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Research article

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Open randomized controlled clinical trial of *Simhnaad Guggulu* in the management of *Janu Sandhigatavata* w.s.r. to Osteoarthritis

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ABSTRACT

Sandhivata or *Sandhigatavata*, a type of *Vatavyadhi*, is a degenerative disorder of the joints. It especially affects weight bearing joints like knee joint; hip joint etc. results in painful and restricted movement of the affected joint. The clinical presentation of *Sandhivata* closely mimics with the disorder called Osteoarthritis which is the second most common rheumatologic problem. A comparative clinical study was conducted at V.Y.D.S Ayurved Mahavidyalaya, Khurja to compare the efficacy of *Simhnaad Guggulu* with the well-established control drug *Yograj Guggulu* in the management of *Janu sandhigatavata* w.s.r. to Osteoarthritis. Defining to the benefits assessed both the drugs were found capable to enforce relief, but based on % of improvement and clinical assessment of result, it can be concluded that Control drug (*Yograj Guggulu*) was more effective than trial drug (*Simhnaad Guggulu*) in most of the sign and symptom of the disease at extremely significant level.

Keywords: *Sandhivata*, Osteoarthritis, *Simhnaad Guggulu*, *Yograj Guggulu*

INTRODUCTION

Sandhivata or *Sandhigatavata*, a type of *Vatavyadhi*, is a degenerative disorder of the joints. It has been explained under the name of *Sandhigata Anila*¹, *Gulphavata*², *Khuddavata*³, *Vata Kantaka*⁴ by different Acharyas. *Sandhivata* is a type of *Vatavyadhi* which most commonly occurs in old age (*Vridhavastha*) due to *Dhatukshaya*. The clinical presentation of *Sandhivata*

closely mimics with the disorder called Osteoarthritis which is the second mostcommon rheumatologic problem. Most commonly affected joints are Knee & Hip. Symptoms of *Sandhigatavata*⁵⁻⁷ are *Sandhishula* (Pain in joints), *Sandhishotha* (Swelling in joints), *Akunchana prasarana janya vedana* (painful joint movement), *Vatapura drutisparsha* (palpations of joints felt like a bag filled with air), *Sandhisphutana atopa* (Crepitus sound), *Sandhi-graha/stambha* (Stiffness in

joints). It is characterized by progressive disintegration of articular cartilage (*hanti sandhi gata sandhin*), formation of new bone in the floor of the cartilage lesions (eburnation) and at the joint margins (osteophytes) and leads to chronic disability at older ages⁸. The diseases produced by morbid *vatadosha* are more common in *Jaravastha* (old age). The vitiated *vata* combines with other vitiated *dosha*, *rakta*, *ama*, etc. and gets located in the joint to produce the disease⁹. Being a disease related to *madhyamarogamarga*, *Sandhigatavata* is either *Kastasadhya* or *Asadhya*¹⁰. *Snehana*, *Svedana*, *Upanaha*, *Agnikarma*, *Bandhana*, *Unmardana*, *Basti* and *Mridu Virechana* etc. are specially elaborated for management of *Sandhigatavata*. *Vatakapha shamaka*, *agni dipana*, *ama pachana* and *srotoshodhaka dravya* are generally advised for the management of *Sandhigatavata*.¹¹⁻¹³

Here in this study, *Simhnaad Guggulu* (*Bhaishajya Ratnavali Amavatachikitsa Prakarana*) is considered for clinical trial which possesses anti-inflammatory and analgesic actions. It prevents degenerative changes in bones and joints. It reduces inflammation, pain, and stiffness of joints. The well-known drug *Yograj Guggulu* (*Bhaishajya Ratnavali Amavatachikitsa Prakarana*) has been selected as a control drug.

This study was undertaken with the following aims and objectives:

- To assess the effect of *Simhnaad Guggulu* in the management of *Sandhigatavata* (Osteoarthritis).
- To study of literature related to the disease “*Sandhigatavata*” from Ayurveda as well as “Osteoarthritis” from modern point of view.
- To compare the clinical efficacy of *Simhnaad Guggulu* with controlled group *Yograj Guggulu* in the management of *Sandhigatavata* (Osteoarthritis).

MATERIAL AND METHODS

STUDY TYPE

Randomized Clinical trial.

Label: Open

Blinding/Masking: None

Randomization: Simple

SAMPLE SIZE

30

PLACE OF STUDY

Clinical study was conducted on patients in OPD/IPD of Kayachikitsa, V.Y.D.S. Ayurveda Mahavidyalaya, Khurja.

SELECTION OF PATIENTS

Diagnosed cases of *Sandhigatavata* (Osteoarthritis) of knee joint were randomly selected keeping the followings in consideration

- Fulfillment of inclusion criteria.
- Agreed for giving consent after making aware of the merits/demerits of the trial.
- Agreed for investigations before inclusion into the trial and after completion of trial.
- Follow up of the patients for assessment and clinical evaluation.

DIAGNOSIS CRITERIA

The patients were diagnosed according to the signs and symptoms of *Sandhigatavata* in Knee region vis-a-vis Osteoarthritis of Knee Joint i.e. *sandhishula* (Pain in joints), *sandhishotha* (Swelling in joints), *akunchana prasarana janya vedana* (painful joint movement), *vatapura drutisparsha* (palpations of joints felt like a bag filled with air), *sandhisphutana/ atopa* (Crepitus sound), *sandhi-graha/stambha* (Stiffness in joints) with presence of Osteoarthritic changes in Knee X-ray findings.

STUDY DESIGN

The selected patients were divided into two groups Group-A (Trial Group) - 15 patients were given *Simhnaad Guggulu*.

Group-B (Control Drug) - 15 patients were given *Yograj Guggulu*.

INCLUSION CRITERIA

Patients of both sex, between age group of 30 to 65 years suffering from disease for less than 3 years, who fulfill the diagnosis criteria i.e., presence of Clinical features of Knee Osteoarthritis (Kellgren-Lawrence / KL grades 0-3). Also, who agreed for giving consent after making aware of the merits/demerits of the trial.

