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An open label pilot study to evaluate efficacy of *Ayurvedic* intervention in the management of *Katigatvata* W.S.R.T. lumbar spondylosis

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Abstract

Lumbar Spondylosis is one among the degenerative disc ailments. A recent study showed, the middle-aged population shows increased incidence of degenerative disc changes. This may be because of faulty regimen and lifestyle. The study conducted here is a combination of different *Ayurvedic* modalities and supportive therapy to get maximum relief in a minimal period. More attentiveness is on the *Bahi Parimarjana Chikitsa* (External purification therapy) on the affected part that being *Kati pradesha* (lumbosacral region) and *Prishtha pradesha* (lower back region). At the initial stage because of *Kapha Avarana* (*Kapha* obstruction) there will be stiffness and later when it becomes chronic due to improper usage of lumbar spine, *Vata* alone leads to *Dhatukshaya* (tissue degeneration) because *Dhatukshaya* is an integral character of *Vata dosha*.¹ Keeping this in mind, patients were categorized in 3 groups and accordingly treatment was chosen.

Keywords: *Katigatvata*, lumbar spondylosis, *Basti karma*, degenerative changes

Introduction

Degeneration is a natural process with aging but today is an era of sophisticated and fast life; everybody is busy and leading a stressful life. So, to meet every requirement of life there is a vigorous competition and consequently there is change in life style leading to several disharmonies in the biological system of humans from early thirties.

Advancement of busy professional and social life, improper sitting postures in work places, continuous work in only one posture and over exertion, jerky movements during travelling and sports; all these factors create undue pressure and stress injury to the spine (lumbar) and play a major role in producing diseases like Lumbar Spondylosis. Lumbar Spondylosis is the most common disorder of the lumbar spine. It is caused by degenerative changes in the vertebrae and intervertebral discs that occur as a result of constant improper stress on the lumbar spine, injury, ageing, rheumatoid disease etc.

There is no exact clinical entity mentioned in *Ayurvedic* Classics as Lumbar Spondylosis, however it can be considered as *Katishoola* or *Katigatavata* because of its pathogenesis:

- *Shoshana* (withering) of *Asthi Dhatu* (in Lumbar Region).
- *Dushana* of *Vata*.
- *Rooksha* (drying) *guna* of *Vata* increases.
- *Avarana* of *Shleshmaka Kapha* and its *Shoshana* by *Pravridha Vata*.

Thus, the clinical aspects of *Vata-vyadhi* can be implemented in the disease, Lumbar Spondylosis. It leads to pain and stiffness in back, pain in buttocks, radiating pain into legs, difficulty in walking, paraesthesia, numbness, etc. It disturbs the daily routine and overall life of the patient. Though it is not immediately fatal, it causes severe complications in later stage. It cripples the patient to an extent that there is dependency on others. The individual cannot perform day to day work properly because of the severity of pain leading to a decreased quality of life.

Modern medical science provides both conservative and surgical treatment for Lumbar Spondylosis but nothing has been satisfactory to date. Alternative medical sciences, like *Ayurveda* aims to present a better remedy for this condition, which is the purpose of this paper.

Materials and Methods

Study design: An open label pilot study.

Source of data: Patients were selected from O.P.D & I.P.D of S.D.A.C. & H, Chandigarh having classical signs & symptoms of Lumbar spondylosis as well as fulfilling inclusion & exclusion criteria.

Sample size: Total 11 patients were registered, and 10 completed the trial.

Inclusion criteria

Patients diagnosed as suffering from Lumbar Spondylosis based on classical signs and symptoms were included in the study.

Exclusion criteria

Patients below age 20 or more than 60 years and patients who had history of fracture, surgical emergencies and systemic diseases were excluded from the study. Patients who are not fit for the *Snehana*, *Swedana* and *Basti karma* and those who had disability score above 35 were also excluded.

Assessment criteria

A special questionnaire was prepared for the study incorporating all the relevant points from both *Ayurvedic* and modern views along with Oswestry low back disability index.²

Investigations

(X-ray, MRI, routine blood investigations like CBC, LFT, RFT, Blood Sugar).

