acts as *Kandughna* by removing *Kleda* and *Kapha*. *Madhura* and *Snigdha* properties of *Madhuka* helps to decrease *Vata*. *TilaTaila* also acts as *Kandughna* by maintaining *Snigdha* of skin. In *Chandanamrinala Lepa*, *Bahirparimarjana Chikitsa* was administered in the form of *Lepa* on the *Twak*. In our classics, it is explained that the absorption of the medicine happens through the *TiryakgataShiras* present in the *Twak* which carry the *Virya* of the *Dravya* to the deeper layers. Along with this *BhrajakaPitta* play an important role in executing the action of the medicine by doing the *Pachana* of the *Aushadhi*. *Raktachandana* and *Mrinala* were applied as *Lepa* along with *Navaneeta*, which has *MadhuraRasa, SheetaVirya, Laghu, SnigdhaGuna, KatuVipaka&Kaphapittahara, TwakDoshahara, Varnya&Kantipradam* properties of the drugs were beneficial in treating the condition.

Comparison of treatment in Primigravidae and Multigravidae: Three studies focused on the management of *Kikkisa* for comparison of treatment in Primigravidae and Multigravidae. In these three studies, two *Taila*, one *Ghrta* and two creams have been studied for their clinical efficacy against *Kikkisa* among pregnant women which

includes *KaraveeraTaila* and *KaraveeraKaranjaPatra Siddha Taila*, *Savarnakara Ghrita*, *Savarnakara* cream, *Kikkisahara Ghrita* and *Kikkisahara* Cream. *KaraveeraKaranjaPatra Siddha Taila* is found to be more effective in both the groups Primigravida & Multigravida in comparison with *KaraveeraPatra Siddha Taila* and in Primigravida it is more effective in curative aspect, in Multigravida it is more effective in preventive aspect. The rest two studies showed therapy is more effective in preventive group than curative group comparatively.

Efficacy of treatment in Kikkisa irrespective of gravidae: The rest four studies were carried out in both Primigravidae and Multigravidae. In these three studies, *NimbaTaila*, *Karavira Taila*, *Kumaryadi* Cream and *Karaviradi* Cream, *Malati-Madhuk* Ointment were selected for treatment. Statistically significant results were obtained in all these studies in subjective as well as the objective parameters. *Kushthaghna* (skin diseases relieving) & *Kandughna* (Anti-pruritis) actions of *Karaveer* and skin health promoting action of Sesame oil has contributed in the prevention of stretch marks. Though *Kandu* (itching) is a symptom of *Kapha* but here in *KikkisaKandu* is due to dryness of skin. So *Vata Shamaka* (*Vata* alleviating) property of oil, *Kandughna* (anti pruritic) action of *Tikta Rasa* (bitter taste) and *Snehana* (oleating) effect of *SnigdhaGuna* (unctuous property) protect and give relief from *Kandu*. *Tikta Rasa* has *Kandughna* property and also *Nimba* is a best *Kandughna* drug.

CONCLUSION:

From this review, it is clearly evident that most of the Ayurvedic formulations studied for their efficacy against *Kikkisa* proved effective. Most of the studies showed statistically significant results in both subjective and objective parameters. Another advantage of these Ayurvedic formulations is that they are safe and effective against *Kikkisa* in preventive and curative purposes. A comparative study between preventive and curative group was found that therapy is more effective in preventive group than in curative group.

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