



A comparative Clinical Study to Evaluate the Efficacy of Anuvasan Basti with Brahatchaglyadi Ghritam and Guggulutiktam Ghritam in the management of Gridhrasi (Sciatica): A Study Protocol

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Authors' contributions

This work was carried out in collaboration among all authors. Author AKG designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author SP designed the study, managed the analyses of the study managed the literature searches, reviewed and final drafting of the of the manuscript. Authors TG and MN managed the analyses of the study. All authors read and approved the final manuscript.

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Study Protocol

ABSTRACT

Background: Gridhrasi is such a *Ruja Pradhaana Vatavyadhi*. In Gridhrasi intense shooting pain characteristically radiates from *Sphika* (gluteal region) to *Pada* (foot). Based on symptoms of *Gridhrasi*, it can be equated with the disease sciatica in modern science. The lifetime incidence of

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low back pain is 50-70%, with Sciatica more than 40%. *Charaka* has considered *Basti* therapy as half of the disease's treatment, while some authors consider it as the complete remedy for all the ailments. *Basti* is one of the unique procedures explained for the management of *Vatavyadhi* (Neurological Disorder) where *Gridhrasi* (Sciatica) is being the predominant of *Vata dosha*, *Basti* is being used widely for the management of *Gridhrasi* (Sciatica). Therefore we have taken the *Basti* modality for the treatment of *Gridhrasi* (Sciatica). Hence the study is carried to evaluate the effect of *Anuvasanbasti* with *Brihachagalyadi Ghritam* & *Guggulutiktaka Ghritam* in the management of *Gridhrasi* (Sciatica).

Aims and Objectives: Evaluate *Anuvasan Basti*'s efficacy with *Brihachagalyadi Ghritam* & *Guggulutiktaka Ghritam* in the control of *Gridhrasi* (Sciatica) and to compare the effectiveness of *Brihachagalyadi Ghritam* & *Guggulutiktaka Ghritam Anuvasan Basti* in the direction of *Gridhrasi*.

Methodology: Procedure: This study, a total of 66 patients, will be separated haphazardly divided into 2 groups (33 in each). In Group A (Interventional Group)- will Treat with *Brihachagalyadi Ghritam* as an *Anuvasan Basti* in increasing dose pattern for nine days and Group B (Control Group) –patients will Treat with *Guggulutiktaka Ghritam* as an *Anuvasanbasti* in increasing dose pattern for nine days. The evaluation will be recorded on 0 and 9th day.

Conclusion: It may be more beneficial and more effective in pain as well as other subjective and objective parameters.

Keywords: *AnuvasanBasti; brihachagalyadi ghritam; guggulutiktaka ghritam; gridhrasi (Sciatica).*

1. INTRODUCTION

The Chief cause is visiting the doctor is a pain in most patients. It is known as *Ruja*, which is one of the synonyms of disease. It disturbs the physical and mental status of a patient. Pain is a cardinal symptom in most of the *Vatavyadhis*.

The altering lifestyle of human existence has created several resentments in the biological system. As the encroachment of tiring, professional and social life, inappropriate sitting posture, overexertion, jerky movements – all these factors produce gratuitous pressure to the spinal cord and play an essential role in building *Gridhrasi* (Sciatica).

Gridhrasi is a disease with neurological symptoms of sciatic nerve [1]. It is a crippling disease involving *sira* and *Kandara* of *katipradesha*, characterized by the radiating type of pain from the low back through the lower part of a buttock, thigh, and calf muscles foot [2].

The most common musculoskeletal disorder affecting the movement of the leg is low back pain. Among the affected patients, 40% have radicular pain, and these cases can be classified under the umbrella term of sciatic syndrome. Low back pain is extraordinarily common, second only to the common cold. About 50% of working adults experience a back injury each year [3].

Gridhrasi, an entity enumerated by *Shula Pradhana*, is among the 80 types of *Nanatmaja*

Vata Vyadhi. According to *Charaka*, *Stambha*, *Ruka*, *Toda*, and *Spandana* are the signs and symptoms of *Vataja Gridhrasi*. *Aruchi*, *Tandra*, and *Gaurav* are additional symptoms of *Vata-Kaphaja Gridhrasi* [4].

In definitions of Sciatica, pain generally radiating to the leg, generally below the knee and into the foot and toes. As with low back pain, Sciatica is a symptom rather than a specific diagnosis, but lumbar disk herniation and lumbar canal or foraminal stenosis are the typical pathologies that may cause sciatic pain [5,6].

Spondylosis is identified with the pressure of the vascular and neural structures. It brought about by a misfortune in the plate tallness and impinging osteophytes. It add to the deadness, stun like sensations, pain, interminable motor and tangible effects, which if not revised may prompt lasting incapacities [7].

