



Research Article

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A STUDY ON ROLE OF VIRECHANA KARMA AND POOTEKADI LEPA ON CHILDHOOD CASES OF SHWITRA WITH SPECIAL REFERENCE TO VITILIGO (LEUCODERMA)

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ABSTRACT

Vitiligo or leucoderma is one such clinical dermatological condition which has been analogues with Shwitra in Ayurvedic literature. Vitiligo is the pigmentary disorder of unknown cause and characterized by de-pigmented or hypo pigmented patches that results from absence or depleted in melanocytes. Disease may start at any age but usually seen in childhood during first and second decade of life. The incidence is 3-4 % in India. The disease is known to all since long-back, no satisfactory treatment protocol is available for management in contemporary medical sciences, so the present study has been planned to provide an effective, cost effective, easy treatment for vitiligo by using Ayurvedic principle. An interventional, open label masking, randomized trial. 30 clinically diagnosed patients of Shwitra/vitiligo from OPD/IPD of Kaumarabhryta department, NIA, Jaipur were selected. Each group (group A and B) were 15 patients. Group A were received Pooteekadi Lepa as an external application followed by sun exposure for 15 minutes and Group B were priory administered with Samshodhana Karma (Virechana) followed by Pooteekadi Lepa as an external application followed by sun exposure for 15 minutes. Intergroup comparison shows significant results in effect of therapy in group B compared to group A on normalizing the skin pigmentation and fast reduction in the size of white patches.

Keywords: Leucoderma, Virechana Karma, Vitiligo, Pooteekadi Lepa

INTRODUCTION

Vitiligo or leucoderma is one such clinical dermatological condition which has been analogues with *Shwitra* in *Ayurvedic* literature and emerged as for major cosmetic concern in population. Vitiligo may be of hereditary, congenital or acquired onset and even may be presentation in many syndromic and inborn errors of metabolism. Vitiligo is the pigmentary disorder of unknown cause and characterized by de-pigmented or hypo pigmented patches that results from absence or depleted in melanocytes. Pathogenesis of vitiligo points towards autoimmune hypothesis¹ and disease may start at any age but usually seen in childhood during first and second decade of life. Based on some dermatological outpatient records it is roughly estimated to be between 3-4% in India. Vitiligo affects the estimated 1 % of world population².

Any cause or disease which disturbs the color of skin has been referred as Kushta in Ayurveda. Shwitra is considered amongst the varieties of Kushta in the classics³, which involves vitiation of Dhatus like Rasa, Rakta, Mamsa Meda and Tridoshas⁴.

Need of the study

Vitiligo or Leucoderma may be the main symptom in certain hereditary and congenital causes. Although these hereditary disorders are not curable, the disfiguration or discolouration of skin leading to social stigma is the main concern of the patient resulting in social, psycho-social and cosmetic apprehension. Hence present study was aimed at provide relief on above mentioned facets.

Aims and objectives

- To evaluate the role of Pooteekadi Lepa in diagnosed patients of Shwitra.
- To evaluate the role of Virechana in diagnosed patients of Shwitra followed by Pooteekadi Lepa.

MATERIAL AND METHODS

The present study was interventional, open label masking, randomized trial. In the present study, total 36 clinically diagnosed patients of Shwitra/vitiligo from OPD/IPD of Kaumarabhryta department, NIA, Jaipur were selected. Out of them 30 patients completed the study and 6 patients discontinued from the study.

Group A Group A was received Pooteekadi Lepa as an external application with approximate thickness of 0.5-1 cm followed by sun exposure for 15 minutes.

Group B Group B were priory administered with Samshodhana Karma (Virechana) followed by Pooteekadi Lepa as an external application with approximate thickness of 0.5-1 cm followed by sun exposure for 15 minutes.

IEC Approval

Clinical study was approved by IEC, order no. IEC/ACA/2017/92 dated 26/04/2017.

Drug material and methods taken for the study include

Shantivardhaka Churna

Dose of 100 mg/kg body weight twice daily for 3 to 5 days before meal with Ushnodaka.⁵

Moorchita Ghrita

For internal Snehapana in an increasing dose of 20-30 ml/day during morning hour on empty stomach with warm water for a period of 3-7 days till appearing of Samyaka Snehana Lakshana.⁶

Narikela Taila

Abhyanga with Narikela Taila for 3 gap days⁷.

Trivritadi Avaleha

Dose of 20-30 gm along with Ushna Jala, according to Agni Bala and Koshta of the patients⁸.

