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A CLINICAL STUDY ON KATIVASTI AND YOGASANA IN THE MANAGEMENT OF KATISHOOL WITH SPECIAL REFERENCE TO LOW BACK ACHE

Anil Kumar. Sarma[1], O.P.Gupta[2]

Professor & Head, Dept. of Swasthavritta, Govt. Ayurvedic College, Guwahati-14, Assam, India
Retd. Professor & Head, Dept. Of Kayachikitsa, Govt. Ayurvedic College, Guwahati-14, Assam, India

Email: ayuranil59@gmail.com

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ABSTRACT

Low back ache is a common disorder involving the muscles and bones of the back. It affects about 40% of people at some point in their lives. The disorders affecting the locomotors system are increasingly seen in present era. These conditions considerably reduce the human activities in terms of social and professional life. Among such disorders *Ayurvedic* classics have described as a debilitating disease in the name of *Katishool, Katigraha, Trikagraha, Gridhrasi etc.* In this clinical study an attempt has been made to trace out the references pertaining to the lower back pain from the Ayurvedic texts as well as modern literature. Most of the low backache follows injury or trauma to the back, stress and strain or without any history pain may also be induced due to degenerative conditions such as – (a) Osteoarthritis (b) Osteoporosis (c) Disc lesion like intervertebral disc prolapsed, protrusion or extrusion included in the study. Other pathological condition like – (a) Bone diseases due to viral infection, bacterial infection e.g. Tuberculosis, and condition like congenital abnormalities in spine e.g. Spinobifida, and any new growth excluded from the study. Those patients having the symptoms of *Katishool* (Low back ache) with duration, mode of onset, radiating pain, nature and relieving of pain etc. being taken in to the study. In Ayurveda, for management of these disorders *Kativasti*, a modified form of *snehana* and *swedana* is applied in Lumbosacral region as an effective remedy. Similarly, *Yoga* therapy originated in India since the time of *Maharshi Patanjali* and now has been widely recognized by the modern world and mostly found effective is selected to improve low backache.

Keywords: *Katishool*, Low back ache, *Kativasti*, *Yagasana*, Degenerative condition

INTRODUCTION

In Ayurveda low back ache is considered under *Katishool* which is a *Vatik* disorder and mainly caused due to *VataProkopaAhara* (diets), *Vihar* (regimen) and *Abhighata* (infliction of trauma)[1]. Author *Charaka* has described eighty types of *Vatavyadhi* known as *Nanatmajavatavyadhi*[2] with etiopathogenesis and management. After *Charaka*, *Sushruta* and *Vagbhatta*[3], the authors of medieval period up to modern period like *Sharagadhara*[4], *Bhavaprakash*[5] and *Madhab Kar*[6] have enunciated

Katishool under *Vatavyadhi*. *Katishool* or pain along the Lumber vertebra and around the lumbo-sacral region is the most challenging problem arising due to adaptation of modern life style and a majority of people are suffering from this palliative disease which has no complete remedy in any system till this advancement of time. Ayurvedic system of medicine and *Yoga* both are time tested therapy with good hold on this particular disease.

Ayurvedic classics have comprehensive description on the pathophysiology and management of musculoskeletal disorders like *Sandhigatavata*, *Griddhroshi*, *Katigraha*[7], *Katishool* etc. under the head of *Vatavyadhi*. Ayurveda also considers musculoskeletal disorders to be prevalent in elderly persons as *Vatavyadhi* due to degenerative process starts in certain age.

Different procedures of treatment like *Snehana* (oleation), *Swedana* (Sudation), *Vasti* (medicated enema), *Kativasti, Januvasti* and a number of single and compound formulations are practiced in Ayurveda for the management of these disorders. *Kativasti* is a modified form of *Snehana* and *Swedana* applied in Lumbo- sacral region for management of Low back ache.[8]

The back (upper and lower spine) is a complex structure that takes up the responsibility of weight bearing and locomotor functions. It is a major anatomical support of the body structure and transmits the loading forces through the Sacroiliac Joints to the lower limbs. The fundamental functioning unit is an articular triad composed of two zygoapophysial joints posteriorly and the intervertebral disc anteriorly.[9]The disc is composed of a nucleus pulposus encompassed by the annulus fibrous. These structures are arranged in series, disc disease like intervertebral disc prolapse, protrusion or extrusion, other bone diseases due to viral infection, bacterial infection (e.g., Tuberculosis) and congenital abnormalities in the spine. In addition to these factors obesity, smoking, weight gain during pregnancy, stress and strain, improper posture for doing particular activity and poor sleeping position also may contribute to low back ache.[10]