Categories for Treatment Purpose

Patients were categorized under 3 categories for treatment purpose according to disability index as follows:

Shows Disability Index Score and Disability Level

Categories	Disability Index Score	Disability Level
Category 1	0-4; 5-14	No or Mild
Category 2	15-24	Moderate
Category 3	25-34	Severe

Note: Patients having disability index score 35-50 – (Complete Disability) were excluded

Treatment plan (as per categories)

Categories	Shodhana Chikitsa	Shamana Chikitsa	Other T/t
Category 1: Muscle spasm only, no bony involvement	<ul style="list-style-type: none"> ▪ <i>Snehana</i>³ (with <i>Mahavishgarbha Taila</i>) ▪ <i>Swedana</i>⁴ (<i>Churna Pinda Sweda</i>) ▪ <i>Niruha Basti</i>⁵ (with <i>Erandmooladi Kwath</i>) ▪ <i>Matra Basti</i>⁶ (with <i>Mahanarayan Taila</i>) ▪ <i>Nasya</i>⁷ (with <i>Dhanwantram 101 Taila</i>) 	<ul style="list-style-type: none"> ▪ <i>Vishtinduk Vati</i>⁸ (62.5-125 mg) ▪ <i>Yograj Guggulu</i>⁹ (500 mg-1 gm) ▪ <i>Rasnasaptak Kshaya</i>¹⁰ (15-30 ml) ▪ <i>Praval Pishti</i>¹¹ (125-250 mg) 	<ul style="list-style-type: none"> ▪ <i>Nidana parivarjana</i> ▪ <i>Dincharya</i> Regimen ▪ <i>Pathya sevan</i> (<i>Aaharaj-Viharaj-Mansik</i>)
Category 2: Muscle spasm, early degenerative changes	<ul style="list-style-type: none"> ▪ <i>Snehana</i> (with <i>Karpasthyadi Taila</i>) ▪ <i>Swedana</i> (<i>Patra Pinda Sweda</i>) ▪ <i>Niruha Basti</i> (with <i>Erandmooladi Kwatha</i>) ▪ <i>Matra Basti</i> (with <i>Sahacharadi Taila</i>) ▪ <i>Nasya</i> (with <i>Dhanwantram 101 Taila</i>) 	<ul style="list-style-type: none"> ▪ <i>Mahayograj Guggulu</i>¹² (250-500mg) ▪ <i>Rasraj rasa</i>¹³ (125-250mg) ▪ <i>Dashmoola Arishta</i>¹⁴ (15-20ml) ▪ <i>Shankh Bhasma</i>¹⁵ (125-250mg) 	<ul style="list-style-type: none"> ▪ <i>Nidana parivarjana</i> ▪ <i>Dincharya</i> Regimen ▪ <i>Pathya sevan</i> (<i>Aaharaj-Vihara-Mansik</i>)
Category 3: Progressive degenerative changes with nerve compression	<ul style="list-style-type: none"> ▪ <i>Snehana</i> (with <i>Mahanarayan Taila</i>) ▪ <i>Swedana</i> (<i>Nadi Swedana</i>) ▪ <i>Niruha Basti</i> (with <i>Dashmooladi Kwatha</i>) ▪ <i>Matra basti</i> (with <i>Ksheerbala Taila</i>) ▪ <i>Nasya</i> (with <i>Ksheerbala 101 Taila</i>) 	<ul style="list-style-type: none"> ▪ <i>Mahavata Vidhwansan rasa</i>¹⁶ (62.5-125mg) ▪ <i>Ekangveer rasa</i>¹⁷ (125-375mg) ▪ <i>Maharasnadi Kshaya</i>¹⁸ (15-30ml) ▪ <i>Cap. Ksheerbala 101</i> (6-18 drops) ▪ <i>Swarna Bhasma</i>¹⁹ (15-30mg) 	<ul style="list-style-type: none"> ▪ <i>Nidanaj parivarjana</i> ▪ <i>Dincharya</i> Regimen ▪ <i>Pathya sevan</i> (<i>Aaharaj-Viharaj-Mansik</i>)

Note:

1. *Rasaushadhis* were grinded together and divided into 42 doses and given twice a day.
2. *Anupana* for *shamana aushadhi* was *koshna jala*
3. *Lepana*, *Avgahana*, *Agnikarma* and *Raktamokshana* done according to condition of the patients in all 3 categories.