Pooteekadi Lepa

The trial drug Pooteekadi Lepa (Leaves of Pooteeka, Arka, Snuhi, Amaltasa and Jati) are pounded with cow's urine (Go-Mutra) and pasted on the affected part with the thickness of 0.5-1 cm followed by 15 minutes sun exposure during morning hours for the period of three months.⁹

Duration of the treatment

This study was conducted for three month and follow up were on every fifteen days.

Inclusion criteria

- Patients of either sex between age group of 05-15 years.
- Children diagnosed as Leucoderma / Vitiligo as per contemporary medical sciences or Shwitra as per clinical features mentioned in Ayurvedic texts.

Grading for number of black spots in observed patch		Score
1.	Nonappearance of black spot	0
2.	Appearance of 1-2 black spot	1
3.	Appearance of 3-5 black spot	2
4.	Appearance of more than 5 black spot	3

Grading for colour change in the observed patch		Score
1.	No change in color (white spot)	0
2.	Color of the patch change to slight pinkish	1
3.	Black	2
4.	Appearance of normal skin color in the patch	3

Vitiligo area scoring index (VASI)

VASI for Vitiligo Area Scoring Index, which is conceptually derived from the PASI score widely used in psoriasis assessment. One hand unit, which covers the palm as well as the volar surface of all the digits, is about 1 % of the total surface area of the body and as a guide to estimate the baseline percentage of vitiligo involvement in each body area is used to.¹⁰

The body is divided into six distinct and mutually exclusive areas: hands, upper extremities excluding hands, trunk, face/neck, lower extremities excluding feet, and feet.

Exclusion criteria

- Children below 05 and above 15 years of age.
- Children with Albinism.
- White anesthetic spots, which were characteristic of leprosy.
- Old refractory cases not responding after extensive use of modern medicine.
- Patches in genital area, lip area were excluded from the study.
- Vitiligo patches complicated by eczema.
- White skin patches of fungal infection, tuberous sclerosis was also excluded.

Criteria for withdrawal

- Any serious manifestation or any serious adverse effects which requires urgent treatment.
- Patient himself/herself wants to withdraw from the clinical trial.

Adverse effect evaluation criteria

To rule out the possible adverse effect of studied drugs clinical criteria was adopted. It included the documentation of related information of appearance of hypersensitive reactions, blisters formation into pustules, pus discharge from lesion, etc.

Assessment criteria

- Alteration in the color of the Vitiligo patches and black dots appearing was recorded periodically with photography.
- Number of dots was counted and joining of two or more dots (blackish) if any was noted and recorded in subsequent follow up with grading.
- Change in the size of observed patch if any was also recorded.
- Vitiligo area scoring index (VASI)

The extent of residual de-pigmentation is expressed by the following percentages: 0, 10 %, 25 %, 50 %, 75 %, 90 %, or 100 %.

- 1.00 (100 %)** - complete de-pigmentation, no pigment is present
- 0.90 (90 %)** - specks of pigment are present
- 0.75 (75 %)** - The de-pigmented area exceeds the pigmented area
- 0.50 (50 %)** - The de-pigmented and pigmented areas are equal
- 0.25 (25 %)** - The pigmented area exceeds the de-pigmented area
- 0.10 (10 %)** - only specks of de-pigmentation are present

The total body VASI is calculated using a formula that includes contributions from all body regions (possible range, 0–100)

$$\text{VASI} = \Sigma \{\text{Hand Units}\} \times \{\text{Residual De-pigmentation}\}$$

VASI scores are given 6 grading. Here the VASI score noted in the study group and smallest score are calculated.

VASI Grading

Grade	VASI
Grade 0	0 % - 0.24 %
Grade 1	0.25 % - 1.50 %
Grade 2	1.51 % - 3.00 %
Grade 3	3.01 % - 4.50 %
Grade 4	4.51 % - 6.00 %
Grade 5	6.01 % - 7.50 %

RESULTS

Obtained observations were analyzed statically with the help of INSTANT GRAPHPAD Version 3.

Table 1: Effect of therapy on group A (n =15)

S. N.	Sign and Symptoms of Patches	Mean		Mean Diff. ±	Diff. %	S.D.	S.E.	P value	Sig.
		B.T.	A.T.						
1.	No. of black spots	1.26	1.93	0.66	34.71	0.61	0.16	0.0039	V. S.
2.	Colour change	0.33	1.33	1.00	75.18	0.92	0.23	0.0020	V. S.
3.	Size change	1.60	0.73	0.86	53.75	0.35	0.09	0.0002	E.S.

(Wilcoxon matched paired rank test)

Table 2: Effect of therapy on group B (n =15)

S.N.	Sign and symptoms of patches	Mean		Mean Diff.	Diff. %	S.D.	S.E.	P value	Sig.
		B.T.	A.T.						
1.	No. of black spots	0.80	2.13	1.33	62.44	0.81	0.21	0.0002	E.S.
2.	Colour change	0.26	1.20	0.93	77.5	0.70	0.18	0.0005	E.S.
3.	Size change	1.86	0.66	1.20	64.51	0.41	0.10	0.0001	E.S.