EXCLUSION CRITERIA

Patient below 30 years and above 65 years of age, suffering from Osteoarthritis of other joints, presence of Kellgren-Lawrence / KL grades 4 and who not agreed for giving consent / investigations / follow up. Also, patient suffering from disease like *Madhumeha*, *Arbuda*, *Kushta rog*, *Vata-Rakta*, *Aamvata*, *Phiranga roga*, *Gridhrasi*, *Rajyakshma* and Polymyalgia Rheumatica, Poliomyelitis, Transverse Myelitis, Fibromyalgia, Congenital Anomalies of joints, Motor neuron diseases

that interfere with the course of treatment will be excluded from the study. Lactation and Pregnant women will be excluded. Patient with any Anatomical deformity or *Sandhigatavata* due to any *Abhighata* (Trauma). Patients undergoing other modalities of treatment for *Sandhigatavata*. Patients who are incapacitated, bedridden and confined to wheelchair.

LABORATORY INVESTIGATIONS

X-Ray of Knee joint (Findings: Narrowing of Joint space and Osteophytes formulation). Blood investigations such as Complete Blood Count (CBC), Erythrocyte Sedimentation Rate (ESR), C - reactive protein (CRP), Rheumatoid Factor (RA Factor) etc. were done to rule out other conditions.

DRUG INTERVENTION

Trial Drug: *Simhnaad Guggulu*¹⁴ (*Bhaisajyaratnavali* 29/176-184)

Ingredients – *Guggulu* (Su) (Exd.), *Katutaila* (*Sarsapa* oil) - Each 768 ml, *Sunthi* (Rz). *Pippali* (Fr), *Marica* (Fr), *Haritaki* (P), *Bibhitaki* (P), *Amalaki* (P), *Mustaka* (Rz), *Vidanga* (Fr), *Devadaru* (Ht. Wd) *Guduci* (St), *Citraka* (Rt), *Tibrit* (Rt), *Danti* (Rt), *Cavya* (St), *Surankanda* (Rz), *Manakanda* (Rz), *Parada* (Su), *Gandhak* (Su) – each 48 gm, *Jayapala* (Su) (Enm) - 120 gm.

Dosage: 1.5 gm twice daily (3 gm/day)¹⁵

Route of administration: Oral

Frequency of administration: Twice per day.

Anupana: Lukewarm water.

Control Drug: *Yograj Guggulu*¹⁶ (*Bhaisajyaratnavali* 29/152-157)

Ingredients: *Chitrak* (Rt.), *Pippalimula* (Rt.), *Yamani* (Sd.), *Krishna Jiraka* (Fr.), *Vidanga* (Fr.), *Ajamoda* (Fr.), *Jiraka* (Fr.), *Suradaru* (Ht.Wd), *Cavya* (St.), *Ela* (Sd.), *Saidhava Lavana*, *Kustha* (Rt.), *Rasna* (Rt./Lf.), *Gokshura* (Fr.), *Dhanyaka* (Fr.), *Haritaki* (P.), *Bibhitaki* (P.), *Amalaki* (P.), *Mustaka* (Rz.), *Sunthi* (Rz.), *Maricha* (Fr.), *Pippali* (Fr.), *Tvak* (St. Bk.), *Ushira* (Rt.), *Yavakshara* (Pl.), *Talisha Patra* (Lf.), *Tejapatra* (Lf.), *Guggulu* (Exd.), *Goghrita* – each 1 part

Dosage: 1.5 gm twice daily (3 gm/day)¹⁷

Route of administration: Oral

Frequency of administration: Twice per day.

Anupana: Lukewarm water.

Duration of treatment – 30 days

Follow up: Every 10th day during trial period and once after 15 days of completion of trial.

OBSERVATIONS

Various demographic parameters viz Age, Sex etc. were analysed in the present trial. The assessment was done on subjective and objective parameters. The obtained results were analyzed with the use of Wilcoxon signed rank method to check the significance of subjective parameters and Paired 't' test for objective parameters. Comparison of efficacy was done using Mann-whitney test in subjective parameters and Unpaired t- test in objective parameters. Statistical analysis on the percentage of improvement in each parameter will evaluate by the formula: Average BT – Average AT * 100/ Average BT.

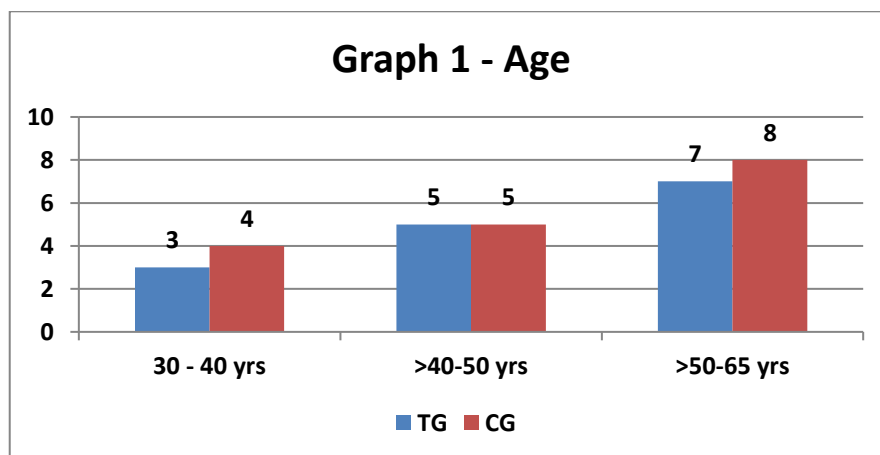
Table 1: Scoring Pattern Adopted for Assessment