Basti is the most important among *Panchakarma* due to its multiple effects. *Basti* is best for *Vata* disorders and equally effective in correcting the morbid *Pitta*, *Kapha* and *Rakta* [8]. *Charaka* has considered *Basti* therapy as half of the disease's treatment, while some authors consider it as the complete remedy for all the ailments [9]. *Basti* is one of the unique procedures explained for the management of *Vatavyadhi*,

In the *chikitsa sutra* of *Vatavyadhi*, many *Acharyas* advised *Basti*, and *Acharya Charaka* has mentioned *Basti* as a *brumhana sneha* [10] where *Gridhrasi* is the predominant of *Vata*

dosha, *Basti* is being used widely for the management of *Gridhrasi*. We are using *Brihachagalyadi Ghritam & Guggulutiktaka Ghritam* as a *basti*, and it is the best formulation in *Gridhrasi* disease due to having excellent *Vatashamaka* property.

2. AIM AND OBJECTIVES

Aim: To compare the efficacy of *Brahatchagalyadi Ghritam & Guggulutiktaka Ghritam Anuvasan Basti* in the management of *Gridhrasi*.

Objectives:

- To evaluate the efficacy of *AnuvasanBasti* with *Brihatchagalyadi Ghritam* in the management of *Gridhrasi* (Sciatica).
- To evaluate the efficacy of *Anuvasan Basti* with *Guggulutiktaka Ghritamin*, the management of *Gridhrasi* (Sciatica).
- To compare *Anuvasan Basti*'s efficacy with *Brihatchagalyadi Ghritam & Guggulutiktaka Ghritam* in the management of *Gridhrasi* (Sciatica).

Case Definition:

1. Patients with cardinal features of the disease, such as dull or piercing pain, twitching and stiffness in back, lumbar region, buttock, thigh, back of the knee, calf, and feet area order.
2. Positive SLR test in the affected leg

Research Question: Whether *Anuvasan Basti* with *Brahatchagalyadi Ghritam* is more efficacious than *Guggulutiktaka Ghritam Anuvasan basti* in the Management of *Gridhrasi* (Sciatica)?

Research Hypothesis: *Anuvasana Basti* with *Brahatchagalyadi Ghritam* is more efficacious than *Guggulutiktaka Ghritam Anuvasana basti* in the Management of *Gridhrasi* (Sciatica).

Null Hypothesis: There is no difference between *Anuvasana Basti with Brahatchagalyadi Ghritam & Guggulutiktaka Ghritam* in the Management of *Gridhrasi* (Sciatica).

Trial Design – Randomized, Reference, standard control double-blind Clinical trial.

3. METHODOLOGY

Study setting- The patients of *Gridhrasi* will be selected randomly, from OPD/IPD, Mahatma

Gandhi Ayurved College, Hospital and Research Institute, Salod (H) Wardha M.H. India.

Registration Number- registered for CTRI, no awaited.

IEC- MGACHRC/IEC/December-2020-165

Drugs Authentication & procurement: All Raw drugs will be verified and authenticated from the Dravyagun department of Mahatma Gandhi Ayurved College, Hospital and Research Institute, Salod(H) Wardha M.H. India. Drugs will procurement by GMP certified Ayurveda Pharmacy.

1. Age group 20-45yrs of either gender
2. Limitation of SLR test angle 30⁰-70⁰ due to pain,
3. Unilateral or bilateral radiation of pain in the sciatica nerve distribution,
4. Patient is fit for *Basti* treatment
5. Patient assigns Inform consent form

3.2 Exclusion Criteria:

1. History of spinal surgery and vertebral fracture,
2. Evidence of Ischemic Heart Disease, tuberculosis,
3. A clinical condition such as hypersensitive skin, cardiac pacemaker, pregnancy,
4. Established tumours/malignancy,
5. Motor weakness such as stroke, diabetic neuropathy
6. Patients having back pain due to non-spinal illness will exclude, e.g. UTI, gastrointestinal diseases, and uterine diseases
7. Lumber disc prolapsed & Osteoporosis

Criteria for discontinuing or modifying allocated interventions- The subject will be withdrawn from the study if any untoward incidence, features of drug sensitivity, or any other diseases or problem arises, the subject will be offered free treatment till the pain subsides.

Follow up – 0 – 9thday – 18th day

Primary Outcome- We will see the effect of *Brihachagalyadi Ghritam and Guggulutiktaka Ghritam* on Pain, radiating pain on both left or right and both legs, restricted movements before and after treatment. Data will be expressed as the standard error of the mean at 5 % level of significance.

Composition of trail drugs-

Brihachaglyadi Ghritam (Trail Drugs) [11]**Table 1. Ingredients of Brihachaglyadi Ghritam**