Yoga techniques incorporate a series of poses (*Asanas*), the breathing exercises (*Pranayama*) and other modalities for the overall health of a person. *Yoga* helps to increase strength in specific muscles and muscle groups, within the pose certain muscles flex and other stretch, promoting relaxation and flexibility in muscles and joints. *Yogic* stretching increases blood flow, allowing nutrients to flow in, toxins to flow out and over all nourishment of the muscles and soft tissues in the lower back. Some *Asanas* make the spinal bone stimulate whole Autonomic nervous system particularly the parasympathetic outflow.[11, 12]*Kativasti* is a process in which medicated oil is poured over lumbo-sacral region and made to stay in particular temperature in a circular shape of instrument prepared out of black gram paste or mixed with wheat gram paste. This process is usually done about 40 minutes daily for at least two weeks. Suitable medicated oil is usually used depending upon the condition of disease, season etc. The process of *Kativasti* was not mentioned by ancient authors in their classical text. The application of *Kativasti* was developed by an *Malayalam* Physician in Kerala from his experience of origin works which has a nutritive and stabilizing effect on Ligament, disc and bones of lumbo-sacral region.

AIMS &OBJECTIVES:

General:-To study the incidence of low back aches in different age groups. To observe the underlying etiology of low back ache patients.

Specific:-To evaluate the effect of *Yogasanas* on mild to moderate intensity of low back ache patients. To ascertain the effect of *Yogasana* and *Kativasti* from moderate to chronic recurrent low back ache and a comparative statement to be

achieved. To provide safe and non pharmacopial (*Abhesaja*) therapy which is cheap and non-surgical treatment. To provide a better life by keeping away such patients from Analgesics and Surgical treatments.

Materials and Methods:

The study has been carried out on patients having acute or chronic low back ache attending O.P.D. and I.P.D. at Govt. Ayurvedic College Hospital, Guwahati.

Selection of Cases.

The study has been conducted on 120 patients from the age group of 20 to 70 years attending O.P.D. and I.P.D. under *Swasthavritta* and *Kayachikitsa* department of GAC Hospital.

Inclusion Criteria:-

1) Patient with Low backache. 2) Age of the patient from 20 to 70 years. 3) Duration of illness not more than 10 years. 4) Sex both male and female. 5) Patient of low back aches with no congenital disorder.

Exclusive Criteria:-

1) Patient below 20 years and above 70 years of age. 2) Patient of low back ache associated with cardiac, renal & hepatic problems. 3) Diagnosed Koch's spine or any New Growth. 4) Pregnant women with low back ache. 5) Patients suffering from *Amvata* (Rheumatoid Arthritis). 6) Recent history of traumatic injury with severe back ache. 7) Any congenital deformity of spine like spinobifida.

SAMPLING SIZE&SAMPLING DESIGN:

Total 120 nos. of patient have been screened out from 150 nos. of patient as registered in the OPD of Govt. Ayurvedic College Hospital, Guwahati. The target of these study 120 patients of LBA. The study design set in a sample comparative clinical trial. The study was done into groups as follows

Group-A : 60 nos. of cases of *Katishool* (LBA) and the result is evaluated after practising *Yogasana* for a period of 1 month and follow up was done up to three month from completion of treatment by yoga therapy.

Group B : 60 nos. of patients was selected those who were having mild to moderate intensity of low back and recurrent in nature and as per protocol applied *Kativasti* by *MahanarayanTaila (Bhaisajyaratnavali/vatavyadhiadhikara*: 325-336) for two weeks and then advised for practising *Yogasana* initially in GAC Hospital then in home twice daily for two month. Accordingly, result is evaluated after follow up done up to three months from completion of treatment.

CRITERIA FOR DIAGNOSIS:

The sign and symptoms of *Katishoola* (Low back ache) as mentioned in Ayurveda were the main basis of diagnosis and has been established by clinical examination of sign and symptoms as follows.