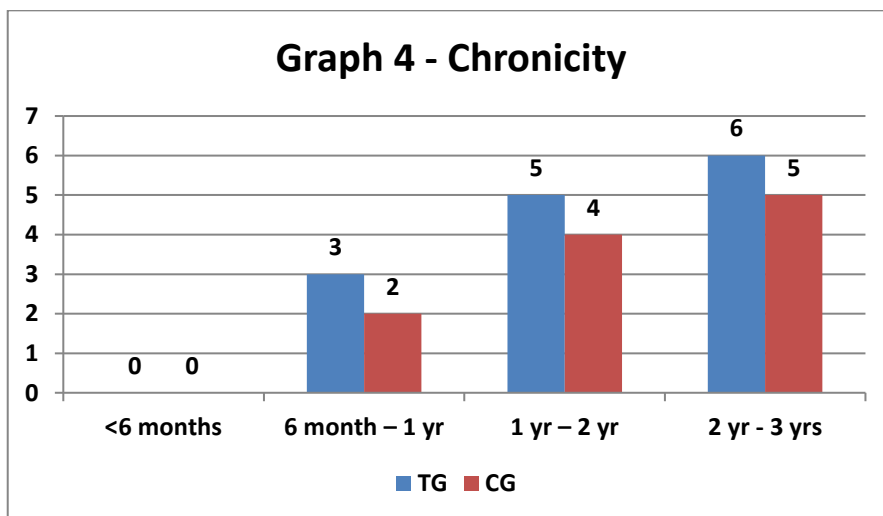
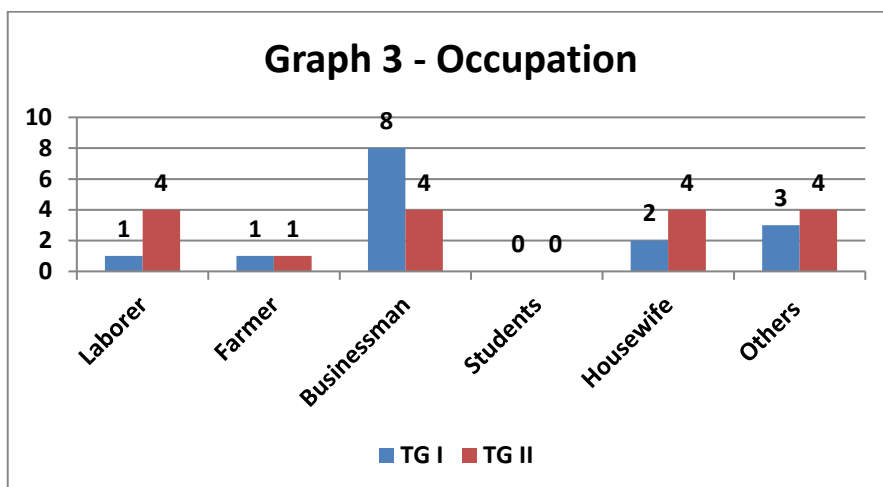
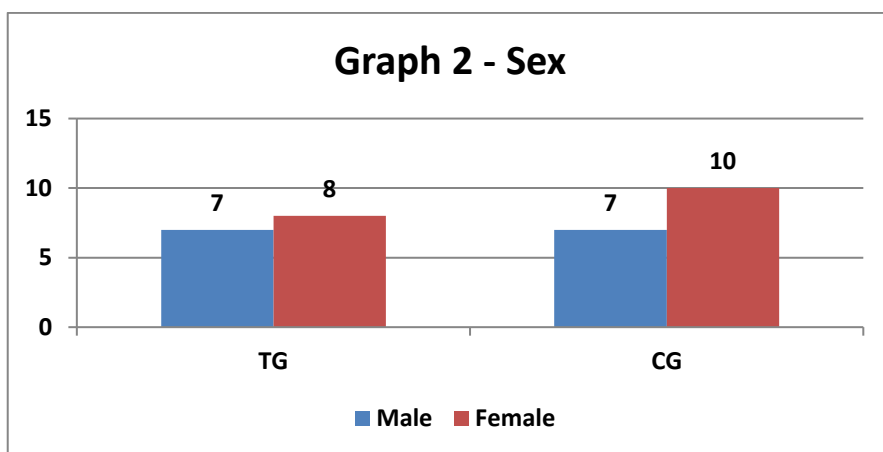
Assessment criteria for Subjective parameters	
<i>Shula</i> (Pain in joints) (The Numeric Pain Scale)	G ₀ No Pain (Scale - 0)
	G ₁ Mild Pain (Scale - Up to 3 mark)
	G ₂ Moderate Pain (Scale - 4 to 6 mark)
	G ₃ Severe Pain (Scale - 7 to 10 mark)
<i>Sotha</i> (Swelling in joints)	G ₀ No Swelling
	G ₁ Slight Swelling
	G ₂ Moderate Swelling
	G ₃ Severe Swelling
<i>Akuncanjanya-Prasaranajanya Vedana</i> (painful movement)	G ₀ Freely movable No pain
	G ₁ Movable with mild pain (no winching on face while movement)
	G ₂ Movable with moderate pain (winching on face while movement)
	G ₃ Movable with severe pain (shouts & doesn't allow movements)
<i>Vata poornadriti sparsha</i> (resembles)	G ₀ No Effusion
	G ₁ Minimum Effusion

