



A COMPARATIVE PILOT CLINICAL STUDY TO EVALUATE THE PROCEDURAL EFFECT OF KATI BASTI AND KATI DHARA WITH SUKOSHANAJALA IN GRIDHRASI

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ABSTRACT:

Introduction: *Gridrasi* is described in *Ayurveda* as one of the *Vatavyadhi* with features of *Stambha*, *Ruk*, *Toda* and *Gauravata*. It is a disease with radiating pain and disability dominance and affects the walking and routine work. It is the most common disease affecting 60-70% of the working population. Earlier the disc degeneration happens to be a matter of concern in fifth decade of life. Now as early as third decade onwards only degeneration of the disc is noted, which hampers the quality of life. *Ayurveda* provides a range of treatments, specially from *Panchakarma*, like *Kati Basti* and *Kati Dhara*.

Objectives: The primary objective is to see the Procedural effect of *Kati Basti* and *Kati Dhara* with *Sukoshana Jala*.

Methods: Comparative study of *Kati Basti* and *Kati Dhara* with *Sukoshana Jala* is selected which acts as *Swedana* having *Kapha* and *Vatahara* effect. The study was conducted for 8 days in 10 patients of *Gridrasi*. The signs and symptoms were assessed before and after the treatment based on the grading. **Results:** Results obtained were analysed for the statistical significance using Wilcoxon sign rank test. The statistical analysis revealed that there is statistically significant improvement in both the groups but statistically not significant between the groups. *Kati Basti* and *Kati Dhara* with *Sukoshana Jala* can be advised for treating the *Gridrasi*.

Conclusion: The present study revealed that *Kati Basti* and *Kati Dhara* with *Sukoshana Jala* is effective in *Gridhrasi* if the condition is Acute. *Ruk* and *Toda* were subsided in *Kati Basti*. *Ruk*, *Stambha* and *Gauravata* were subsided in *Kati Dhara*. Overall improvement of *Ruk* was observed. The procedure is easy to perform and it is cost effective.

Keywords: *Gridrasi*, *Kati Basti*, *Kati Dhara*, *Sukoshana Jala*

INTRODUCTION

The most common disorder which affects the movements of the leg is low back pain, out of which 40% of people will have radicular pain which comes under Sciatic Syndrome ^[1]. Some aggravating factors that contribute to this are improper sitting positions, over – exertion, sedentary lifestyle, jerky movements while travelling, sudden falls & lifting heavy objects with the wrong posture. Sciatica does not only cause the pain but causes difficulty in walking as well and impacts the quality of life in a negative manner ^[2]. It can be unilateral or bilateral based on the severity of the condition.

The word *Gridrasi* indicates gait which is similar to *Gridra* (Vulture). The gait is described as one slightly tilted towards the affected side with the affected lower limb in a flexed position & the other lower limb extended, which resembles that of Vulture ^[3]. *Gridhrasi* is a painful condition in which the person cannot sit and walk properly that hampers his normal activity.

Various methods used in the treatment of *Gridrasi* are *Bheshaja*, *Snehana*, *Swedana*, *Basti*, *Siravedha* and *Agnikarma*^[4].

Katidhara is made by two terms '*Kati*' means Low back region and '*Dhara*' means 'to flow.' Various liquid medium is used according

to need of individual. When fresh tap water is used as liquid medium then the process is called Jaladhara.

Katibasti is the procedure in which the medicine (*Sukoshna Jala*) is kept over the Lumbosacral area for a certain period of time with the help of a specially formed frame ring prepared with Black gram powder.

Ushanajala which has been boiled and reduced to 1/4th of its original quantity. It relieves *Kapha*, *Meda* and *Vata* ^[5,6].

MATERIALS & METHODS

SOURCE OF

DATA

COLLECTION

Patient source:

Patients diagnosed with *Gridrasi* will be selected from OPD and IPD of DGM *Ayurvedic* Medical College and Hospital, GADAG.

Literary source:

Literary aspect of the study pertaining to *Gridrasi* and its treatment will be collected from *Ayurvedic* and modern texts, updated recent Medical Journals and relevant Websites.