Sr.No	Drugs	Botanical name	Rasa	Guna	Veerya	Vipaka	Karma	Chemical composition
1.	Ghritam	<i>Ghee</i>	Madhur	Guru Snigdha	Sheet	Madhur	Vata- Piitta Shamak	
2.	Satavari	<i>Asparagus racemosus</i>	Madhur Tikta	Guru Snigdha	Sheet	Madhur	Vata- Piitta Shamak Balya, Vaya sthapana	Saponin
3.	Kshira	<i>Milk</i>	Madhur	Laghu Snigdha	Sheet	Madhur	Vata- Piitta Shamak Balya, Vaya sthapana, Jeevniya, Rasayan	
4.	Chagamamsa	<i>Meat of Goat</i>	Madhur	Laghu Snigdha	Sheet	Madhur	Trodoshasa-mak, Peenasnasn-am, Brahaniya, Veeryavard-hanam	
5.	Kasmari	<i>GameliaArboria</i>	Tikta Kasaya Madhur	Guru	Ushna	Katu	Sothahara	Butiric & Terteric acid
6.	Vilva	<i>Aeglemarmelos</i>	Kasaya Tikta	Laghu Ruksha	Ushna	Katu	Sothahara, Arshoghna Aasthapano-paga, Anovasanop-aga	Tanin, Stable oil Sarkara, Tanin, Tikta satva
7.	Patala	<i>Steriospermum colais</i>	Tikta Kasaya	Laghu Ruksha	Ushna	Katu	Sothahara	Tanin, Stable oil
8.	Syonak	<i>Oroxylumindicu m</i>	Madhur Tikta Kasaya	Laghu Ruksha	Ushna	Katu	Sothahara, Sheetprasa-man Anovasanop-aga	Oroxylum A, Baicalein, Chrysin
9.	Agnimanth	<i>Premnacorymbosa</i>	Tikta, Katu, Kasaya, Madhur	Laghu Ruksha	Ushna	Katu	Sothahara, Sheetprasa-man Anovasanop-aga	Saponin, Tanin, Glycosidase
10.	Salparni	<i>Pseudarthriaviscida</i>	Madhur Tikta	Guru & Snigdha	Ushna	Madhur	Sothahara, Balya, Snehopaga	Rol, Oil, Alkaloid

Sr.No	Drugs	Botanical name	Rasa	Guna	Veerya	Vipaka	Karma	Chemical composition
							Angamarda-prashman	
11.	Prishnaparni	<i>Desmodium gangeticum</i>	Madhur Tikta	Laghu & Snigdha	Ushna	Madhur	Sothahara, Angamarda-prashman, Sandhaniya	Tanin, Glycosidase
12.	Brihti	<i>Solanum anguivi</i>	Katu Tikta	Laghu, Ruksha, Teekshna	Ushna	Katu	Sothahara, Angamarda-prashman, Kanthya, Hikkani-gra-han	Solanine, Solanidine, Solasonine
13.	Nidigdhika	<i>Solanum Virginianum</i>	Tikta Katu	Laghu, Ruksha, Teekshna	Ushna	Katu	Sothahara, Angamarda-prashman, Kanthya, Hikkani-gra-han	Diogenin, Potassium Carbonate, Sulphate, and Nitrate, Solesonin
14.	Gokshura	<i>Tribulus terrestris</i>	Madhur	Guru Snigdha	Sheet	Madhur	Sothahara, Anovasanop-aga, Kramighna, Mutravirechaniya	Alkaloid, Stable oil, Sugandhita oil, Glycosides, Harman & Harmine
15.	Ashwagandha	<i>Withania somnifera</i>	Tikta, Katu, Madhur	Laghu Snigdha	Ushna	Madhur	Balya, Brahana	Cuseohygrine, Anahygrine, Tropine & Anaferine
16.	Bala	<i>Sidacordifolia</i>	Madhur	Laghu Snigdha Picchila	Sheet	Madhur	Balya, Brahana Prajasthapa-na	Alkaloid, Ephedrine
17.	Masha	<i>Vigna Mungo</i>	Madhur	Guru Snigdha	Ushna	Madhur	Vajikarana	Albuminoid, Starch, Alkaloid

Sr.No	Drugs	Botanical name	Rasa	Guna	Veerya	Vipaka	Karma	Chemical composition
18.	Jivanti	<i>Leptodeniaretic ulata</i>	Madhur	Laghu Snigdha	Sheet	Madhur	Jeevniya	Sterol
19.	Madhuka	<i>Glycyrrhizaglabra</i>	Madhur	Guru Snigdha	Sheet	Madhur	Jeevniya, Kanthya, Sandhaniya, Varna, Kandughna, MutraviranjaniySonitasthapa na, Chardinigrahana, Snehopaga, Vamnopag	GlycyrrnizinIsoliquiritin, Liquiritin, Aspagarine, Starch, Glucose
20.	Draksha	<i>Vitisvinifera</i>	Madhur	Guru Snigdha Mradu	Sheet	Madhur	Snehopaga, Virechnopaga, Kasahara, Jwarhara	Glucose, Tartaric, Cytric, Rasemic Kcl, Nacl, K2So4, Mg
21.	Dvikakoli (Sub) Ashwagandha	<i>Withaniasomnifera(Sub.)</i>	Tikta, Katu, Madhur	Laghu Snigdha	Ushna	Madhur	Balya, Brahana	Cuseohygrine, Anahygrine, Tropine & Anaferine
22.	Nilamulpala	<i>Monochoriavignalis</i>	Madhur	Guru Snigdha	Sheet	Madhur	Antioxident, Antiinflammatory	Flavanoids,
23.	Musta	<i>Cyperusrotundus</i>	Tikta, Katu, Kasaya	Laghu Ruksha	Sheeta	Katu	Jwarghna, Stholyahara, Sothahara	Flavanoids, B-sistosterol, Ascorbic acid
24.	Chandana	<i>Santalum album</i>	Tikta Madhur	Laghu Ruksha	Sheeta	Katu	Vishagna, Daurgandhyahar Kramighna, Varnya, Hradya	Sesquiuterpine, Alcohol, Volatile oil
25.	Rasna	<i>Alpiniagalanga</i>	Tikta	Guru	Ushna	Katu	Kramighna, Deepana, Pachana, Anulomana Aampachana	Alkaloids, Saponin, Glycosides
26.	Mashparni	<i>Dysolobiumpilosum</i>	Madhur Tikta	Laghu Snigdha	Sheet	Madhur	Jeevniya, Shukrajanan	-
27.	Mudgaparni	<i>Vignaradiata</i>	Madhur	Laghu Ruksha	Sheet	Madhur	Jeevniya, Shukrajanan	-