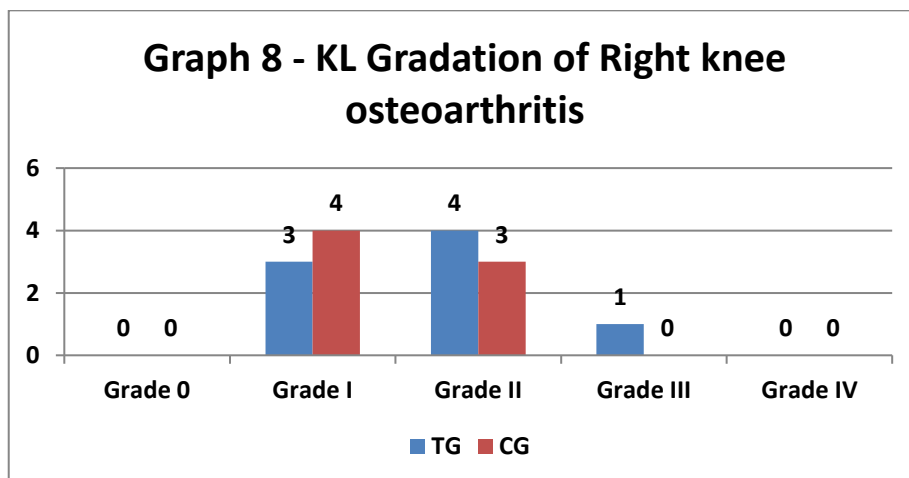
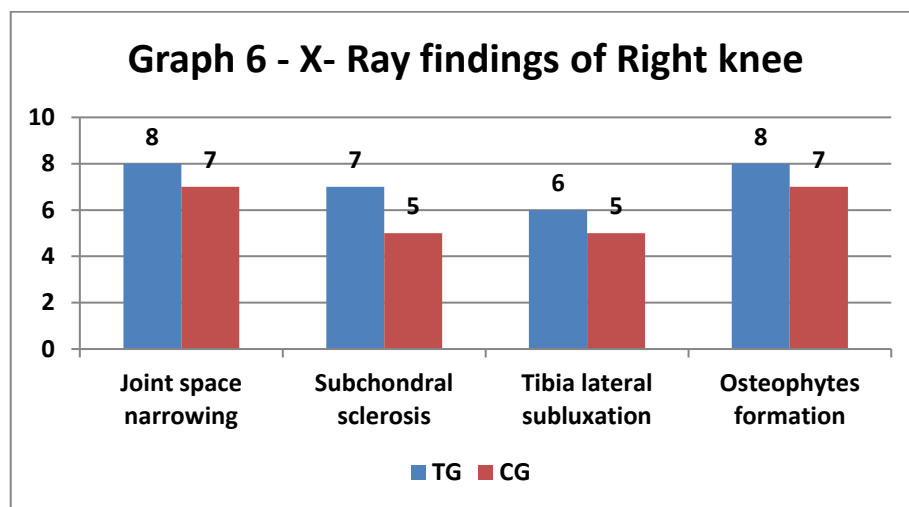
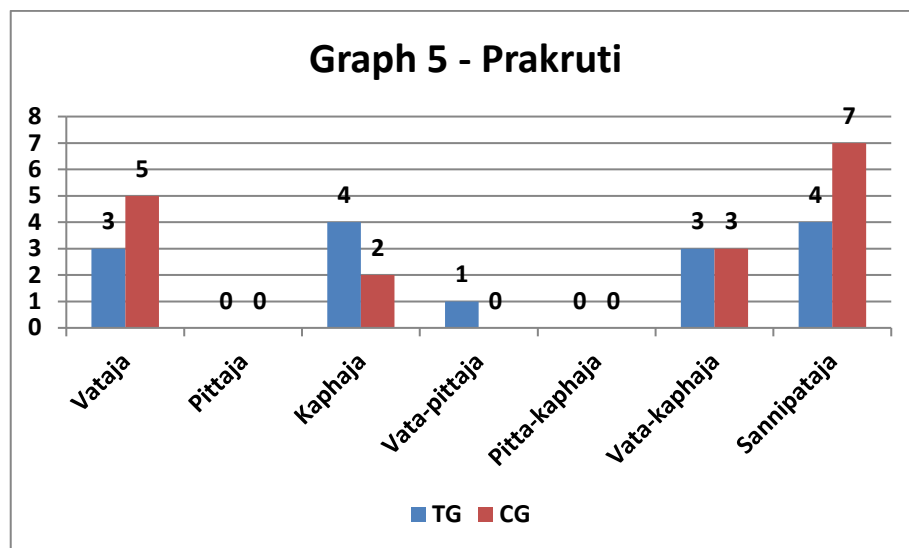
a bag filled with air)	G ₂	Moderate Effusion
	G ₃	Excessive effusion
<i>Sandhisphutna</i> (Crepitus)	G ₀	No crepitus
	G ₁	Mild Audible crepitus
	G ₂	Moderate Audible and Palpable crepitus
	G ₃	Severe Audible crepitus
<i>Sandhi-graha</i> (Stiffness in joints)	G ₀	No Stiffness
	G ₁	Stiffness lasts for 5 – 15 minutes
	G ₂	Stiffness lasts for 30 minutes
	G ₃	Stiffness lasts for more than 30 minutes
Assessment criteria for Objective parameters		
Sandhihanti (↓Range of motion)		
Flexion (Knee Joint)	G ₀	Range between > 135°
	G ₁	Range between >90-135°
	G ₂	Range between >45 - 90°
	G ₃	Range between ≤45°
Extension (Knee Joint)	G ₀	Range between ≤45°
	G ₁	Range between >45 - 90°
	G ₂	Range between >90-135°
	G ₃	Range between > 135°