Methods of Data Collection

Study Design:

It is a Pilot clinical study with Pre-test and post-test design, where patients of either sex, diagnosed as *Gridrasi* were taken.

A special proforma was prepared with all points of history taking, physical signs and symptoms mentioned in *Ayurvedic* classics and lab investigations were carried out as mentioned in allied sciences to confirm the diagnosis. An informed consent was collected from all the patients included in study.

Study Setting:

The Study was conducted for a duration of 6 months

Date of initiation: 27/11/21

Date of completion: 16/04/22

Sample size and sampling technique:

A minimum of 10 patients will be taken for study, A simple randomized sampling technique is used.

Diagnostic criteria

Stambha, Ruk, Toda, Spandana in Sphik, Kati, Prishta, Uru, Janu, Jangha and Paada.

Inclusion Criteria:

- Patient between the age group of 18 to 60 years diagnosed with *Gridhrasi* belonging to either sex irrespective of socio-economic status and caste.
- Patient with complaints of *Stambha/Ruk/Toda/Gaurava*

Exclusion Criteria:

- Patient who are contraindicated for *Swedana*

- Neoplastic/traumatic conditions of spine
- Congenital deformities of Spine
- Cauda Equina Syndrome

INTERVENTION:

A comparative Pilot clinical study will be conducted on selected patients assigned in 2 groups. Patients will be treated with-

For Group-A –

Kati Basti with *Sukoshna Jala* for 8 days.

Group-B –

Kati Dhara with *Sukoshna Jala* for 8 days.

POORVAKARMA

Preparation of the medicine:

- Dough of smaller quantity is prepared by kneading *Masha Churna* with adequate amount of water.
- *Sukoshna Jala* is kept ready

Preparation of Patient:

1. Patient is advised to pass all the natural urges before the commencement of the procedure.
2. The procedure is explained to the patient.
3. Patient is made comfortable and said to lie in prone position on the table.
4. Only the lumbo-sacral area is exposed.
5. The area is cleaned with water, wiped and is dried so that there is no any other moisture content.

PRADHANA KARMA

In Group A

1. The circular steel ring is placed on the lumbo-sacral region and sealed by *Masha* dough inside and outside the ring to prevent the leakage of the medicine and its height should be approximately 1.5 inches.
2. 250ml of *Sukoshna Jala* is poured slowly inside the ring, uniform temperature that can be tolerated by the patient is maintained for 30 minutes by replacing the Jala frequently.

In Group B

1. *Dharapatra* with Stand is placed at the height of 15cm and lumbo- sacral region is exposed. *Sukoshna Jala* is poured into *Dharapatra* and thin Stream is made to flow uniformly with oscillatory movements on the lumbo – sacral region. Temperature that can be tolerated by the patient is maintained

for 30 minutes by replacing it with the fresh *Sukoshana Jala* frequently.

PASCHAT KARMA

1. The *Sukoshana Jala*, Steel ring and Dough is removed.
2. The area is cleaned with water, wiped and is dried.
3. The patient is advised to take rest for 15 minutes in supine position and then allowed to take hot water bath.
4. Patient is advised to take *Laghu, Ushna* and *Anabhishtyanda Ahara*.
5. Patient is advised to avoid strenuous activities which may cause pressure on the low back region like bike riding, running, lifting heavy objects etc.

Duration of study

- *Kati Basti* - 08 days
- *Kati Dhara* - 08 days
- Total duration of study - 08 days



Figure No - 01 Showing Kati Basti

Figure No -02 Showing Kati Dhara

INVESTIGATIONS

- CBC
- ESR
- RBS
- X - Ray Lumbosacral spine (AP & Lat) - if required

OBSERVATION AND RESULTS

The effect of *Kati Basti* and *Kati Dhara* on different parameters of *Gridhrasi* was assessed using wilcoxon sign rank test, based on Before treatment and After treatment gradings. Out

of 10 patients 60 % patients were female, patients in between the age group 30-45 years. 80% patients were married, 80% patients were having the history of strenuous work, 70% were *Vata-Pitta Prakruthi*, 80% were *Madhyama Koshta*, 70% were Mixed diet. Cardinal symptoms of low backache radiating to lower limb, SLR and Flip test were found in all the patients (100%). The statistical analysis is:

RESULTS:

Table No -01 showing Statistical table of Group A

Parameter		Sum of the ranks	Mean of the ranks	Mean difference	SD	Z value	P value	Remarks
<i>Stamba</i>		15	7.5	1.2	3.70	2.02	0.043	S
<i>Ruk</i>		15	7.5	3.4	3.70	2.02	0.043	S
<i>Toda</i>		15	7.5	3.2	3.70	2.02	0.043	S
SLR	Right	15	7.5	2.2	3.70	2.02	0.043	S
	Left	15	7.5	3	3.70	2.02	0.043	S
Visual numerical rating scale		15	7.5	14.2	3.70	2.02	0.043	S
<i>Gouravata</i>		10	5	1	2.73	1.83	0.067	N.S

Statistical interpretation of BT-AT of Group A

There is significant difference in the condition of the patient B.T & A.T for the parameter *Stamba* at 5% L.O.S with 'P' value 0.043.

There is significant difference in the condition of the patient B.T & A.T for the parameter *Ruk* at 5% L.O.S with 'P' value 0.043.

There is significant difference in the condition of the patient B.T & A.T for the parameter *Toda* at 5% L.O.S with 'P' value 0.043.

There is no significant difference in the condition of the patient B.T & A.T for the parameter *Gouravata* at 5% L.O.S with 'P' value 0.067.

There is significant difference in the condition of the patient B.T & A.T for the parameter SLR (Right) at 5% L.O.S with 'P' value 0.043.

There is significant difference in the condition of the patient B.T & A.T for the parameter SLR (Left) at 5% L.O.S with 'P' value 0.043.

There is significant difference in the condition of the patient B.T & A.T for the parameter Visual numerical rating scale at 5% L.O.S with 'P' value 0.043.

Table No – 02 Showing Statistical table of Group B

Parameter	Sum of the ranks	Mean of the ranks	Mean difference	SD	Z value	P value	Remarks	
<i>Stamba</i>	15	7.5	1	3.70	2.02	0.043	S	
<i>Ruk</i>	15	7.5	2.6	3.70	2.02	0.043	S	
<i>Toda</i>	15	7.5	3.4	3.70	2.02	0.043	S	
SLR	Right	15	7.5	4.2	3.70	2.02	0.043	S
	Left	15	7.5	3	3.70	2.02	0.043	S
Visual numerical rating scale	15	7.5	13	3.70	2.02	0.043	S	
<i>Gouravata</i>	15	7.5	3.2	3.70	2.02	0.043	S	

Statistical interpretation of BT-AT of Group B

There is significant difference in the condition of the patient B.T & A.T for the parameter *Stamba* at 5% L.O.S with 'P' value 0.043.

There is significant difference in the condition of the patient B.T & A.T for the parameter *Ruk* at 5% L.O.S with 'P' value 0.043.

There is significant difference in the condition of the patient B.T & A.T for the parameter *Toda* at 5% L.O.S with 'P' value 0.043.

There is no significant difference in the condition of the patient B.T & A.T for the

parameter *Gouravata* at 5% L.O.S with 'P' value 0.043

There is significant difference in the condition of the patient B.T & A.T for the parameter SLR (Right) at 5% L.O.S with 'P' value 0.043.

There is significant difference in the condition of the patient B.T & A.T for the parameter SLR (Left) at 5% L.O.S with 'P' value 0.043.

There is significant difference in the condition of the patient B.T & A.T for the parameter Visual numerical rating scale at 5% L.O.S with 'P' value 0.043.