SUBJECTIVE PARAMETERS:

The history of low back ache with duration, mode of onset and radiation of pain either left or right leg has been recorded. The symptoms like *Stambha* (stiffness), *Arochaka* (distaste of food) by *Agnipariksha*, presence of *Spandana* (sudden cramps) etc. have been taken as cardinal symptoms under subjective parameters and assessment has been done by grading the 10 major complaints of patients.

OBJECTIVE PARAMETERS:

Hematological findings: Blood routine test was done for all cases, blood sugar (Fasting & PP), Serum uric acid; Serum calcium level and CRP test were examined for some cases where necessary. Radiological findings X-ray of lumbo-

sacral spine (AP & Lateral) was done for 80% of cases, CT scan and MRI were done where necessary after seen previous records.

OBSERVATION ON DEMOGRAPHIC PROFILE:

The observations have been made on some important demographic and constitutional profile of 120 nos. of patients in the following tables.

Table1: Age in years			**Table2:** Education Group			**Table 3:** On Occupation		
	Nos.	%		Nos.	%		Nos.	%
20-30	6	5.0	Illiterate	1	0.83	Service	28	23.3
30-40	26	21.7	Primary &Non metric	33	27.5	Business	7	5.8
40-50	47	39.1	10 passed	25	20.8	Household	50	41.6
50-60	34	28.3	10+2 passed	21	17.5	Labour	12	10.0
60-70	7	5.8	Graduate	34	28.3	Student	7	5.8
			Post Graduate	6	5	Priest	2	1.6
						Cultivator	11	9.2
						Retired Employee	3	2.5

Table 4: On Religion			**Table 5:** On Marital Status			**Table 6:** Sex Group			**Table-7:** On Chronicity		
	Nos.	%		Nos.	%		Nos.	%		Nos.	%
Hindu	97	80.83	Married	108	90	Male	56	46.7	(0-1) yr	98	81.6
Muslim	23	19.16	Unmarried	12	10	Female	64	53.3	(1-2) yr	3	2.5
Others	0	0.0							> 2 yr	19	15.8

Table-8 : Socio Economic Status			**Table-9 :**Habitat Group			**Table-10 :** On Body weight		
	Nos.	%		Nos.	%	KG		
Upper class	23	19.2	Urban	41	34.2	40-50	18	15
Middle class	81	67.5	Rural	20	16.7	50-60	60	50
Poor	16	13.3	Semi Urban	59	49.2	60-70	33	27.5
						70-80	9	7.5

Table11: Statistical Analysis and Assessment of Results:

PARAMETERS	STATUS	GROUP A				GROUP B			
		MEAN	SD	SE	Z	MEAN	SD	SE	Z
Katishoola (LBA)	BT	2.2	0.514	0.115	11.73	2.26	0.578	0.11	11.81
	AT	0.85	0.732			0.9	0.656		
Duration of Pain	BT	1.3	0.497	0.09	6.66	1.58	0.59	0.096	10.2
	AT	0.7	0.497			0.6	0.458		
Radiation of pain	BT	1.1	0.3	0.17	3.0	1.2	0.456	0.1	7.11
	AT	0.575	0.5			0.489	0.544		
Stiffness	BT	1.0	0.0	0.07	5.9	1.06	0.244	0.035	15.42
	AT	0.586	0.491			0.52	0.014		
Walking time	BT	1.81	0.431	0.133	5.84	1.81	0.431	0.099	7.81

	AT	1.033	0.637			1.03	0.637		
SLR	BT	1.03	0.466	0.088	11.47	1.34	0.377	0.055	23.81
	AT	0.29	0.458			0.03	0.184		
Forward bending	BT	1.81	0.688	0.11	6.81	1.86	0.26	0.077	10.38
	AT	1.06	0.548			1.06	0.548		
Walking	BT	1.8	0.3	0.083	11.32	1.83	0	0.087	8.6
Distance	AT	0.86	0.56			1.08	0		
Tenderness	BT	1.015	0.562	0.1	6.15	1.15	0.546	0.096	7.8
	AT	0.4	0.551			4.0	0.558		

Remarks: As p< 0.001 and all the Z values Signifies the results are highly significant