Dincharya regimen of katigatvata patients at sdach

5:30 AM: Wake up time

6:00 AM: *Dant Dhawan*, *Jivha nirlekhan*, *Kaval*, *Gandush*, *Pratimarsha Nasya*, *Dhoompana*.

7:00AM: *Yogasana* (as per category)

8:00AM: *Niruha Basti* (as per category)

8:30 AM: Breakfast

9:30AM: *Shaman Aushadhi* (as per category)

11:00 AM to 2:00 PM: *Snehan Swedan* (as per category)

2:00 PM: Lunch

3:00 PM: *Shaman Aushadhi* (as per category)

3:00PM to 3:30 PM: *Vishram Kala*

3:30 to 4:30 PM: Physiotherapy and Exercises (as per category).

4:30PM to 5:30 PM: *Parisheka* (on affected region)

5:30PM: Evening Snacks

6:00PM to 6:30PM: Walk in herbal garden

6:30PM to 7:30PM: Meditation and music therapy

7:30 PM to 8:00PM: Dinner

8:00 PM to 8:30PM: *Matra Basti* (as per category)

8:30 to 9:00PM: *Shaman aushadhi* (as per category), *Karnapuram and Padabhyanga*

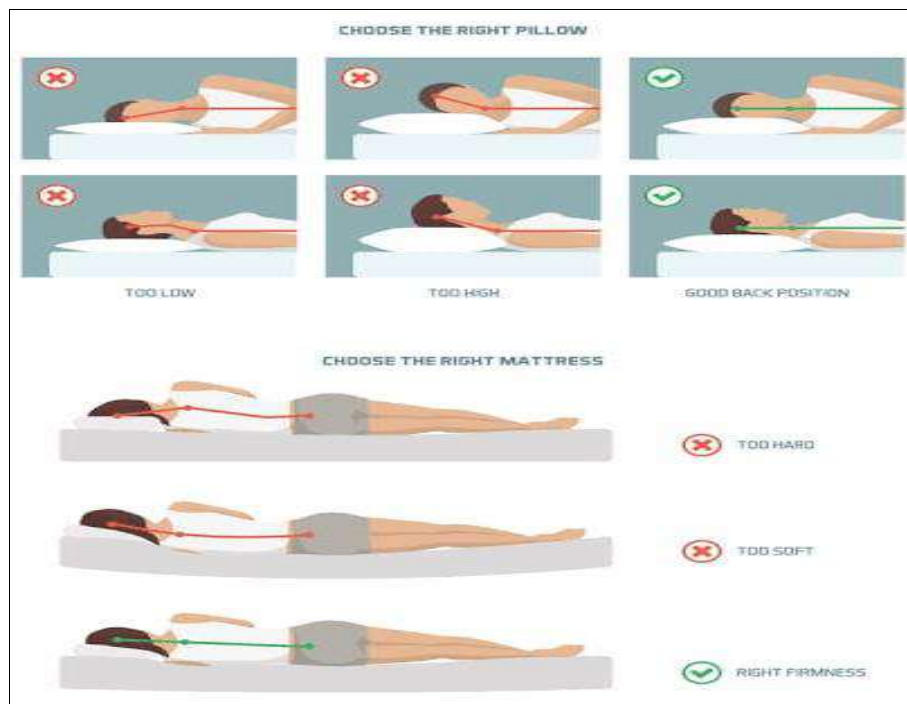
9:00PM: Bed time.