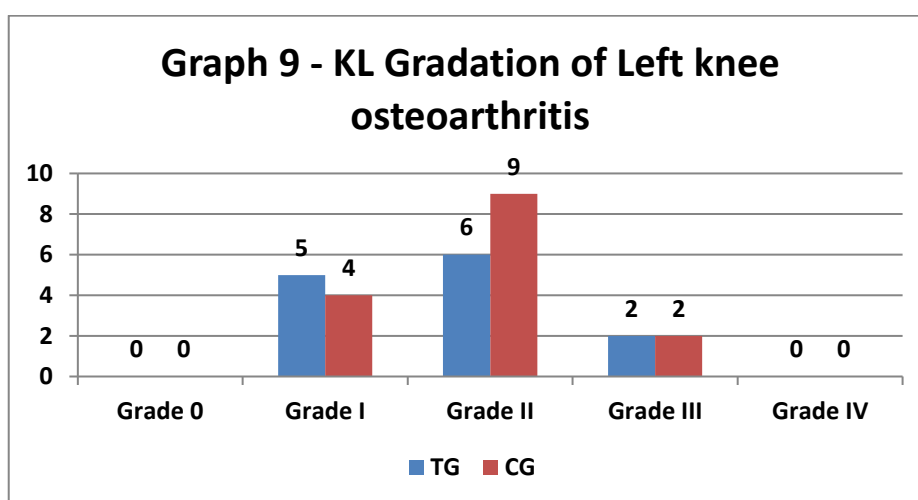
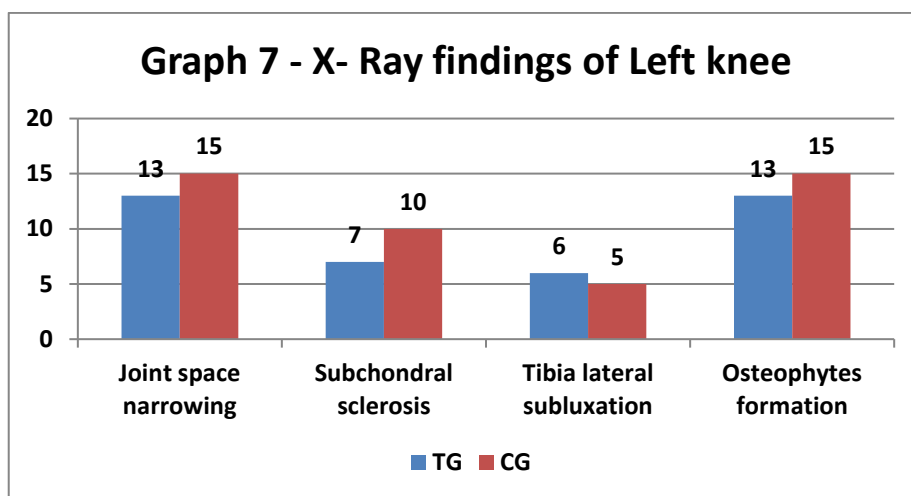
Table 2: Overall Assessment of the Therapy

Overall assessment of the therapy	Grade
Complete remission (100%): Free from all cardinal signs & symptoms associated with <i>Sandhigata vata</i> (O.A.) with a normal range of movement.	0
Marked improvement (75 - <100%): More than 75% relief in the signs & symptoms with major improvement in range of movement.	1
Moderate improvement (50 - < 75%): 50-75% results in the cardinal signs & symptoms with moderate improvement in range of movement.	2
Mild improvement (25 - < 50%): 25-50% results in the signs & symptoms with mild improvement in range of movement.	3
Unimproved (<25%): No notable changes with or without undiminished signs & symptoms of <i>Janu Sandhigatavata</i> (O.A.)	4

OBSERVATIONS ON DEMOGRAPHIC DATA







OBSERVATION ON STATISTICAL DATA

Table 3: Statistical analysis showing the effectiveness of Trial drug

Sign & Symptoms	N	Mean Score			Mean diff.	% of Imp.	± S.D.	± S.E.	w-Value	p-Value	Significance
		B.T.	A.T.1	A.T.2							
Shula (Pain in joints)	15	2.4	A.T.1	2.2	0.2	8.3	0.4	0.1	6	0.25	not significant
		2.4	A.T.2	1.7	0.7	30.6	0.7	0.2	45	0.0039	very significant
		2.4	A.T.3	1.5	0.9	38.9	0.8	0.2	55	0.002	very significant
Shotha (Swelling in joints)	8	2.5	A.T.1	2.4	0.1	5.0	0.4	0.1	1	> 0.9999	not significant
		2.5	A.T.2	1.6	0.9	35.0	0.6	0.2	21	0.0313	significant
		2.5	A.T.3	1.1	1.4	55.0	0.5	0.2	36	0.0078	very significant
Akuncanjanya – Prasarana janya Vedana (painfull movement)	15	1.5	A.T.1	1.3	0.3	17.4	0.5	0.1	10	0.125	not significant
		1.5	A.T.2	0.9	0.7	43.5	0.5	0.1	55	0.002	very significant
		1.5	A.T.3	0.7	0.9	56.5	0.6	0.2	66	0.001	extremely significant
	12	2.0	A.T.1	1.8	0.3	12.5	0.5	0.1	6	0.25	not significant

Vata poornadriti sparsha (resembles a bag filled with air)		2.0	A.T.2	1.3	0.8	37.5	0.5	0.1	45	0.0039	very significant
		2.0	A.T.3	1.1	0.9	45.8	0.7	0.2	45	0.0039	very significant
Sandhisphutna (Crepitus)	10	2.1	A.T.1	2.0	0.1	4.8	0.3	0.1	1	> 0.9999	not significant
		2.1	A.T.2	1.7	0.4	19.0	0.5	0.2	10	0.125	not significant
		2.1	A.T.3	1.3	0.8	38.1	0.6	0.2	28	0.0156	Significant
Sandhi-graha (Stiffness in joints)	15	2.5	A.T.1	2.1	0.4	16.2	0.5	0.1	21	0.0313	Significant
		2.5	A.T.2	1.6	0.9	35.1	0.4	0.1	91	0.0002	extremely significant
		2.5	A.T.3	1.0	1.5	59.5	0.5	0.1	120	< 0.0001	extremely significant
Flexion (Knee Joint)	15	73.0	A.T.1	76.3	3.3	4.6	9.6	2.5	t = 1.348	0.1989	not significant
		73.0	A.T.2	102.0	29.0	39.7	16.2	4.2	t = 6.947	< 0.0001	extremely significant
		73.0	A.T.3	107.3	34.3	47.0	15.1	3.9	t = 8.804	< 0.0001	extremely significant
Extension (Knee Joint)	15	107.3	A.T.1	102.0	5.3	5.0	9.2	2.4	t = 2.256	0.0406	Significant
		107.3	A.T.2	76.3	31.0	28.9	15.8	4.1	t = 7.583	< 0.0001	extremely significant
		107.3	A.T.3	73.0	34.3	32.0	15.1	3.9	t = 8.804	< 0.0001	extremely significant

