

**A CLINICAL STUDY OF NADISWEDA AND
GREEVABASTI IN THE MANAGEMENT OF
CERVICAL SPONDYLOSIS**

**A THESIS SUBMITTED TO THE
TILAK MAHARASHTRA VIDYAPEETH, PUNE
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
In Panchakarma Subject
Under the Board of Ayurveda Studies**



BY

Dr. PARESH RAOSAHEB CHOUGULE

(Registration No. 05610001726)

UNDER THE GUIDANCE OF

Dr. ANANT BHAGWANT DHARMADHIKARI

DEPARTMENT OF AYURVEDA

Year - 2017

CERTIFICATE OF THE SUPERVISOR

It is certified that work entitled **A clinical study of Nadisweda and Greevabasti in the management of Cervical Spondylosis** is an original research work done by **Dr. Paresh Raosaheb Chougule** under my supervision for the degree of Doctor of Philosophy in **Panchakarma** subject to be awarded by Tilak Maharashtra Vidyapeeth, Pune. To best of my knowledge this thesis

- embodies the work of candidate himself
- has duly been completed
- fulfils the requirement of the ordinance related to Ph.D. degree of the TMV
- up to the standard in respect of both content and language for being referred to the examiner.

Place -

Signature of the Supervisor

Date -

(Dr. Anant B. Dharmadhikari)

ACKNOWLEDGEMENT

I offer my salutation to the almighty for his blessings that made me accomplish this dissertation work and my beloved family - father **Dr. Raosaheb Chougule**, mother **Mrs. Vimal Chougule**, my wife **Dr. Archana Chougule** and sibling **Mrs. Mousami Barde** for their everlasting support.

It is a matter of utmost pride, privilege and honors for me to say that an ocean of knowledge and my teacher **Dr. Anant Dharmadhikari** Sir PhD (Ayu) has guided me for this dissertation work. He has been my inspiration for following the path of learning, discipline and hard work right from the day; I have started this research work. His guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better advisor and mentor for my PhD study.

I express my deepest gratitude and respect to my teacher **Dr. Niranjan Rao** Sir, Professor and HOD Department of Panchakarma, SDMCA Udupi Karnataka, whose valuable guidance and support has been with me throughout this dissertation work.

I avail this opportunity to express my deepest sense of indebtedness to my dear friend **Dr. Jotiram Maske-Patil**. I am ever grateful to **Dr. S.S. Sungare** Sir, Ex Principal, **Dr. P.A.Pete** Sir Principal, **Dr A.J.Patil** Sir Vice Principal and specially **Dr Sujit Patil** Sir RMO Vasantdada Patil Ayurvedic Medical College, Sangli for their encouragement and support throughout this study.

I thank to radiologist **Dr. Shrenik Patil**, **Dr. Sudhir Choudhari** and **Mr. Bharat** of Vedh Dignostic & research center, Sangli for their support for X-Ray films and reports. I thank to whole staff of **SG Phyto Pharma Pvt. Ltd Kolhapur** for drug preparation and providing it time to time.

I would like extend my thanks to **Dr. R. B. Kulkarni** Dean, **Dr Shrikant Deshpande** Sir Associate Professor, orthopedic department and **Mr Desai** Librarian of Bharti Medical College and Hospital, Sangli for their timely help to this study.

I also take this opportunity to thank **Dr. Gopesh Mangal**, **Dr. Mayur Pawaskar**, **Dr Girish**, **Dr. Anantram Sharma**, **Dr. Lohith**, **Dr. Sandip Binorkar** and **Dr. Satyen Deshpande** for their valuable support to this dissertation work.

I thank all the hospital staff **Mr Gurav, Mrs M. Birnale, Mr Digade, Mr Mukund, Mr Nilesh** etc. All the masseurs, lab technician, drug supplier, college librarian and my patients without whom this study was not possible.

Dr. Paresh Chougule

TABLE OF CONTENTS

CONTENTS		PAGE NO
Chapter 1. Preface		01 - 03
Chapter 2. Aims & Objectives		04
Chapter 3. Literary Review	Abhyanga	05 - 07
	Swedana	07 - 12
	Swedana Classification	13 - 14
	Nadisweda	15 - 18
	Greevabasti	19 - 23
	Cervical Spondylosis Modern View	24 - 31
	Cervical Spondylosis Ayurvedic View	32 - 34
	Drug Review	35 - 38
	Previous Workdone	39 - 43
Chapter 4. Clinical Study	Methodology	44 - 47
	Observations	48- 91
	Results	92 - 123
Chapter 5. Discussion		124 - 145
Chapter 6. Conclusion		146
Summary		147 - 149
Bibliography		150 - 158
Annexure		i - xi