Table-12

PARAMETERS	STATUS	GROUP A				GROUP B			
		MEAN	SD	SE	t_{25}	MEAN	SD	SE	t_{25}
Numbness	BT	1.07	0	0.09	6.41	1.07	0	0.092	7.24
	AT	0.5	0.5			0.4	0.48		

Remarks: as p < 0.001 & both the t values signify the results are highly significant

Table-13: COMPARATIVE RESULTS OF GR. A & GR. B ON 10 MAJOR PARAMETERS

Sl.No	PARAMETERS	[illegible]	[illegible]	SE	Z	P
1	LBA	1.18 ± .487	1.367 ± 0.55	0.09	2	< 0.05

Remarks: Z = 2, p < 0.05, Hence the result in Group B is more effective than Group A

Sl.No	PARAMETERS	[illegible]	[illegible]	SE	Z	P
2	Duration of Pain	0.6 ± .494	0.98 ± 0.39	0.1	3.8	< 0.001

Remarks: Z = 3.8, p <0.001, Here the result shows better in Group B than Group A

Sl.No	PARAMETERS	[illegible]	[illegible]	SE	Z	P
3	Radiation of pain	0.425 ± 0.5	0.71 ± 0.629	0.12	2.37	< 0.05

Remarks: Z = 2.37, p < 0.05, the result shows better in Group B than Group A

Sl.No	PARAMETERS	[illegible]	[illegible]	SD	SE	t_{51}	P
4	Numbness	0.576	0.667	0.492	0.135	.674	> 0.10

Remarks: t_{51} = .674, p > 0.10, Hence in comparison between Group A & Group B is insignificant, means the result in both group equally effective

Sl.No	PARAMETERS	[illegible]	[illegible]	SE	Z	P
5	Stiffness	.413 ± .497	0.541 ± 0.5	0.1	1.28	> 0.10

Remarks: Z = 1.28, p >0.10, Hence, the different between Group A & Group B is insignificant. Here the result is equally effective in both groups

Sl.No	PARAMETERS	D	D	SE	Z	P
6	Walking time	.783 ± .584	.666 ± .542	0.15	0.78	> 0.10

Remarks: Z = 0.78, p > 0.10, the result shows insignificant, means Group A & Group B is found equally effective

Sl.No	PARAMETERS	D	D	SE	Z	P
7	SLR	1.01 ± .757	1.25 ± 0.441	0.115	2.08	< 0.05

Remarks: Z = 2.08, p < 0.05, effect of Group B that is significanthence, application ofKatibasti and Yogasana for Group B shows better result than Group A

Sl.No	PARAMETERS	D	D	SE	Z	P
8	Forward bending	.75 ± 0.491	.6 ± .419	0.08	1.875	> 0.05

Remarks: Z = 1.875, p > 0.05, the comparative statement shows result is insignificant forGroup A & Group B, that means the result is found equally effective for both gr33oup

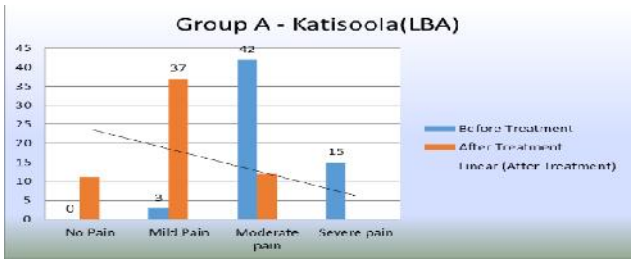
Sl.No	PARAMETERS	D	D	SE	Z	P
9	Walking distance	.96 ± 0.582	.76 ± .499	.149	1.34	> 0.10

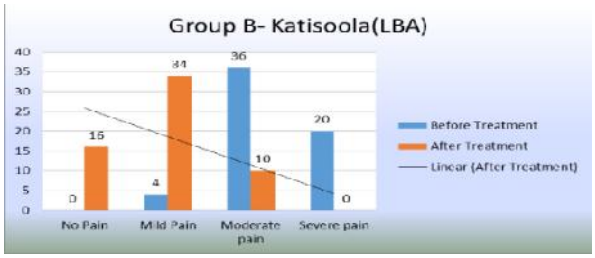
Remarks: Z = 1.34, p > 0.10, Hence the result shows insignificant, that means result is found equally effective for both group