Sr.No	Drugs	Botanical name	Rasa	Guna	Veerya	Vipaka	Karma	Chemical composition
28.	Sweta Sariba	<i>Hemidesmusin dicus</i>	Madhur Tikta	Guru Snigdha	Sheet	Madhur	Stanyasodh- ana, Purishsamgrahniya, Jwarahara, Dahaprsam-ana	P- Methoxy salicylic aldehyde, B-sitoserol, B-amyrins, lupeool, tetracyclic triterpene alcohols
29.	Krishna Sariba	<i>Ichnocarpusfrut escens</i>	Madhur Tikta	Guru Snigdha	Sheet	Madhur	Stanyasodh- ana, Purishsamgrahniya, Jwarahara, Dahaprsam-ana	P- Methoxy salicylic aldehyde, B-sitoserol, B-amyrins, lupeool, tetracyclic triterpene alcohols
30.	Dviveda	<i>Puerariatubero sa (Sub.)</i>	Madhur	Guru Snigdha	Sheet	Madhur	Balya, Brahana, Varnya, Kantha, Snehopaga	Carbohydrate & Protein
31.	Kushtha	<i>Saussurealappa</i>	Tikta, Katu, Madhur	Laghu Ruksha Teeksha-na	Ushna	Katu	Sukrasodha-na, Lekhniya, Aasthapano-paga	Saussurine Alkaloid, Tanin, Inulin- 18 %
32.	Dvijivaka Sub(Vidari)	<i>Puerariatubero sa (Sub.)</i>	Madhur	Guru Snigdha	Sheet	Madhur	Balya, Brahana, Varnya, Kantha, Snehopaga	Carbohydrate & Protein
33.	Sati	<i>Hedychiumspicatum</i>	Tikta, Katu, Kasaya	Laghu Teeksha-na	Ushna	Katu	Shwashara, Hikkanigra-hana	Starch (52%), Organic acid, Glycoside
34.	Priyangu	<i>Callicarpamacrophylla</i>	Tikta, Kasaya, Madhur	Guru, Ruksh	Sheet Katu		Mutraviranjnee, Pureeshsamgrahniya	Hydrocynic acid
35.	Darvi	<i>Barberisaristata</i>	Tikta	Ruksha	Ushna	Katu	Pachana, Stanyadosh-ahara	-
36.	Abhaya	<i>Terminaliacheb</i>	Pancharasa	Laghu	Ushna	Madhur	Prajasthapanana, Jwarghna,	Chebulagic

Sr.No	Drugs	Botanical name	Rasa	Guna	Veerya	Vipaka	Karma	Chemical composition
		<i>ula</i>	(Lavan Absent) Kasaya Pradhan	Ruksha			Kushtaghna, Arshoghna, Kasaghna	acid, chebulinic acid, coriligin
37.	Amalaki	<i>Phyllanthusemblica</i>	Pancharasa (Lavan Absent) Amla Pradhan	Guru, Ruksha sheet	Sheet	Madhur	Vayasthapana, Virechnopaga	Vit-C, Galic acid, Tanic acid, Albumin, Cellulose, Protein, Vasa, Minerals
38.	Vibhitaka	<i>Terminaliabellicca</i>	Kasaya	Ruksha Laghu	Ushna	Madhur	Virechnopaga, Jwarahara	Tanin (21.4%), B-Systosterol, Galic acid, Elegika acid, Ethyl galate, Chebulegic acid, Manitol, Glucose, Galactose
39.	Nata	<i>Valerianawallic hii</i>	Tikta Katu kasaya	Laghu	Ushna	Katu	Vishaghna, Raktadoshahara, Manasdosahar	Sesquiterpenoides, Alkaloides, Glucosides, Resins, terpeneol, flavonoids
40.	Talisa	<i>Abiesspectabilis</i>	Tikta Madhur	Laghu Teekshna	Ushna	Katu	Shirovirechna	Volatile oil
41.	Padmaka	<i>Prunusceracoidus</i>	Kasaya Tikta	Laghu	Sheet	Katu	Vedanasthapana, Varnya	Scuratanin, Jaquanin, Prunetin, Padmakasthin, Sukranin,