Table No – 03 Showing Statistical table between the groups

Parameter		Sum of the ranks	Mean of the ranks	SD	U value	Z value	P value	Remarks
<i>Stamba</i>		55	5.5	4.78	10.5	0.31	0.756	N.S
<i>Ruk</i>		55	5.5	4.78	10.5	-0.31	0.756	N.S
<i>Toda</i>		55	5.5	4.78	12	0	1	N.S
SLR	Right	55	5.5	4.78	2	2.08	0.036	S
	Left	55	5.5	4.78	6.5	1.14	0.25	N.S
Visual numerical rating scale		55	5.5	4.78	6.5	1.14	0.25	N.S
<i>Gouravata</i>		55	5.5	4.78	4.5	1.56	0.11	N.S

Statistical interpretation of Group A and Group B

There is no significant difference in the condition of the patient between Group A & Group B B.T & A.T for the parameter *Stamba* at 5% L.O.S with 'P' value 0.756.

There is no significant difference in the condition of the patient between Group A & Group B B.T & A.T for the parameter *Ruk* at 5% L.O.S with 'P' value 0.756.

There is no significant difference in the condition of the patient between Group A & Group B B.T & A.T for the parameter *Toda* at 5% L.O.S with 'P' value 1.

There is no significant difference in the condition of the patient between Group A & Group B B.T & A.T for the parameter *Gouravata* at 5% L.O.S with 'P' value 0.11.

There is significant difference in the condition of the patient between Group A & Group B B.T & A.T for the parameter SLR (Right) at 5% L.O.S with 'P' value 0.036.

There is no significant difference in the condition of the patient between Group A & Group B B.T & A.T for the parameter SLR (Left) at 5% L.O.S with 'P' value 0.25.

There is no significant difference in the condition of the patient between Group A & Group B B.T & A.T for the parameter Visual numerical rating scale at 5% L.O.S with 'P' value 0.25.

DISCUSSION

Among the study subjects 4 were in the age group of 30-40 years, 3 in the age group of 20-30years and 3 in the age group of 40-50 years. Thus, the 3rd decade of life appears to be the initial stage of *Vata Prakopa*. According to

modern science there is degeneration of intervertebral disc with age. Hence, the prevalence of sciatica is high in middle aged people with Strenuous work.

Bad posture, standing, forward bending, long walking, Sneezing, Coughing were the aggravating factors in 80% of the patients. 70% patients were of *Vata- Pitta Prakruthi* and 30 % patients were of *Vata- Kaphaja Prakruthi*; this suggests that *Vata* plays a major role in the manifestation of *Gridrasi*.

Effect of Procedure:

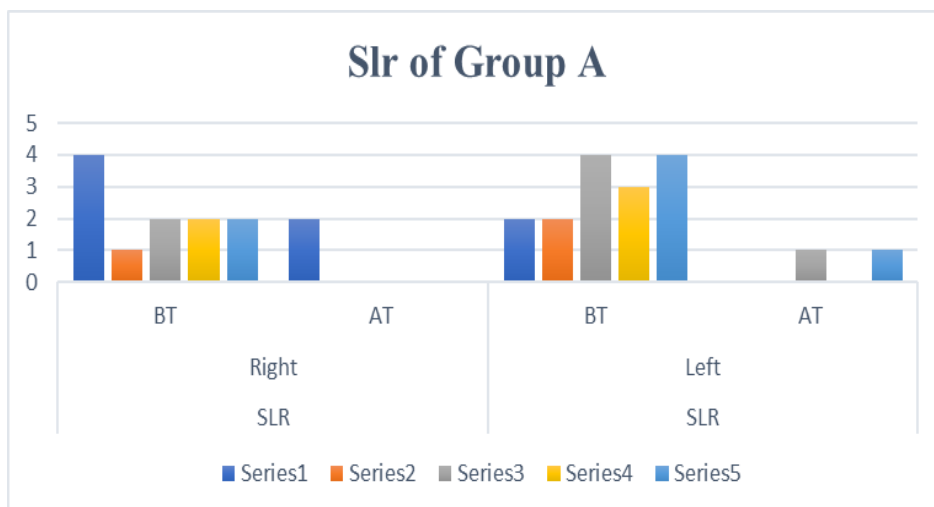
Among 10 patients it was observed that 3 patients of *Katidhara* & 1 Patient of *Katibasti* noticed relief in symptoms on 4th day, 2 patients of *Kati Basti* noticed relief of symptoms on 5th day, 1 patient of each *Katibasti* and *Katidhara* noticed relief of

symptoms after the completion of the procedure and 1 patient of each *Katidhara* and *Katibasti* did not find any satisfactory result.