Note:

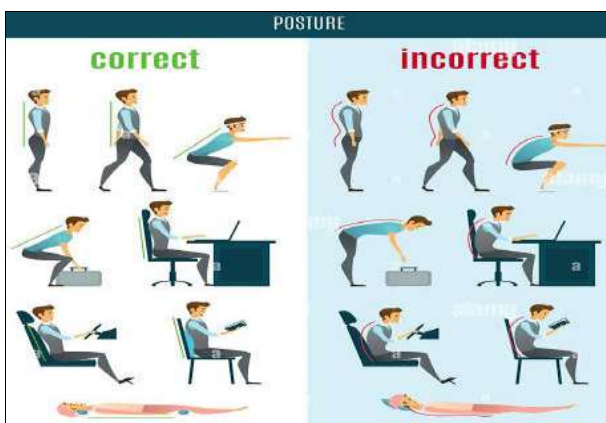
1. *Dincharya* was followed as per category 1/2/3, and flexibility in *dincharya* was adopted as per age group.
2. This daily regimen was followed for first seven days after that *Basti* was stopped.
3. For next seven days, rest of the regimen was continued as such.
4. After that, for next seven days *pratimarsha nasya* was replaced by *Marsh nasya*.

Viharaj

- Correct Firmness of mattress



- Correct Posture (keeping the spine straight) while sitting, standing, and walking.



5. *Shaman aushadhi* was continued for 21 days

Pathya sevana (aaharaj – viharaj-mansik)

Aharaj:

- Petite Yellow Lentiles (*Dhuli moong*), Green gram (*Chhilka moong*), Wheat, *Raagi*, Red rice, Bottle gourd (*Ghiya*), Round gourd (*Tinda*), Bitter gourd (*Karela*), Sponge gourd (*Tori*), Pointed gourd (*Parval*), Spinach, Fenugreek (*Methi*), Turnip (*Shalgam*), Ginger, Garlic etc.
- Milk, *Mamsa Rasa* (Meat Soup), Coconut Water etc.
- Apple, Pomegranate, Papaya, Chikoo, Resins, Dates etc.

- Round Pillow below knees while sleeping
- Light walk (*Shatpawali*)
- Mild to moderate exercises (*Sukshma Vyayama*)
- Muscle strengthening exercises (*Vyayama*)
- Sleeping (9-10PM) and waking up (5-6AM) early (*Brahm muhurat ujjagare*)

Mansik

- Sound Sleep of 8 to 10 hrs
- Meditation (like *shavasana, yognidra, dhyana* etc.)
- *Pranayama* (*Anuloma -viloma, Bhramari* etc.)
- Music therapy (listening to soothing music like *OM* chanting, *Gayatri mantra*)
- Being in company of wise and positive people (*Satsang*, spending time with people having positive attitude and mindset)

Supportive therapy

A. *Yogasana*

Category 1	Category 2	Category 3
▪ <i>Yogic Breathing</i>	▪ <i>Yogic Breathing</i>	▪ <i>Yogic breathing</i>
▪ <i>Sukshma vyayama</i>	▪ <i>Sukshma vyayama</i>	▪ <i>Sukshma vyayama</i>
▪ Shoulder movement	▪ Shoulder movement	▪ Shoulder movement
▪ Neck forward and backward	▪ Neck forward and backward	▪ Neck backward
▪ Arms rotation	▪ Arms rotation (light)	▪ Wall climbing (with fingers)
▪ Arms flexion and extension	▪ Arms stretch upward and forward	▪ Feet extension and flexion
▪ Waist rotation	▪ Feet extension and flexion	▪ Feet rotation and stretch
▪ Feet extension and flexion	▪ Feet rotation and stretch	▪ <i>Tadasana</i> (on chair)
▪ Feet rotation and stretch	▪ <i>Titaliasana</i>	▪ <i>Shavasana</i>
▪ <i>Pawanmuktasana</i> (without neck elevation)	▪ <i>Tadasana</i>	▪ <i>Makrasana</i>
▪ <i>Tadasana</i>	▪ Joewalk	▪ <i>Markatasana</i>
▪ <i>Ardhachakrasana</i>	▪ <i>Markatasana</i>	▪ Half <i>bhujanga asana</i>
▪ Cat and cow pose	▪ Full <i>shalbhasana</i>	▪ Half <i>shalbhasana</i>
▪ <i>Makarasna</i>	▪ <i>Setubandhasana</i> (half)	
▪ <i>Setubhandhasana</i> (Full)	▪ <i>Pawanmuktasana</i> (without neck elevation)	
▪ <i>Veerbhadrasana</i>	▪ Full <i>bhujanga</i>	
▪ <i>Suryanamaskar</i>		