Sr.No	Drugs	Botanical name	Rasa	Guna	Veerya	Vipaka	Karma	Chemical composition
42.	Ela	<i>Eletarriacardan omum</i>	Katu Madhur	Laghu	Sheet	Madhur	Hridya, Mutral, Deepan, Anuloman	Taxifolin Volatile oil
43.	Tejapatra	<i>Cinnamonumta mala</i>	Katu Madhur	Laghu Picchila Teekshna	Ushna	Katu	Rucya, Arshoghna	Methyl eugenol, trans cinnamyl, Beta caryophyllene Saponin
44.	Vari	<i>Asparagus racemosus</i>	Madhur Tikta	Guru Snigdha	Sheeta	Madhur	Balya, Vayasthapana	
45.	Nagakeshar	<i>Mesuaferrea</i>	Tikta katu kasaya	Laghu Ruksha	Ushna	Katu	Varnya, Urdhwajatrugatavikara nasaka	Lipid, Carbohydrate, protein, oleorasin
46.	Jatikusuma	<i>Jasminumgran diflorum</i>	Tikta kasaya	Laghu Snigdha Mradu	Ushna	Katu	Kushtaghna	Salicylic acid, Jasminine
47.	Dhanyaka	<i>Coriandrum sati vum</i>	Kasaya Madhur tikta Katu	Laghu Snigdha	Ushna	Madhur	Trashnanigrahana, Sheetprasamana	Carbohydrate, Vitamin, Fat, Minerals, Coriandrol
48.	Manjistha	<i>Rubiaccordifolia</i>	Kasaya Madhur tikta	Guru	Ushna	Katu	Aartavjanan, Prameyaghna	Anthroquinone s, Glycosides, Saponin, Resin
49.	Dadima	<i>Punicagranatum</i>	Madhur Kasaya Amla	Laghu Snigdha	Anushna	Madhur Species- Madhur Amla Species- Amla	Hradya, Chardinigrahana	Carbohydrate, Vitamin, Fat, Minerals, Fe, Manitol, Vit-C
50.	Daru	<i>Cedrusdeodara</i>	Tikta	Laghu Snigdha	Ushna	Katu	Dustavranasodhaka, Pramehaghna	Alcaloids, Glycosides, Flavonoids

Sr.No	Drugs	Botanical name	Rasa	Guna	Veerya	Vipaka	Karma	Chemical composition
51.	Renuka	<i>Piper cubeba</i>	Katu Tikta	Laghu Ruksha Teekshna	Ushna	Katu	Hradya, Aartavjanan	Cubebin, Cubebol
52.	Elavaluka	<i>Prunusavium</i>	Kasaya	Laghu	Sheet	Katu	Kandughna, Kushtaghna, Trashnahara	-
53.	Vidanga	<i>Embeliaribes</i>	Katu Tikta	Laghu Ruksha Teekshna	Ushna	Katu	Kramighna, Deepan Pachana	Alkaloids, Glycosides, Flavanoides, Terpenoides, VitA, Vit-C, protein, carbohydrates, Minerals
54.	Jeerak	<i>Cuminumcyminum</i>	Katu	Laghu Ruksha	Ushna	Katu	Shulaprasamana, Shirovirechana	Sugar, Fat, Albumin, Guanine, Ca-Oxalate
55.	Sarkara	<i>Saccharumofficinarium</i>	Madhur	Guru Snigdha	Sheet	Madhur	Vrasya, Stanyajanana	

Guggulutiktak Ghritam [12]**Table 2. Ingredients of Guggulutiktak Ghritam**

Sr.Nu	Drugs	Botanical Name	Rasa	Guna	Veerya	Vipaka	Karma	Chemical composition
1	Ghritam	<i>Ghee</i>	Madhur	Guru Snigdha	Sheet	Madhur	Vata- Piitta Shamak	
2	Nimba	<i>Azadirachta indica</i>	Tikta Kasaya	Laghu	Sheet	Katu	Kandughna	Nimbinin, Nimbidin, Nimboesterol, Volatile oil Tanin
3.	Amrita	<i>Tinosporacardifolia</i>	Tikta Kasaya	Laghu	Ushna	Madhur	Rasayan, Deepan, Pachana, Jwaraghna Raktasodhana	G- Glycosides Sesquiterpinoid Starch Polysaccharide Protein, Calcium Phosphorus
4.	Vrisha	<i>Adatodavasaca</i>	Tikta Kasaya	Laghu	Sheet	Katu	Hradya, Raktasamgrahi, Kasaghna	Anthraquinones, Saponin, Alkaloids, Flavanoids, Terpendois
5.	Patol	<i>Trichosarnthesdioca</i>	Tikta	Laghu Ruksha	Ushna	Katu	Traptighna, Trashnanigrahan	Protein, Fat, Carbohydrate, Minerals, Greenish oil
6.	Nidigdhi ka	<i>Solanumviriginianum</i>	Tikta Katu	Laghu, Ruksha, Teekshna	Ushna	Katu	Sothahara, Angamarda- prashman, Kanthya, Hikkanigrahan	Diogenin, Potasium Carbonate, Sulphate, and Nitrate, Solesonin
7.	Patha	<i>Cycleapeltata</i>	Tikta	Laghu Teekshna	Ushna	Katu	Stanyasodhana, Jwarahara, Sandhaniya	Pelosine, Bebeerine, Saponin, Cycline Alkaloid
8.	Vidanga	<i>Embeliaribes</i>	Tikta Katu	Laghu, Ruksha, Teekshna	Ushna	Katu	Deepana, Pachana, Anuloman Kramighna Vishaghna	Embelin, Christembine. Vilangin,
9.	Suradar u	<i>Cedrdarusdeodara</i>	Tikta	Laghu Snigdha	Ushna	Katu	Dustavranasodhak a, Pramehaghna	Alcaloids, Glycosides, Flavonoids