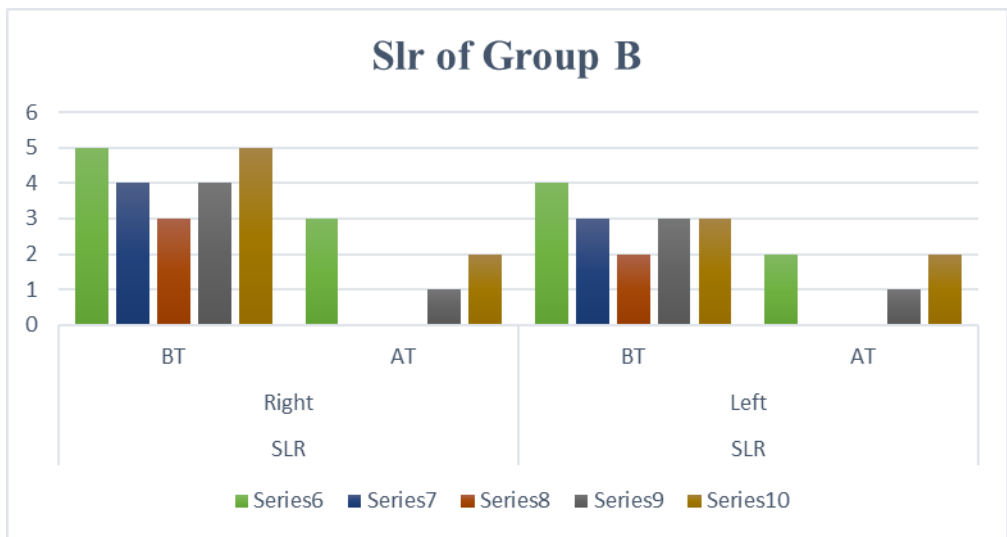
In Group A Improvement of *Ruk* and *Toda* were found, on 8th day among 5 patients 3 patients found complete relief 2 patients found moderate relief. *Ruk* is produced by *Vata Prakopa*, and *Ushna* is the best treatment for *Vata*. *Sukoshana Jala* is *Vatahara* and is cost effective when compared to *Taila*.

In Group B Improvement of *Stambha* and *Gauravata* were found, on 8th day among 5 patients 4 patients found complete relief and 1 patient did not find any relief.

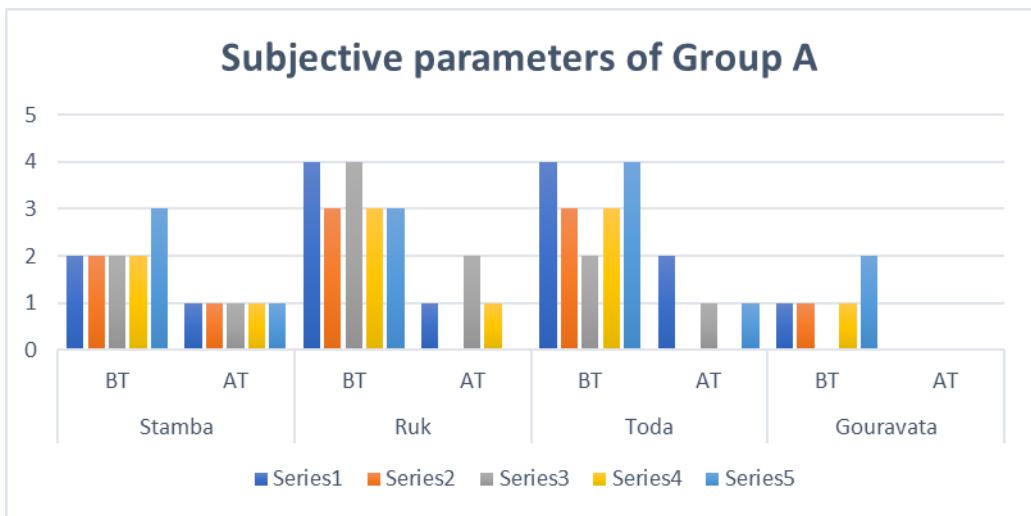
Among 10 patients it was observed that 6 patients found 90% relief in SLR test, 2 patients found 60% relief, 1 patient found 30% and 1 patient did not find any relief.