B. Physiotherapy & exercises

Categories	Region	Electrotherapy/Other Rx	Exercise therapy
Category 1	Low Back	<ul style="list-style-type: none"> Hot pack/ Cryotherapy Ultrasonic massage (USM) Short Wave Diathermy (SWD) 	<ul style="list-style-type: none"> Rhomboid stretch Scapular stabilization exercise Pectoral stretch Pull/push exercises for mid back
Category 2	Low Back	<ul style="list-style-type: none"> Cryo/Hot pack Ultrasonic massage (USM) Short wave diathermy (SWD) 	<ul style="list-style-type: none"> Back isometrics Knee to chest Knee to chest(B/I) SLR Extension exercises
Category 3	Low Back	<ul style="list-style-type: none"> SWD Cryotherapy/Hot pack TENS/IFT Cupping therapy MFR ILT 	<ul style="list-style-type: none"> Back isometrics Nerve stretch Piriformis stretches Bridging SLR Knee to chest exercises

Observations

- There were 4 females and 6 males.

Shows Gender and Percentage

Gender	Percentage
Male	60%
Female	40%

- The age group between 25-35 years was 3, 36-45 years was 3 & 46-55 years was 4.

Shows Age group Percentage

Age group	Percentage
25-35 years	30%
36-45 years	30%
46 – 55 years	40%

- Vegetarians were 7 & non-vegetarians were 3.

Shows Diet and Percentage

Diet	Percentage
Vegetarian	70%
Non-vegetarians	30%

- Hindus were 7, Sikhs were 2 & Christian was 1.

Shows Caste and Percentage

Caste	Percentage
Hindu	70%
Sikh	20%
Christian	10%

- Based on occupation working people were 7, sedentary were 2 & heavy labor worker was 1 in number.

Shows Occupation and Occupation

Occupation	Occupation
Working people	70%
Sedentary	20%
Heavy labor worker	10%

- The most symptoms were present in all patients i.e., *Katishoola*, *sthambha*, *pada shoola*, and *janghashoola* were present in all 10 patients. *Nidra nasha* (insomnia), *anga marda* (body pain), *klama* (fatigue) were second major clinical symptoms present in 7 patients. *Aruchi* (loss of appetite), *gourava* (heaviness in body) and *suptata* (numbness) was observed in 5, and *adhmana* (bloating) was observed in 3.

Shows Symptoms and Percentage

Symptoms	Percentage
<i>Katishoola, sthambha, pada shoola, and janghashoola</i>	100%
<i>Nidra nasha</i> (insomnia), <i>anga marda</i> (body pain), <i>klama</i> (fatigue)	70%
<i>Aruchi</i> (loss of appetite), <i>gourava</i> (heaviness in body) and <i>suptata</i> (numbness)	50%
<i>Adhmana</i> (bloating)	30%

- Among 10 patients 6 patients were of *vata kapha prakriti* & 4 were of *vata pitta prakriti*.

Shows Prakriti and Percentage

Prakriti	Percentage
<i>Vata Kapha Prakriti</i>	60%
<i>Vata Pitta Prakriti</i>	40%

- Among 10 patients 8 patients were of non-traumatic and 2 had previous history of injury.