Sr.Nu	Drugs	Botanical Name	Rasa	Guna	Veerya	Vipaka	Karma	Chemical composition
10.	Gajopakulya	<i>Scindapsus officinalis</i>	Katu	Teekshna	Ushna	Katu	Shwasahara, Kantharogahara, Kramighna, Atisarghna	Raal, Alkaloid
11.	Yavakshara	<i>Carobanate of potash</i>	Katu	Laghu Snigdha	Ushna	Katu	Shwasahara, Kantharogahara, Aamvatahara, Deepan, Pachana	Carbonate of potash
12.	Sauvarchala	<i>Sodiicarbonusim pura</i>	Lavana	Snigdha, Visada	Ushna	Madhur	Vibandhahara, Shulahara, Aanahara, Deepan, Pachana, Rochana	Nacl- 97.8%, Sodium sulphite- 0.918%, Iron- 0.030%, Insoluble matter- 0.07 %
13.	Nagara	<i>Zinger officinale</i>	Katu	Laghu Snigdha	Ushna	Madhur	Aamdoshahara, Pachaka, Graahi	Gingerols, shogaols, volatile oil, sequeiterpine
14.	Nisha	<i>Curcuma longa</i>	Tikta Katu	Ruksha	Ushna	Katu	Vishaghna, Kushtaghna, Sothahara, Varnya, Kramighna, Pramehaghna	Curcomin- 70-76%, Dimethoxycurcomin- 16%, Dimethoxycurcomin- 16%, bisdimethoxycurcomin- 8%, Alkaloids, Cardiac glycosides, terpenes, Resin
15.	Mishi	<i>Anethumgraveolens</i>	Tikta Katu	Laghu, Ruksha, Teekshna	Ushna	Katu	Asthapanopaga	Sugandhita Taila
16.	Chavya	<i>Piper chebula</i>	Katu	Laghu Ruksha	Ushna	Katu	Traptighna, Arshoghna, Deepniya, Shulaprasaman	Piperine, Palitorin, Volatile oil, Starch
17.	Kushtha	<i>Saassurealappa</i>	Tikta, Katu, Madhur	Laghu Ruksha Teeksha-na	Ushna	Katu	Sukrasodha-na, Lekhniya, Aasthapano-paga	Saussurine Alkaloid, Tanin, Inulin- 18 %
18.	Tejovati	<i>Celastruspaniculatus</i>	Tikta, Katu,	Laghu Ruksha	Ushna	Katu	Shirovirechana, Arshaghna,	Berberine, Dictaminine, Magnufluorine, Xanthoplanine,

Sr.Nu	Drugs	Botanical Name	Rasa	Guna	Veerya	Vipaka	Karma	Chemical composition
				Teeksha-na			Kasaghna	Skimmaianine. Volatile Oil
19.	Maricha	<i>Piper Nigrum</i>	Tikta, Katu,	Laghu Ruksha Teeksha-na	Ushna	Katu	Chedaniya, Ruchya, Pachaniya, Medahara, Kramihara	1-2.5% volatile oil, 5-9% Alkaloids
20.	Dipyaka	<i>Tachyspermum mami</i>	Katu, Tikta	Laghu Ruksha Teeksha-na	Ushna	Katu	Sheetprasaman	Ajowan oil- 2-4%, Thymol- 35- 60 %, Carvacrol, Thymine, Protein , Vasa, Carbohydrate, Minerals, Sodium, Potasium, Phosphorus, Calcium, Thimine, Riboflavin, Nicotinic Acid
21.	Vatsaka	<i>Holarrhenapubes cens</i>	Katu, Tikta	Laghu Ruksha	Sheet	Katu	Deepniya, Samgrahi	Alcaloid, Carbohydrate, Sugar, Oil Alkaloid
22.	Agni	<i>Plumbagozeylani ca</i>	Katu,	Laghu Ruksha Teeksha-na	Ushna	Katu	Deepan, Pachana, Grahi, Shulaghna, Sothahara	Napthoquinones, Binapthoquinones, Coumarins, Diphenyl sulphone, carboxylic acid, Merotarpenes, Triterpenoid, Amino acids, Anthroquinones
23.	Rohini	<i>Picrorhizacuruha</i>	Tikta	Laghu Ruksha	Sheet	Katu	Bhedaniya, Lekhniya, Stanyasodhana	Picrorhizin, Kutkin, D- Manitol, Banilika acid Kutkiol
24.	Arushkar a	<i>Semicarpusanac ardeum</i>	Katu, Tikta Kasaya	Laghu Snigdha Teekshna	Ushna	Madhur	Kustaghna, Deepniya, Mutrasamgrahiniya	Vranakaraka taila, Bhlawanol, Semecarpol
25.	Vacha	<i>Acoruscalamus</i>	Katu	Laghu Teekshna	Ushna	Katu	Virechnopaga, Lekhniya, Arshoghna, Traptighna, Aasthapanopaga, Sheetprasaman,	Asaryl aldehyde, A-Asorone, B- Asorone, Acorin, Eugenol, Caffein