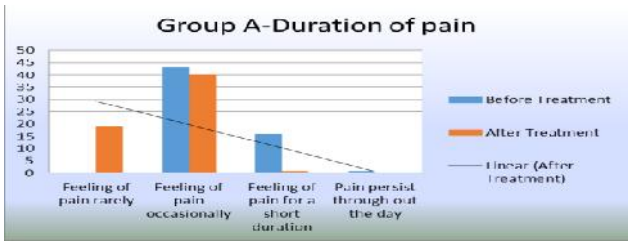
Sl.No	PARAMETERS	D	D	SE	Z	P
10	Tenderness	.75 ± .627	.55 ± .554	0.1	2	< 0.05

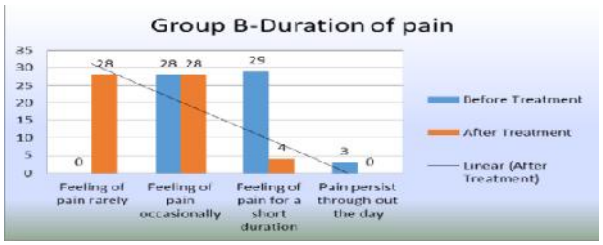
Remarks: Z = 2, p < 0.05, Hence the result is found significant, that means result is more effective in Group B in comparison to Group A

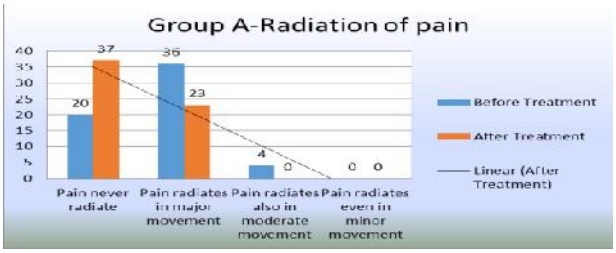
GRAPHIC PRESENTATION ON COMPERATIVE STUDY

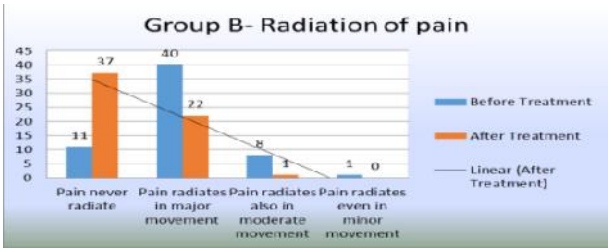


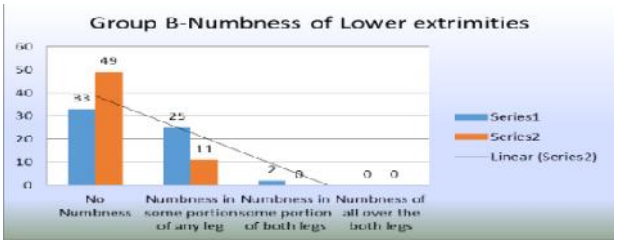


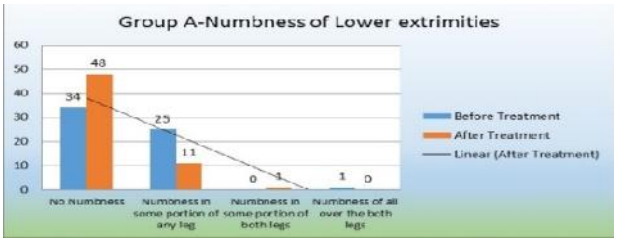


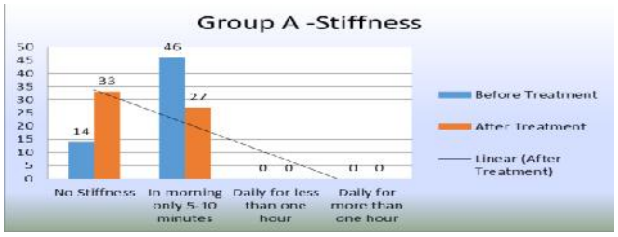



Group A-Radiation of pain
Pain never radiate
Pain radiates in major movement
Pain radiates also in moderate movement
Pain radiates even in minor movement
Before Treatment
After Treatment
Linear (After Treatment)