(Wilcoxon matched paired rank test)

Table 3: Intergroup comparison of group A and B in results of black spots in observed patches (Mann Whitney Test)

Group	Mean	S.D.	S.E.	U ¹	P value	Sig.
A	0.66	0.61	0.15	163.50	0.0230	S.
B	1.33	0.81	0.21			

Table 4: Intergroup comparison of group A & B in results of colour change in observed patches (Mann Whitney Test)

Group	Mean	S.D.	S.E.	U ¹	P value	Sig.
A	1.00	0.92	0.23	115.00	0.9260	N.S.
B	0.93	0.70	0.18			

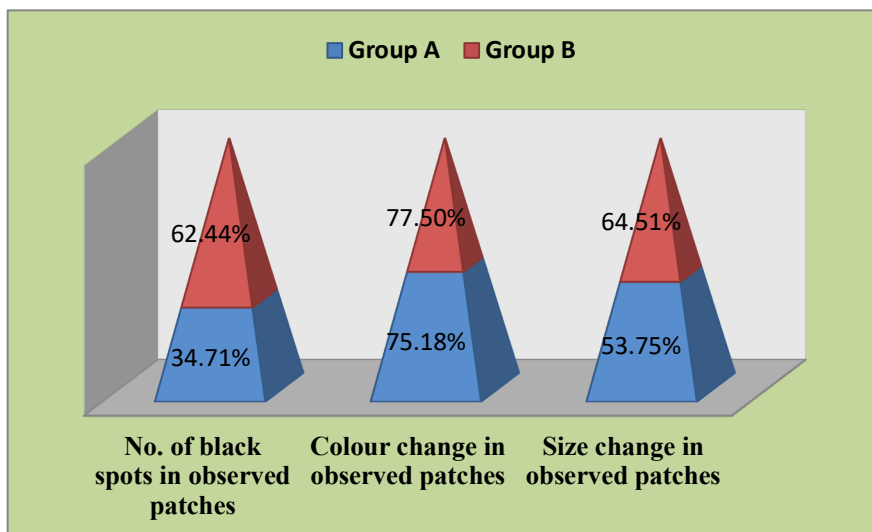
Table 5: Intergroup comparison of group A and B in results of decrease in size of observed patches (Mann Whitney Test)

Group	Mean	S.D.	S.E.	U ¹	P value	Sig.
A	0.86	0.35	0.09	147.00	0.0297	S.
B	1.20	0.41	0.10			

Overall effect of therapies

Mean overall result in Group A was 54.55 % while same in Group B was 68.15 %. This proves that group B patients administered

with Pooteekadi Lepa after completion of Virechana has shown extremely significant results in comparison to significant results in Group A where only Pooteekadi Lepa applied externally.



Graph: Effect of therapy in term of percentage relief

DISCUSSION

Mode of action of virechana drug in the present study

Virechana drug possessing the Ushna, Tikshna, Sukshma, Vyavayi and Vikasi properties reaches the Hridaya by virtue of its Virya and then following the Dhamani it pervades the whole body through Sthula and Sukshma Srotas. By virtue of its Agneya properties it causes Vishyandana i.e. oozing of the Dosha and by its Tikshna properties, it is able to disintegrate the accumulated Doshas. Thus in the present study the Virechaka drug Trivritadi Avaleha administered after Snehana, Swedana and internal Snehapana helped in removal of the pathological focus, thus obtaining the significant improvement in cases of Shwitra in the present study.

Mode of action of Pootheekadi lepa in the present study

A. Action by changing the pH of the local skin area

In the present study the maximum drugs used were having the Katu-Tikta Rasa, Katu Vipaka, Ushana Virya and Laghu, Teekshna property like Pootheeka, Snuhi, Arka, Jati etc. and Lepa was applied after mixing the powder of above drugs with Gomutra which plays a significant role in maintaining the pH of skin due to its acidic nature and presence of micronutrients. Further drugs have got Ushna Virya and Katu Vipaka when applied locally on the involved patches helps to alter the local pH of the skin patches, by different mechanism, thus helping in its absorption through Mamsadhara Kala. This view is further justified by study¹¹ proving that photo activated Gomutra is highly acidic than fresh Gomutra.