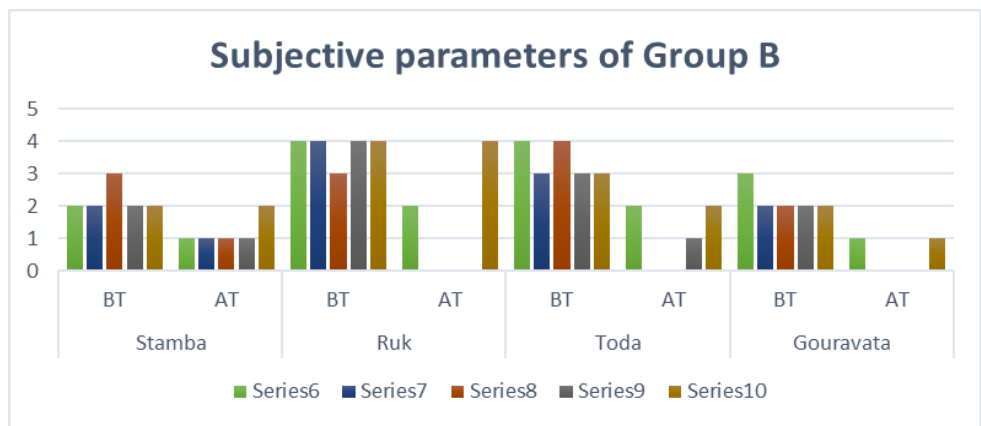
Graph 1: Showing the Objective Parameter SLR test of Group A



Graph 2: Showing the Objective Parameter SLR test of Group B



Graph 3: Showing the Subjective Parameter of Group A



Graph 4: Showing the Subjective Parameter of Group B

Temperature tolerance: The patients having *Vata* and *Kapha Pradhana Prakruthi* tolerated temperature more than *Pitta Prakruthi* persons.

Quantity of Sukoshana Jala: During this study, it has been observed that minimum of 250 ml of *Sukoshana Jala* is required.

Height and Diameter:

Kati Basti- Height of 3-4 cm and diameter ranging 12 cm circular steel ring was considered which was able to retain 250 ml of *Sukoshana Jala* and spillage was not observed during the procedure. Uniform temperature was maintained throughout the procedure.

Kati Dhara- Height of 15 cm with *Dhara Patra* made of Bronze was considered which was able to retain 500ml of *Sukoshana Jala*.

Duration: Procedure was done for 30 minutes.

Samyak Swinna Lakshana: As *Kati Basti* and *Kati Dhara* is *Mrudu Swedana* procedure, it is difficult to identify all the *Samyak Swinna Lakshanas* in the patient. After removing the *Sukoshana Jala* and Steel ring in *Kati Basti* and after *Kati Dhara* procedure, we can see *Sweda Pradhurbhava* and redness in the skin. Among 5 patients 1 patient noticed *Daha* after *Jaladhara* procedure.

PHYSIOLOGICAL EFFECT OF HEAT

Pain relief and Muscle relaxation:

Application of local heat to reduce pain is a common therapeutic technique. When heat is applied to the painful muscle spasm, it reduces the excitability of the muscle spindle. Heat has been applied as a counter irritant, which is the thermal stimulus helps in relieving pain.

PROBABLE MODE OF ACTION OF KATI BASTI

Kati Basti is a procedure which has properties of *Snehana & Swedana*, which gives effective and quick result because they act at the site of *Samprapti*.

As *Vata Dosha* is *Sheeta, Ruksha* and *Laghu* in nature. *Swedana* being *Ushna* alleviates *Vata*, helps in relieving *Gauravata, Stambha, Toda, Ruk* which are common symptoms of *Vatavyadhi* and *Gridhrasi*.