Group B- Radiation of pain
Pain never radiate
Pain radiates in major movement
Pain radiates also in moderate movement
Pain radiates even in minor movement
Before Treatment
After Treatment
Linear (After Treatment)

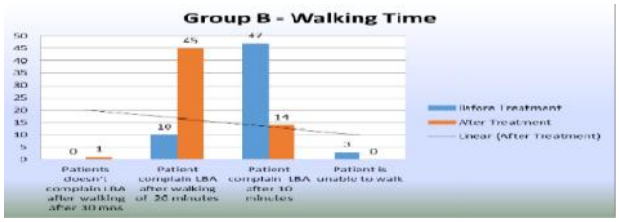

Group B-Numbness of Lower extrimities
No Numbness
Numbness in some portion of any leg
Numbness in some portion of both legs
Numbness of all over the both legs
Series1
Series2
Linear (Series2)


Group A-Numbness of Lower extrimities
No Numbness
Numbness in some portion of any leg
Numbness in some portion of both legs
Numbness of all over the both legs
Before Treatment
After Treatment
Linear (After Treatment)

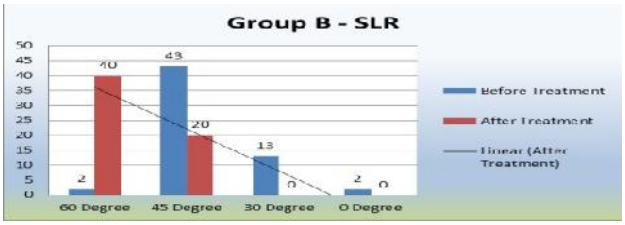

Group A -Stiffness
No Stiffness
In morning only 5-10 minutes
Daily for less than one hour
Daily for more than one hour
Before Treatment
After Treatment
Linear (After Treatment)

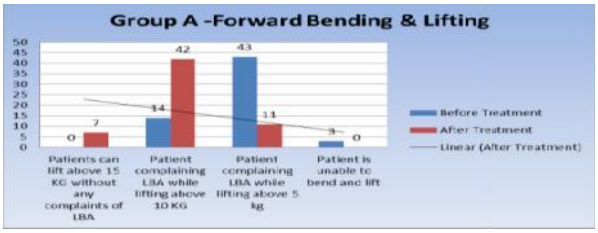

Group B -Stiffness
No Stiffness
In morning only 5-10 minutes
Daily for less than one hour
Daily for more than one hour
Before Treatment
After Treatment
Linear (After Treatment)

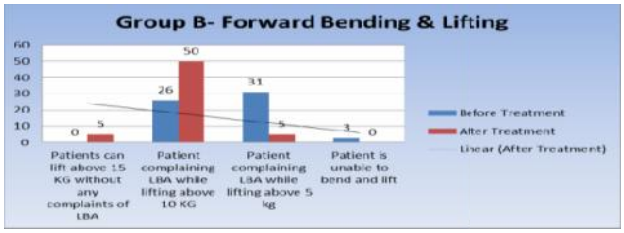

Group A - Waliking Time
Patient complain LBA after walking of 30 minutes
Patient complain after 30 minutes
Patient is unable to walk
Before Treatment
After Treatment
Linear (After Treatment)

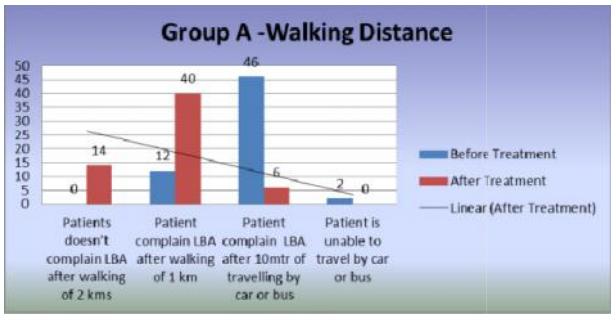

Group B - Walking Time
Patient complain LBA after walking of 30 minutes
Patient complain after 30 minutes
Patient is unable to walk
Before Treatment
After Treatment
Linear (After Treatment)