Table 4: Statistical analysis showing the effectiveness of Control drug

Sign & Symptoms	n	Mean Score			Mean diff.	% of Imp.	± S.D.	± S.E.	w-Value	p-Value	Significance
		B.T.	A.T.								
Shula (Pain in joints)	15	2.2	A.T.1	1.9	0.3	12.1	0.5	0.1	10	0.125	not significant
		2.2	A.T.2	1.5	0.7	33.3	0.5	0.1	66	0.001	extremely significant
		2.2	A.T.3	0.9	1.3	60.6	0.6	0.2	105	0.001	extremely significant
Shotha (Swelling in joints)	11	2.4	A.T.1	2.2	0.2	7.7	0.4	0.1	3	0.5	not significant
		2.4	A.T.2	1.3	1.1	46.2	0.5	0.2	55	0.002	very significant
		2.4	A.T.3	0.7	1.6	69.2	0.5	0.2	66	0.001	extremely significant
Akuncanjanya – Prasarana janya Vedana (painfull movement)	15	1.9	A.T.1	1.6	0.3	17.2	0.5	0.1	15	0.0625	not quite significant
		1.9	A.T.2	1.2	0.7	37.9	0.5	0.1	66	0.001	extremely significant
		1.9	A.T.3	0.8	1.1	58.6	0.7	0.2	78	0.0005	extremely significant
Vata poornadriti	10	1.6	A.T.1	1.5	0.1	6.3	0.3	0.1	1	> 0.9999	not significant

sparsha (resembles a bag filled with air)		1.6	A.T.2	1.1	0.5	31.3	0.5	0.2	15	0.0625	not quite significant
		1.6	A.T.3	0.5	1.1	68.8	0.3	0.1	55	0.002	very significant
Sandhisphutna (Crepitus)	12	2.3	A.T.1	2.0	0.3	14.3	0.5	0.1	10	0.125	not significant
		2.3	A.T.2	1.7	0.7	28.6	0.5	0.1	36	0.0078	very significant
		2.3	A.T.3	1.1	1.3	53.6	0.6	0.2	66	0.001	extremely significant
Sandhi-graha (Stiffness in joints)	15	2.1	A.T.1	1.7	0.3	16.1	0.5	0.1	15	0.0625	not quite significant
		2.1	A.T.2	1.3	0.7	35.5	0.5	0.1	66	0.001	extremely significant
		2.1	A.T.3	0.9	1.1	54.8	0.7	0.2	78	0.0005	extremely significant
Flexion (Knee Joint)	15	70.0	A.T.1	76.0	6.0	8.6	9.5	2.4	t = 2.449	0.0281	significant
		70.0	A.T.2	99.3	29.3	41.9	14.1	3.6	t = 8.043	< 0.0001	extremely significant
		70.0	A.T.3	103. 3	33.3	47.6	15.2	3.9	t = 8.495	< 0.0001	extremely significant
Extension (Knee Joint)	15	104. 7	A.T.1	102. 0	2.7	2.5	7.0	1.8	t = 1.468	0.1643	not significant
		104. 7	A.T.2	76.3	28.3	27.1	13.8	3.6	t = 7.926	< 0.0001	extremely significant
		104. 7	A.T.3	73.0	31.7	30.3	13.7	3.5	t = 8.943	< 0.0001	extremely significant

Table 5: Showing the incidence of patients according to the % of improvement after treatment in both group

Cardinal features	TG	CG
Shula (Pain in joints)	38.89	60.59
Sotha (Swelling in joints)	55.00	69.20
Akuncanjanya - Prasaranajanya Vedana (Painful movement)	56.54	58.61
Vata poornadriti sparsha (resembles a bag filled with air)	45.84	68.75
Sandhisphutna (Crepitus)	38.10	53.58
Sandhi-graha (Stiffness in joints)	59.46	54.81
Flexion (Knee Joint) abnormality	47.03	47.62
Extension (Knee Joint) abnormality	31.99	30.25

Table 6: Comparison of effects on different parameters of both drugs

Symptoms	Group	No Of Patients	Mean	U Value	P-Value	Remark
Shula (Pain in joints)	TG	15	0.9333	80.5	0.1575	not significant
	CG	15	1.333			
Sotha (Swelling in joints)	TG	8	1.375	32.5	0.2943	not significant
	CG	11	1.636			
Akuncanjanya- Prasaranajanya Vedana (painfull movement)	TG	15	0.8667	89.5	0.3039	not significant
	CG	15	1.133			
Vata poornadriti sparsha	TG	10	1.1	50.5	0.448	not significant
	CG	12	0.9167			

Sandhisphutna (Crepitus)	TG	10	0.8	38.5	0.1164	not significant
	CG	12	1.25			
Sandhi-graha (Stiffness in joints)	TG	15	1.467	104	0.7169	not significant
	CG	15	1.333			
Flexion (Knee Joint)	TG	15	34.333	t = 0.1808	0.8579	not significant
	CG	15	33.333			
Extension (Knee Joint)	TG	15	34.333	t = 0.5063	0.6166	not significant
	CG	15	31.667			

Table 6; Overall clinical effects of therapy

Clinical effect of therapy	Overall Effect of therapy			
	TG		CG	
	f	%	f	%
Complete remission	0	0	0	0
Marked improvement	0	0	0	0
Moderate improvement	1	6.67%	2	13.33%
Mild improvement	13	86.67%	12	80%
Unsatisfactory	1	6.67%	1	6.67%

DISCUSSION

In this present study, *Simhnaad Guggulu* (*Bhaishajya Ratnavali Amavatachikitsa Prakarana*) is considered for clinical trial. The well-known drug *Yograj Guggulu* (*Bhaishajya Ratnavali Amavatachikitsa Prakarana*) has been selected as a control drug.