B. Action by Increasing the local capillary blood circulation to the area

In the present study the drugs which are used were having the Ushana and Teekshna property, Katu Rasa, Katu Vipaka like Snuhi, Arka, Puteeka, Jati and the Gomutra helps to increase the Pitta Dosha. Pitta and Rakta always exist in the Ashrya - Asrayi Bhava, hence, increase Pitta in the local area also enhances the movement of the Rakta to the involved patch. Initiation of the blood circulation to the hypo pigmented area brings the required micronutrients, amino acids which are required for the formation of the Melanin, thus facilitating its deposition leading to normalization of hypo pigmented patch.

This will be further supported by the study on the past of leaves and bark of *H. Integrifolia* is applied externally for the treatment of leucoderma¹².

C. Action by removal of the Sanga in Tiryak Vaha Srotus

In the present study the drugs which were used are having the Ushana and Teekshna property, Katu Rasa, Katu Vipaka like Snuhi, Arka, Pootheeka, Jati and the Gomutra helps to remove the local Sanga of the Kapha Dosha and the Ama. Removal Sanga helps for proper Dhatu Poshana and there by bringing the Dhatu Vridhi. Blockage of cellular metabolism will be corrected there by stimulating the melanocyte stimulating axis to initiate the production of melanin. This view will be further supported by study on alcoholic extract of leaves of *Euphorbia Nerifolia* is effect as immunomodulator¹³.

D. Action by Vidhahi nature of the drug bringing Irritant action of the skin

In the present study the drugs which were used are having the Ushana and Teekshna property, Katu Rasa, Katu Vipaka like Snuhi, Arka, Pootheeka, Jati and the Gomutra. Drugs are having Vidahi nature and on application it causes the Sphota and mild Shotha in the involved area. This suggests increased Pitta Dosha. Sheeta Guna and Madhura Rasa of the Amaltasa help to counteract excess action of Pitta and induce healing of the lesion with blackish dis-colourization which suggests melanin deposition. This local irritant action of the drug is further supported by study that Ushna-Teekshna properties lead to increase in Bhrajaka Pitta thus improving melanogenesis¹⁴.

E. Action by stimulation of sensory receptors in the local area by stimulating the Vata Dosha

In the present study drug, which has got Laghu Guna in Pootheeka, Snuhi, Arka and Jati by the virtue of its Laghu Guna helps to increase the Vata in the local area. Ruksha Guna of Pootheeka and Arka also helps to increase the Vata. Increased Vata not only stimulate the local sensory receptor but also stimulate the hormonal axis of the melanocyte stimulating hormones mediating through central nervous system. This view is further supported by study on leaf past of the *Holoptelea Integrifolia* are applied externally on the white patches or leucoderma¹⁵.

F. Action by Rasayana property of the drug by inducing the Anti-oxidant property

The Disease Shwitra runs in chronic course and involvement of the deeper tissues of the body causing the oxidative injury of the body. The oxidative injury not only aggravates the disease course but also leads to vulnerability of associated comorbidity. In the present study Jati, Pooteeka, Arka, Amalata and Go mutra are known for its Rasayana properties which counteract the oxidative changes and bring the speedy recovery of the disease. This anti-oxidant property is further supported by study on *Euphorbia Nerifolia*, *J. Officinale*¹⁶ and *C. gigantean*¹⁷.

G. Action of the sunlight based on Samanya Vishesh Siddhanta

Ayurveda believes in Samanya Vishesh Siddhanta in the treatment, in case of Shwitra Roga Kshaya of the Agni is very much evident. Agni found in the body in the form of Pitta. Type of Pitta present in the skin i.e. Bhrajaka Pitta is also deficient in Shwitra; as per Samanya Vishesh Siddhanta Agni or Pitta in the body can be increased by intake of Samana Guna, Karma and Dravyas. Hence the Sunlight representing the Tejo Mahabhuta helps to increase the Agni in the body on exposure to same. Further the role of Ultraviolet rays in the treatment of vitiligo or Shwitra is also evident by the studies UVA and NBUB (narrow band UVB) both are potent melanocyte stimulants for repigmentation¹⁸.

CONCLUSION

Continuous indulgence in Viruddha Ahara like milk with Mamsha (Meat), Amal Rasa, Dadhi (curd), Mulaka (raddish) and alternate use of cold and hot beverages are the most common causative factors for Shwitra. Vata Pitta Parakriti and Rajasika prakriti patients are more vulnerable to Shwitra. Trial drug Pooteekadi Lepa has shown very significant results on reducing size and hypo-pigmentation of Vitiligo patches or Shwitra. However, patients administered with Samshodhana Karma in the form of Virechana prior to Pooteekadi Lepa has showed extremely significant results on reducing size and hypopigmentation of Vitiligo patches or Shwitra. Intergroup comparison shows significant results in effect of therapy in group B compared to group A on normalizing the skin pigmentation and fast reduction in the size of white patches.

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