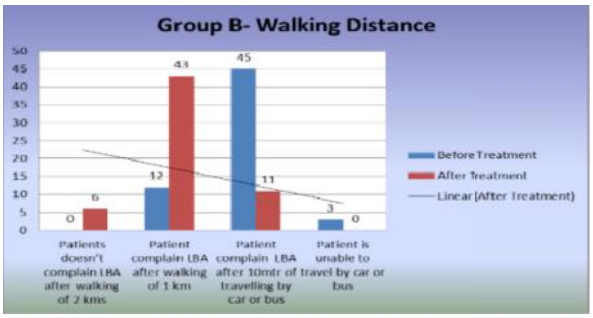

Group A - SLR
60 Degree
45 Degree
30 Degree
0 Degree
Before Treatment
After Treatment
Linear (After Treatment)

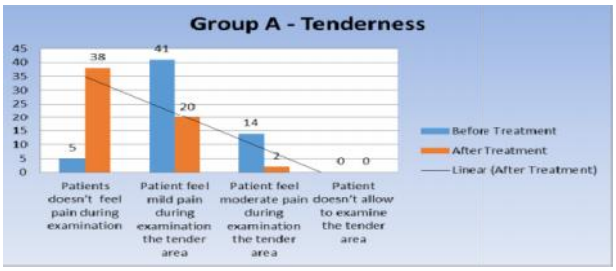

Group B - SLR
60 Degree
45 Degree
30 Degree
0 Degree
Before Treatment
After Treatment
Linear (After Treatment)


Group A -Forward Bending & Lifting
Patients can lift above 15 KG without any complaints of LBA
Patient complaining LBA while lifting above 10 KG
Patient complaining LBA while lifting above 5 kg
Patient is unable to bend and lift
Before Treatment
After Treatment
Linear (After Treatment)


Group B- Forward Bending & Lifting
Patients can lift above 15 KG without any complaints of LBA
Patient complaining LBA while lifting above 10 KG
Patient complaining LBA while lifting above 5 kg
Patient is unable to bend and lift
Before Treatment
After Treatment
Linear (After Treatment)







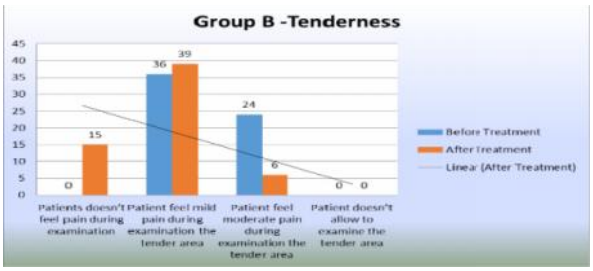
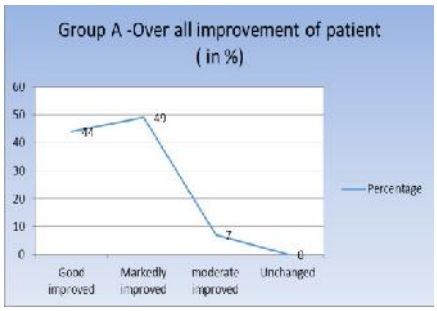


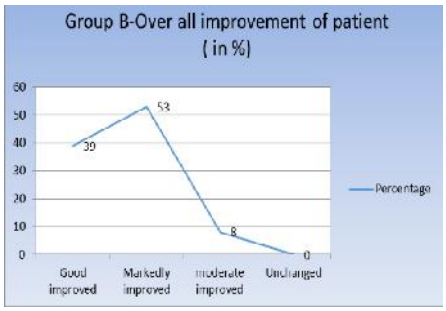
Table-14: Showing the effect of *Yoga* therapy in 10 major parameters and Relief of symptoms in Group A

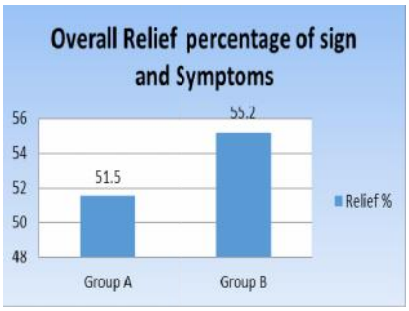
Sl. No	Symptoms	Mean BT	Mean AT	Mean Relief	% of Relief
1	*Katisool* (LBA)	2.2	0.85	1.35	61.4
2	Duration of pain	1.3	0.7	0.6	46.2
3	Radiation of pain	1.1	0.575	0.525	47.7
4	Numbness	1.07	0.5	0.57	53.3
5	Stiffness	1	0.586	0.414	41.4
6	Walking times	1.81	1.033	0.777	42.9
7	SLR	1.03	0.29	0.74	71.8
8	Forward bending	1.81	1.06	0.75	41.4
9	Walking distance	1.8	0.86	0.94	52.2
10	Tenderness	1.015	0.4	0.615	60.6
Total		1.4135	0.6854	0.7281	51.5