Shows Lowback Disability Index before Treatment and after Treatment

Sr. No.	Lowback Disability Index Before Treatment	Lowback Disability Index After Treatment	Overall Improvement	Improvement Scale
Patient 1	25	4	84%	Marked
Patient 2	32	24	25%	Mild
Patient 3	30	5	83.34%	Marked
Patient 4	26	7	73.08%	Moderate
Patient 5	31	5	83.88%	Marked
Patient 6	30	16	46.67%	Mild
Patient 7	28	6	78.58%	Marked
Patient 8	32	14	56.25%	Moderate
Patient 9	26	4	84.62%	Marked
Patient 10	28	4	85.72%	Marked

Shows Improvement Scale and Percentage

Improvement Scale	Percentage
No Improvement	Below 24.9%
Mild Improvement	25-49.9%
Moderate Improvement	50-74.9%
Marked Improvement	Above 75%

Discussion

Lumbar Spondylosis is one of the degenerative disorders of the spine and is an affliction in the middle aged due to provocation factors such as improper stress on spine, irregular postures in working places, and bad food habits. Degeneration of the lumbar disc demands *Shodhana*, *Shamana* and Supportive therapy. Inter vertebral disc is a cushion like structure that provides protection to vertebral bodies from friction. Degeneration in the disc leads to undue pressure over the nerve roots. Lumbar Spondylosis is characterized by degeneration, disc protrusion, and consequent pressure on the nerve roots of the lumbar plexus. *Kshaya* (wasting) is an integral character of *Vata dosha* with associated contribution of *Kapha* and *Pitta dosha*. *Shoola* is *Vata pradhana* whereas *sthambha*, *gourava* are character of *Kapha dosha*. In lumbar spondylosis, *Upasthambita vata dosha vikriti lakshanas* are seen more, however *kaphanubandh* is associated some times. General line of the treatment of *Vata vyadhi* was adopted in the present study. *Acharya Charaka* has mentioned *Snehana*, *Swedana*, *Basti karma* (*Shodhana therapy*) as the basic line of treatment of any *vatavyadhi*.

Results

Results were analysed based on Oswestry low back disability index before and after the treatment.

Effect of therapy in Oswestry Low Back Disability

Index: Radiological study does not reveal any significant changes in post treatment images. This conclusion was drawn after evaluating the results by Oswestry low back disability index.

Overall effect

Overall results show that among 10 patients, 6 patients showed marked improvement, 2 showed moderate improvement and 2 showed mild improvement.

Shamana aushadhi

(Oral medication) revitalizes the body by treating imbalances and maintaining *dhatusatmya*. It is a healing treatment. As per *Ayurveda*, a disease is caused when the central humours (chemical systems that govern our bodily functions) malfunction, and *Shamana* rejuvenates and restores that balance.

Bahya snehana-swedana provide nourishment and lubrication to the structures of spine i.e., *Snayu* (ligaments), *Sandhi* (joints), *Sira* (blood vessels) and *Marma* points, relieve the heaviness, stiffness, spasm, and pain locally. It also increases joint mobility, reduces stress and fatigue.

Basti is said to be one of the highly effective treatment modalities for *Vataja* diseases. The drugs administered through *Basti* remain in the rectum and colon (*Pakwashaya*) and later absorbed into the body, thereby pacifying the *vata* dosha at its place of origin and nourishing the bones, muscles, and nerves of the whole body.

Nasya with oil helps in providing nourishment to brain, all sense organs and tissues of neck region thereby nourishing all the nerves and pacifying the *vata* dosha.

Shamana aushadhi (oral medication) revitalizes the body by treating imbalances and maintaining *Dhatusatmya*. It is a healing treatment. As per *Ayurveda*, a disease is caused when the central humours (chemical systems that govern our bodily functions) malfunction, and *Shamana* acts as the balm that rejuvenates and restores the balance.