Sr.Nu	Drugs	Botanical Name	Rasa	Guna	Veerya	Vipaka	Karma	Chemical composition
26.	Pippli mula	<i>Piper longum root</i>	Katu Tikta	Snigdha, Laghu	Anushna	Madhur	Sangyasthapana Deepniya, Grahi, Arshoghna, Shulahara, Shothhara	Volatile oil, Resin, Waxy alkaloids, Piperine, piperlongumine
27.	Manjistha	<i>Rubiocardifolia</i>	Kasaya Madhur tikta	Guru	Ushna	Katu	Aartavjanan, Prameyaghna	Anthroquinones, Glycosides, Saponin, Resin
28.	Ativisha	<i>Aconitum heterophyllum</i>	Tikta Katu	Laghu Ruksha	Ushna	Katu	Arshoghna, Lekhniya	Atisine, Hetratisine, Hetisin
29.	Visha	<i>Aconitum ferox</i>	Madhur	Laghu Snigdha Teekshna Vyavayi Vikashi	Ushna	Madhur	Jwarhara	Aconitine, Pseudo aconitine, Picro aconine, Benzoil Aconin
30.	Yavani	<i>Cumimumcyminum</i>	Katu Tikta	Laghu Ruksha Teekshn	Ushna	Katu	Deepan, Pachana, Anuloman Shulahara Kramighna Medohara	Carbohydrate, Fat, Proteins, Fiber, Saponin, Flavno, Minerals
31.	Guggulu	<i>Commiphoramukul</i>	Tikta Katu	Old Guggulu- Laghu Ruksha teekshn Visad sukshma Sara New Guggulu- Snigdha Picchil	Ushna	Katu		Volatile oil, Raal

Secondary Outcome- We will see the effect of *Brihachagalyadi Ghritam and Guggulutiktaka Ghritam* on goniometer parameters reading of all types of back movement Flexion, Extension, Right Lateral, Left Lateral, through goniometer device

Statistical Analysis- Data will be analyzed based on appropriate statistics paired with unpaired t-test, Chi-square, and ANOVA using SPSS software.

Time duration till following up 18th days

Follow up period- 9th days

Time schedule of enrolment, interventions- Subjects will be recruited for the study after clearance from the institutional Ethical Committee. Interventions will be *Anuvasana basti* with two different formulations with increasing dose.

Recruitment- 33 subjects in each group will be recruited by a single randomizing sampling method.

3.1 Inclusion Criteria:

4. METHODS

Literature review search, plan of work, blueprint in the form of flow chart, raw materials collection, preparation of medicine, data collection, intervention, and effect will be observed and statistical analysis.

Data collection Methods- randomized sampling

Objective criteria-

- SLR test with Goniometry
- Range of motion in centimetres,
- Tenderness grading
- Sciatica Frequency Index

- Sciatica Bothersomeness Index

Subjective Criteria:

- *Ruka*
- *Toda*
- *Stamba Spandana*
- *Aruchi Tandra*
- *Gourava*
- Modified Oswestry low back pain questionnaires
- Quebec disability scale
- VAS: A 10cm line will be used to assess the severity of pain.

Assessment of Basti:

1. *Prasrushta Vitkata , mutra, samira* (Passing urine, stool, flatus)
2. *Laghavta* (Lightness in the body)
3. *Ruchi* (appetite)
4. *Agni vridhhi* (Increased digestive power)
5. *Asaya Laghuta* (lightness of organs)

Investigations: If necessary, MRI Lumber region & X-Ray Lumber Region.

Data management- Data coding will be done by the principal investigator.

Statistical methods- Chi square test, Paired and Unpaired for objective criteria, nonparametric for subjective criteria, ANNOVA for comparing between two groups.

Dissemination policy- The information will be discrete by paper distribution: creation qualification rules and any proposed expert scholars' application.

Informed consent materials- With all the data model assent structure and other related documentation will be given to members.