Table15: Showing the effect of *Kativasti* & *Yoga* therapy in 10 major parameters and Relief of symptoms in Group B

Sl. No	Symptoms	Mean BT	Mean AT	Mean Relief	% of Relief
1	*Katisool* (LBA)	2.26	0.9	1.36	60.2
2	Duration of pain	1.58	0.6	0.98	62.0
3	Radiation of pain	1.2	0.489	0.711	59.3
4	Numbness	1.07	0.4	0.67	62.6
5	Stiffness	1.06	0.52	0.54	50.9
6	Walking times	1.81	1.03	0.78	43.1
7	SLR	1.34	0.03	1.31	97.8
8	Forward bending	1.86	1.06	0.8	43.0
9	Walking distance	1.83	1.08	0.75	41.0
10	Tenderness	1.015	1.15	0.4	39.4
	Over All	1.5025	0.7259	0.8301	55.2







DISCUSSION

The clinical study shows that the majority of patients belong to middle age group (40%), the elderly age group also found suffering from low back ache in the next higher group. On the other hand female patients were found 54% of sufferer. Amongst all the patients, 90% were found married. As regards educational status of the patients it shows that educated and partially educated people were found equally sufferers. The occupation wise distribution of patient has shown household workers affected more. Of course, from service holder to labour group of people and even students are also not getting rid of the trouble of low back ache. Socio economic condition is an important factor and the present study shows middle to poorer section of people suffering in a higher rate. It was also seen that the urban and semi urban people suffered more irrespective of normal diets , works, body weight etc. In case elderly persons from 50 to 70 years of age group were found higher range of body weight and patient in accordance with past history, chronicity and mode of onset of disease have shown good improvement in both groups.

The present study shows that majority of cases were *Vvatakaphajaprakriti* having the characteristics of *vata* predominant and *kapha-anubandha*. It is worth mentioning that the history of disease differs from man to man. Even the same degree of pain of a patient in regard to subjective and objective treatment is difficult to compare as stated by the patient. Hence, it is not easy to carryout accurate study from clinical trial to follow up. To draw the attention and cooperation of patient, it definitely depends upon the physician's experience, sympathy and cooperation with the patient.[13]*Charaka* has defined that health and disease states are as pleasure and pain respectively. The national institute of Neurological disorders and stroke (NINDS) in their low back pain fact sheet stated that the patients of degenerative spinal disorders complaints should consult a physician and encouraged a list of low[14]impact, age related appropriate exercises (*yogasana*) that are specially targeted to strengthening lower back and abdominal muscles. It says instead of low impact exercises like speed walking, swimming or stationary bike riding 30 minutes daily can increase muscle strength and flexibility. But *yoga* can help to stretch and strengthen muscles including bones, nerves and ligament in a better way.

CONCLUSION

- Kati *shoola* is the most common complaint of our country as it is affecting all sorts of occupational groups, ranging from heavy manual workers to housewives.
- The study reveals that woman are more prone than men, probably due to some underlying causes of back ache like working in prolong standing position, reading, sitting & sleeping in wrong posture, frequent forward bending etc. usually not marked by themselves and their family

- In low back ache, *yogasanas* helps to increase strength in specific muscles and muscle group, promoting relaxation and flexibility of bone, muscles and joints. *Yogic* stretching increases blood flow, allowing nutrients to flow in, and overall nourishment of the muscles and soft tissues in lower back. .
- *Kativasti* is a modified form of *snehana* (oleation), *swedana* (sudation) and *mardana* (massage) therapy, which has nutritive and stabilizing effect and also for its pain relieving bio-chemicals, helps to wash out local toxins to eliminate from the body and thereby gives a good response.

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