The compositions in both the drugs are approachable lieu of principles of treatment of *Sandhigatavata*. The main ingredient of both drug *Simhnaad Guggulu* and *Yograj Guggulu* is *Guggulu*. *Guggulsterone* present in *Guggulu* is reported to inhibit significantly lipopolysaccharide-induced up regulation of tumor necrosis factor- α expression and cyclooxygenase-2 production for which it acts as anti-inflammatory drug.

The drug *Simhnaad Guggulu* carries an indication against *Sandhigatavata*. It is a powerful purgative (*Tivrit*, *Danti*, *Jaypala*) and the ingredients in it are scanned to be propagative. *Sandhigatavata* specially occurs in *vriddhavastha* due to *dhatukshya*. *Rasayan* drugs nourish *Dhatu*s and overcome *dhatukshya*. So *rasayana* & *balya* drugs should be in for the treatment of *Sandhigatavata*. *Triphala*, *Guduchi*, *Shudh Gandhak*, *Shudh Parada* and *Guggulu* come under it. These drugs increase the overall vitality of body thus making *dhatuposhana* proper and help to hamper degenerative disease process in *Janusandhi* or helps in rebuilding of damaged cartilage. *Guduchi* has *rasayana* and immunomodulatory properties. *Shudh Guggulu*, *Sarsapa*, *Shunthi*, *Maricha*, *Pippali* etc. drugs are known

as *vedanasthapan*, *vatashamaka*, *sulaprashamana*, hence these drugs mainly helps to alleviate *sandhisula*, *sandhisotha*, *sandhigraha* etc. by their particular action on joints due to their specific *guna* and *karma*. *Shunthi*, *Maricha*, *Pippali*, *Chitrak* etc. drugs are *amapachana*, *rochana*, *deepana* and are helpful in maintaining digestive mechanism, which helps in assimilation of *Ama dosha* in the body. This *Ama* formation is the major cause for disease according to *Ayurveda*. *Sandhigatavata* requires reduction in the states of *meda* (Obesity), *ama* & *kapha*, which is considered to be possible with the trial drug, innervated with *katu*, *tikta* and *kashaya guna*. *Katurasa* by virtue of its *chhedana* & *lekhana* properties helps to cure the *dosa-samurchhana* & *srotabhisanga*. *Devadaru* has *amapachaka* and *shothahara Prabhava*.

Yograj Guggulu is a famous and versatile *Ayurvedic* medicine is laden with rejuvenating properties and is widely used for ages to treat musculoskeletal disorders. *Rasayana* & *Balya* drugs like *Haritaki*, *Vibhitaki*, *Amalaki*, *Mustaka*, *Sunthi*, *Maricha*, *Pippali*, *Guggulu*, *Go-ghrita* helps in rebuilding of damaged cartilage. *Rasna* has *shula* and *shothahara*. *Shunthi* has *amapachaka* and *rasayana*, *Guduchi* has *rasayana* and immunomodulatory properties, *Gokshura* is liver protective and *shothahara* properties.

The demographic data in this study reveals that Maximum numbers of patients i.e. 15 (46.87%) were observed between the age group of >50 -65 years, Maximum numbers of patients i.e. 18 (56.25%) were females, Highest number of patients i.e. 12 (37.50%)

had business occupation, Most of the patients i.e. 18 (56.25%) were in 2 yr - 3 yrs of chronicity status, Most of the Patients i.e. 11 (34.38%) were in *Sannipataja* prakriti group. X-Ray shows in Right Knee joint, Joint space narrowing & Osteophytes formation in all patients i.e. 100%, whereas Subchondral sclerosis in 80% and Tibia lateral subluxation found in 73.33% patients. In left Knee joint, Joint space narrowing & Osteophytes formation found in all patients i.e. 100%, whereas Subchondral sclerosis in 60.71% and Tibia lateral subluxation found in 39.29% patients. According to KL Gradation of osteoarthritis, Right knee osteoarthritis shows 46.67% were in Grade 1 & Grade 2, 6.67% were in Grade 3. Left knee osteoarthritis shows 32.14% were in Grade 1, 53.57% were in Grade 2 and 6.67% were in Grade 3. After treatment, in both groups there are no changes found in the X-Ray findings.

The clinical data in this study reveals that all patients belonging to TG & CG were got relief, which has been critically assessed in the language of percentage. So far the improvement of cardinal sign symptoms in the present study, the percentage being 38.89% & 60.59% in *Shula* (Pain in joints), 55% & 69.20% in *Sotha* (Swelling in joints), 56.54% & 58.61% in *Akuncanjanya - Prasaranajanya Vedana* (Painful movement), 45.84% & 68.75% in *Vata poornadriti sparsha* (resembles a bag filled with air), 38.10% & 53.58% in *Sandhisphutna* (Crepitus), 59.46% & 54.81% in *Sandhi-graha* (Stiffness in joints) among Trial group (TG) & Control Group (CG) respectively. This shows,

the cases achieved more benefit by Control Group (*Yograj Guggulu*) than trial drug (*Simhnaad guggulu*).

Considering the vital objective parameters, the study reveals all patients attained improvement, which was evaluated in various percentage against different objectives. The percentage being 47.03% & 47.62% in Flexion (Knee Joint) abnormality, 31.99% & 30.25% in Extension (Knee Joint) abnormality among Trial group (TG) & Control Group (CG) respectively. This shows, the cases achieved more benefit by Control Group (*Yograj Guggulu*) than trial drug (*Simhnaad Guggulu*).