- *Vishtinduka vati* acts as nervine tonic, its main indication is *jeerna vata-roga*. Its main ingredient is *kuchala* which has *balya* action on spine.
- *Yograj guggulu* acts on musculo-skeletal disorders. With its ingredients like *amalaki* and *ghrita* it has some amount of cell and tissue regeneration property. Also, it contains anti-inflammatory and analgesic herbs like *rasna* and *guggulu*.
- *Rasnasaptak kashaya* is also useful in spine disorders as it promotes strength of bones and joints. It acts as excellent anti-inflammatory and analgesic medicine.
- *Praval pishti* as imbued with pure calcium is ultimate remedy for bone rejuvenation, it strengthens the bones and skeletal system and thus helps in degenerative disorders of bone.
- *Mahayograj guggulu* is very versatile medicine, useful in multiple disorders. It has anti-inflammatory, analgesic, anti-arthritic properties so useful in its musculo-skeletal and nervous system disorders.
- *Rasraj rasa* is used to treat neuro-muscular conditions. With its key ingredient like *swarna bhasma*, it acts as *vata-shamak*, and nervine tonic.
- *Dashmoolarishta* also helps to restore bone health, acts as *vata-shamak*, helps to reduce inflammation, improves digestion, and acts as analgesic.
- *Shankha bhasma* is also good source of natural calcium, so strengthens the bones and acts as *vatanulomak*, anti-oxidant, anti-spasmodic, and digestive stimulant.
- *Maha vata vidhwansan rasa* acts on nervous system. It contains *kajjali* which is *rasayani* and *yogvahi*, *tamra bhasm* reduces radiating pain, *vatsanabh* reduces inflammation of nerves and acts as potent *shoolaghna* (analgesic). *Abhrak* and *tankan bhasma* are *balya* for nerves and *vatashamak*.
- *Ekanaveer rasa* contains *Kant loh- naga loh- vanga loh- tamra loh- abhrak loh- tikshana loh bhasma* which act as *bhrimhaniya*, *jeevaniya* and *rasayana*, in *vataj roga*, *bhrimhana* is only *shaman* so all these ingredients help to do *Vata Shaman* and act well in radiating pain, tingling or numbness (*nadi balya*).
- *Maharasnadi Kwath* helps to suppress the inflammation, pain, and stiffness in joint. Its main ingredient is *Rasna* which is excellent *Vataghna*. It is also *deepana*, *pachana* and *shoolaghna* and is very useful in *jeerna* (chronic) *vatavikara*.
- *Cap. Ksheerbala 101* provides *snehana* and *balya* effect and has all properties opposite to *vata dosha* thus helps in *vata shamana*. It has prime action on healing and nourishing degenerative bone tissue.
- *Swarna Bhasma* is used as anti-inflammatory and analgesic. Also, it is *rasayana* for chronic *vata* diseases, strengthens the musculoskeletal system and helps in tissue regeneration.

Pathya sevana- Aaharaj-Viharaj-Mansik and Dincharya provide a clear master plan for a holistic way of living. That helps the subject to live a disease-free long life and slow down the disease progression.

Supportive Treatment

Focuses on physical and mental rehabilitation of the patient which helps in increasing endurance and strength, and avoiding complications and recurrence of the disease.

Yogasana, meditation, physiotherapy and proper exercises are beneficial for creating a healthy body as well as mind. This concept of giving as much importance to 'maintenance' of health than treatment has earned a place even in WHO (World Health Organization) as the 'only' appropriate definition of health amongst all medical sciences.

Conclusion

Lumbar Spondylosis is emerging as one of the most common diseases especially in urban population. The prevalence of this disease has been expected to increase due to improper lifestyle, poor working, sleeping, and sitting postures. Conclusive results from the present study show a combined effect of various *Ayurvedic Panchkarma* procedures along with *Shaman aushadhi* and Supportive therapies like *Yoga* and *Physiotherapy* in reducing symptoms of Lumbar Spondylosis. Along with the above therapies, postural corrections during work, sleep and travel, coupled with regular exercises go a long way in preventing Lumbar Spondylosis. So, a complete *Ayurvedic* intervention is very much effective in the management of *Katigatavata* w.s.r.t. Lumbar Spondylosis.

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