Intervention –

Table-3 Intervention & Posology [13]

Groups	Anuvasan Basti Drugs	1st Day	2nd Day	3rd Day	4th Day	5th Day	6th Day	7th Day	8 th Day	9 th Day
Group A: N=33	<i>Interventional Group- Brihachagalyadi Ghritam</i>	28.2 ml	35.3 ml	42.3 ml	49.4 ml	56.4 ml	63.5 ml	70.5 ml	77.6 ml	84.7 ml
Group B: N=33	<i>Control group- Guggulutiktaka Ghritam</i>	28.2 ml	35.3 ml	42.3 ml	49.4 ml	56.4 ml	63.5 ml	70.5 ml	77.6 ml	84.7 ml

5. DISCUSSION

Importance of *Basti Karma -Pakwashaya* is the primary location of *Vata Dosha*. *Vyana Vata* is indeed vitiated in *Gridhrasi*. So, *Basti* is beneficial in pacifying *Vata*. Further, it is glorified that *Basti Chikitsa* as "*Ardha Chikitsa*" of *Vata* [14] By these facts, *Basti* is the main *Chikitsa* in the *Panchakarma* for the treatment of *Gridhrasi*. No other therapy like *Chikitsa*, which was specifying and relating the force of *Vata* apart from *Basti* [15]

5.2 Limitation of Established Conventional Therapy of Sciatica

In the management of Sciatica, in modern medicine, only symptomatic treatment given like analgesic, non-steroidal anti-inflammatory drugs. Surgical procedures like laminectomy and discectomy are advised if nerve compression occurs, but these surgical procedures are expensive to the patient.

"In Ayurveda, Various methods used in the Treatment of *Gridhrasi* (Sciatica) are *Bheshaja*, *Snehana*, *Swedana*, *Siravedha*, *Agnikarma* and *Basti*" [16]

Snehana and *Basti* are the best modalities to treat *Vata*-originated diseases like *Gridhrasi* (Sciatica) & *Sandhivata* (Osteoarthritis).

It proved that if we use different forms of herbs and herb extracts, the efficacy of that product increases when processed with ghee, compared to powder or tablet form. Therefore, *Ghruta* Preparation is effective in treating *Gridhrasi* (Sciatica) [17].

Anuvasana Basti is the type of *Abhyantarasneha*, so it is beneficial in *Gridhrasi* (Sciatica) because *Snehadravya* is having *Snigdhaproperty*, which pacify the *Vata dosha* and nourish the nerves and tissues.

5.2 Why *Guggulu Tiktaka Ghrita Anuvasanbasti* As a Control

Guggulu Tiktaka Ghrita contains *Tikta Rasa* and *Ushna Virya* drugs predominantly. Being composed of *Akasha* and *Vayu Mahabhuta*, *Tikta Rasa* helps maintain the average health of *Asthi Dhatu* [18]

It also increases the *Dhatvagni* (metabolic stage), which helps in the proper nutrition of all

the *Dhatus*. Hence *Asthi Dhatu* and *Majja Dhatu* may get appropriate nourishment due to *Guggulutiktak Ghritam*. Owing to the *Snigdha* and *Ushna Guna*, *Guggulu Tiktaka Ghrita* helps in the pacification of aggravated *Vata*. Pharmacologically, *Guggulu* has anti-inflammatory, immunomodulatory, and antilipidemic properties [19].

Anuvasana Basti, is a type of *Sneha Basti* (oil enema) in Ayurveda. Moreover, *Basti* is best to pacify *Vata* and even for *Asthi Gata* diseases (Diseases related to bone). *Asthi* (bone) being the site of *Vata* and influences the *Purishadhara* (*asthidhara*) *Kala*, i.e. *Pakwashaya* (Rectum). *Asthi Vaha* Srotas (locomotors system), the vitiated *Vata*, gets subsided when the *asthi* treated with *Basti*. As the primary site of *Vata*, the *Basti* acts better with its *Sneha* and *Shamaka* (pacification) properties [20,21].

Bruhana Ksheera Basti with *Guggulu Tiktaka Ghrita* is an effective treatment method for reliable and successful management of *Gridhrasi* (Sciatica) induced by lumbar disc degeneration [22].

Brahatchagalyadi Ghritam made from 55 drugs; out of these drugs, *Dashmool*, *Balamoola*, *Ashwagandha*, *Satavari*, *Kustha*, *Draksha*, *Devdaru* and *Rashna* subside the *Vata dosha* and nourishes the nerves. It is helpful to treat *Gridhrasi* (Sciatica).

Brahatchaglyadi Ghritam indicated in the treatment for *Gridhrasi*. *Brahatchagalyadi Ghritam* is made from Goat meat [23]. Goat meat is the best *dravya* for *Brahana Karma* [24]. Therefore in this study, *Brahatchagalyadi Ghritam Anuvasana Basti* [25] taken in an interventional group. A number of related studies have been reported [26-28]. Some key studies with Ayurvedic remedies were reviewed [29-31].

Strengths- Positive outcome of this study may be use as an effective modality in the management of *Gridhrasi* (Sciatica).

6. CONCLUSION

Conclusion will be drawn after the deliberate analysis of data.

CONSENT

The made consent will be taken from the patient before beginning the assessment. During the

investigation, the classification of each patient will be kept up.

ETHICAL APPROVAL

Ethical approval from the research ethics committee has taken. Ref.No. MGACHR/IEC/December- 2020/165

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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