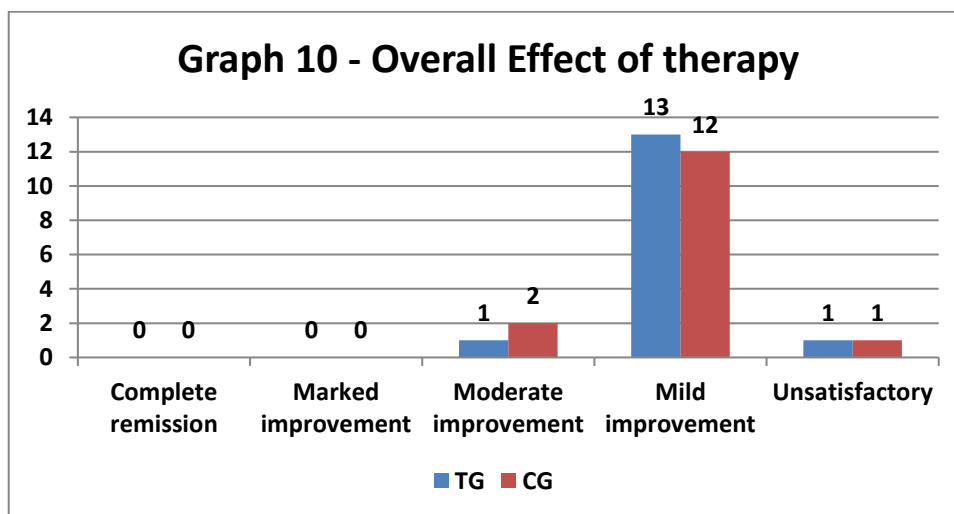
The statistical adjudication with suitable parameters shows that both drugs (*Simhnaad Guggulu* & *Yograj Guggulu*) were extremely/very significant on subjective & objective parameters among both groups.

OVERALL CLINICAL ASSESSMENT OF RESULTS

In *Simhnaad Guggulu* group overall clinical effect was assessed as 1 (6.67%) patients were get Moderate improvement, 13(86.67%) patients were get Mild improvement and 1(6.67%) patients were get unsatisfactory improvement.

In *Yograj Guggulu* group, overall clinical effect was assessed as 2 (13.33%) patients were get Moderate improvement, 12(80%) patients were get Mild improvement and 1(6.67%) patients were get unsatisfactory improvement.

None of the patient was completely cured (100%) observed in both the groups.



CONCLUSION

Results of this study indicate that, the efficacy of all the trial drugs found capable to enforce relief as a

statistically significance response was obtained after the therapy in maximum symptoms and at the end of the study none of the case remained unchanged, but the cases achieved more benefit by Control Group (*Yograj*

Guggulu) than trial drug (*Simhnaad Guggulu*). The trial drug (*Simhnaad Guggulu*) cannot be discarded inferior to control drug (*Yograj Guggulu*) as both the drugs were found capable to enforce relief and the comparison of

effect of trial drug on various symptoms in TG and CG shows not significant that means the relief provided by both group was not so much differ.

REFERENCES

1. Chikitsasthana Charak Samhita, Chaukhambha Sanskrit Series. Vols. 28/37, Bhagavandas, Sharma R.K. Varanasi; 1983.
2. Bhagavandas Sharma RK, Series Chaukhambha Sanskrit, Varanasi. Chakrapani on Charak Samhita Chikitsasthana. Vols. 28/37; 1983.
3. Chikitsasthana Charak Samhita, Chaukhambha Sanskrit Series. Vols. 29/11, Bhagavandas, Sharma R.K. Varanasi; 1983.
4. Nidanasthana Sushruta Samhita. Kaviraj Ambikadatta Shastri, Chaukhambha Sanskrit Sansthan. Varanasi; 2003. p. 1/79.
5. Chikitsasthana Charak Samhita, Chaukhambha Sanskrit Series. Vols. 28/27, Bhagavandas, Sharma R.K. Varanasi; 1983.
6. Nidanasthana Sushruta Samhita. Kaviraj Ambikadatta Shastri. Varanasi: Chaukhambha Sanskrit Sansthan; 2003. p. 1/28.
7. Vatavyadhi Madhava Nidana. Madhavakara: Acharya Yadunandanopadhyaya, Chaukhambha Sanskrit Series, Varanasi. 2009 ed;22/21.
8. Osteoarthritis, Harrison's Principles of Internal Medicine, page. p. 2624-25.
9. Chikitsasthana Charak Samhita, Chaukhambha Sanskrit Series. Varanasi; 1983. p. 28/18-19, Bhagavandas, Sharma R.K.
10. Osteoarthritis. Available from: <http://ccras.nic.in/sites/default/files/viewpdf/faq/OESTEOARTHRITIS.pdf>.
11. Chikitsasthana Charak Samhita. 28 Chapter, Bhagavandas, Sharma R.K., Chaukhambha Sanskrit Series. Varanasi; 1983.
12. Chikitsasthana Sushruta Samhita. Kaviraj Ambikadatta Shastri, Chaukhambha Sanskrit Sansthan. Vols. 4/8. Varanasi; 2003.
13. Chikitsasthana Ashtanga Hridayam. Gupta A.D. Hindi Commetnary, Chaukhamba, Sanskrit Samsthana, Varanasi, 2000. Vols. 21/22.
14. Bhaisajyaratnavali. Govind Das Sen with Vidhyotini Hindi commentary by Shastri AD, Prakashan C, editors. Vol. 19; 2008. p. 29/176-184.
15. Ayurvedic formulary of India. 1st ed, Year of publication-. Section 5/12. Ministry of Health &Family Wealfare; 2003.
16. Bhaisajyaratnavali. Govind Das Sen with Vidhyotini Hindi commentary by Shastri AD, Prakashan C, editors. Vol. 19; 2008. p. 29/152-157.
17. Ayurvedic formulary of India. 1st ed, Year of publication-. Section 5/7. Ministry of Health &Family Wealfare; 2003.