According to the concepts of modern medical science therapeutic effects of heat are achieved when a tissue temperature of 41 – 45 degrees Celsius is reached, when tissue temperature is more than 45-degree Celsius tissue damage can occur. Therapeutic effects of heat are due to increased blood flow, increased metabolic activity, stimulation of neural receptors in the skin.

Increased blood flow leads to better delivery of nutrients, efficient removal of the waste products and hence hastening the natural repairing process (healing). This relives

the muscle spasm and results in alleviation of pain.

PROBABLE MODE OF ACTION OF KATI DHARA

Ushna Jala possesses the properties like, *Laghu*, *Agnideepaka*, *Kapha-Vata hara*. When *Ushna Jala* is allowed to flow in a stream due to procedural and also the *Dravya* used, it acts on *Vata* & *Kapha*. This helps to reduce *Ruk*, *Gauravata* and *Stambha*.

The temperature gradient and pressure gradient caused by the heat further helps in increasing the circulation and local metabolic process with the relaxation of muscles and tendons, improves the blood supply, venous drainage, lymph supply and activates the local metabolic processes which are responsible for the relief of pain, swelling, tenderness, and stiffness.

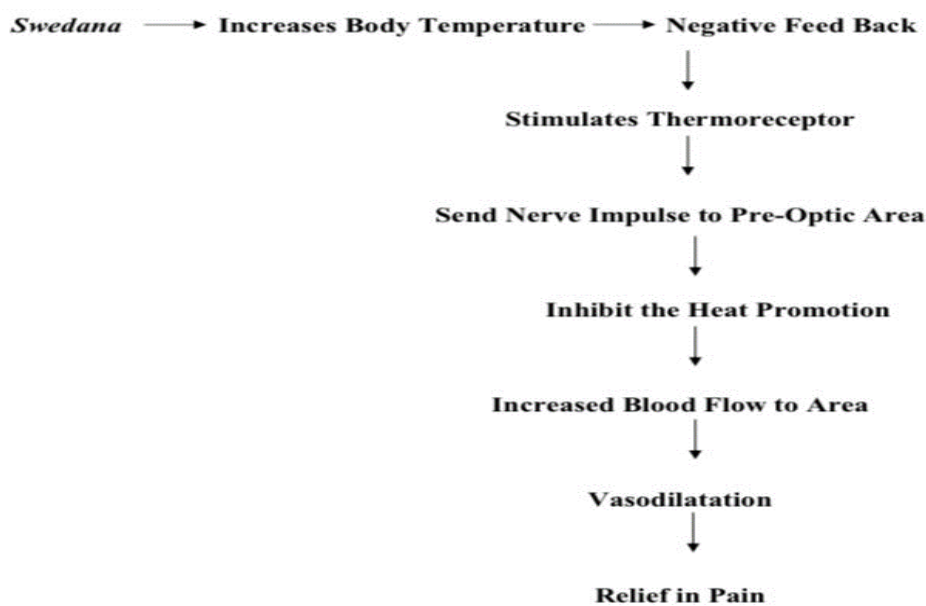


Figure No - 03 Showing the Mechanism of *Swedana*

Result: In the overall effect of the treatment there was 70% improvement in the condition of the patient. 15% patient showed no changes in the treatment effect but none of them showed complete cure of the illness. The reason would be the short duration of the treatment. Other aggravating factors like occupation, posture, lifestyle may slower the improvement. In chronic condition, *Dhatu Kshaya* and *Gambeera DhatugataAvasta*,

Sukoshana Jala Kati Basti or *Kati Dhara* may not be sufficient to treat the disease.

CONCLUSION:

The present study revealed that *Kati Basti* and *Kati Dhara* with *Sukoshana Jala* is effective in *Gridhrasi* if the condition is Acute. *Ruk* and *Toda* were subsided in *Kati Basti*. *Ruk*, *Stambha* and *Gauravata* were subsided in *Kati Dhara*. Overall improvement of *Ruk* was

observed. The procedure is easy to perform and it is cost effective.

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