LIST OF TABLES

No	List of Tables	Page No
01	Abhyanga according to Tailapaka	05
02	Abhyanga Kala	05
03	Qualities of Abhyanga	06
04	Contraindications of Abhyanga	06-07
05	Indications of Swedana	08-09
06	Contraindications of Swedana	09-10
07	Qualities of Swedana Dravya	11
08	Samyak Swinna Lakshana	11
09	Ati Swinna Lakshana	12
10	Aswinna / Manda Swinna Lakshana	12
11	Swedana Classification	13
12	Niragni Sweda	14
13	Different Varieties of Sweda	14
14	Nadisweda Classification	15
15	Nadisweda Dravya according to Dosha	15
16	Nadisweda Procedure Prerequisites	16-17
17	Griva Basti with regarding classification	20
18	Greevabasti Procedure Prerequisites	20
19	Radiculopathy – Classic Nerve Root Involvement	28
20	Comparison between Spondylosis and Arthrosis	29
21	The Feasible & Probable Concepts of Cervical Spondylosis – Ayurvedic View	34
22	Ingredients of Sahacharadi Taila	35
23	Nadisweda Research work with conclusion	39
24	Greevabasti Research work with Conclusion	39-40
25	Cervical Spondylosis Research work with Conclusion	40-43
26	Age	48
27	Gender	48
28	Religion	49
29	Education	50
30	Occupation	50
31	Social-Economic Status	51
32	Marital Status	52
33	Neck Pain	52
34	Neck Pain Radiation	53
35	Pain Radiation Side	53
36	Neck Movements	54
37	Stiffness	55
38	Tingling Sensation	55
39	Vertigo	56
40	Mode of Onset	57
41	Nature of Pain	57
42	Course of Pain	58
43	Treatment History	59

44	Addiction	59
45	Aahar	60
46	Dominant Rasa	61
47	Vyayam	62
48	Nidra (Sleep)	63
49	Mala (Bowel Habit)	63
50	Mutra (Bladder Habit)	64
51	Prakaruti	65
52	Saratah	65-66
53	Samhanan	67
54	Pramanatah – Height	67
55	Pramanatah – Weight	68
56	Satmyatah	69
57	Satva	69
58	Abhyawaranshakti	70
59	Jaranshakti	71
60	Vyayamshakti	71
61	Vayatah	72
62	Neck Pain Observations	73
63	Neck Pain Radition Observations	74
64	Stiffness Observations	75
65	Tingling Sensation Observations	76-77
66	Vertigo Observations	78
67	Neck Movements Observations	79
68	Pain Intensity	80
69	Personal Care	81-82
70	Lifting	82-83
71	Reading	83-84
72	Headache	85
73	Concentration	86
74	Work	87
75	Driving	88
76	Sleeping	89-90
77	Recreation	90-91
78	Effect of Therapy on Neck Pain – Within Group	92
79	Effect of therapy on Neck Pain - Group comparison	93
80	Effect of therapy on Radiation of Pain – Within Group	94
81	Effect of therapy on Radiation of Pain - Group comparison	94
82	Effect of therapy on Stiffness – Within Group	95
83	Effect of therapy on Stiffness - Group comparison	96
84	Effect of therapy on Tingling Sensation – Within Group	96
85	Effect of therapy on Tingling Sensation - Group comparison	97
86	Effect of therapy on Vertigo – Within Group	98
87	Effect of therapy on Vertigo - Group comparison	98
88	Effect of therapy on Movements of Neck – Within Group	99
89	Effect of therapy on Movements of Neck - Group comparison	100
90	Effect of therapy on Pain Intensity – Within Group	100
91	Effect of therapy on Pain Intensity - Group comparison	101

92	Effect of therapy on Personal Care – Within Group	102
93	Effect of therapy on Personal Care - Group comparison	102
94	Effect of therapy on Lifting – Within Group	103
95	Effect of therapy on Lifting - Group comparison	104
96	Effect of therapy on Reading – Within Group	104
97	Effect of therapy on Reading - Group comparison	105
98	Effect of therapy on Headache – Within Group	106
99	Effect of therapy on Headache - Group comparison	106
100	Effect of therapy on Concentration – Within Group	107
101	Effect of therapy on Concentration - Group comparison	108
102	Effect of therapy on Work – Within Group	108
103	Effect of therapy on Work - Group comparison	109
104	Effect of therapy on Driving – Within Group	110
105	Effect of therapy on Driving - Group comparison	110
106	Effect of therapy on Sleeping – Within Group	111
107	Effect of therapy on Sleeping - Group comparison	112
108	Effect of therapy on Recreation – Within Group	112
109	Effect of therapy on Recreation - Group comparison	113
110	Percentage wise relief in subjective parameter	114
111	Percentage wise relief in Neck Disability Index	115
112	Total score of Level of Disability - Group A	116
113	Total score of Level of Disability - Group B	118
114	Total score of Level of Disability - Group C	119
115	Total Effect of Therapy	121
116	Radiological Findings	122
117	Details of Patients	125
118	Summary of Comparison of Subjective parameters of all three groups	137
119	Summary of Comparison of Neck disability index of all three groups	140-141

LIST OF GRAPHS

No	Name of Graphs	Page no
01	Age wise Distribution	48
02	Gender wise Distribution	49
03	Religion wise Distribution	49
04	Education wise Distribution	50
05	Occupation wise Distribution	51
06	Social-Economic Status wise Distribution	51
07	Marital status wise Distribution	52
08	Neck Pain	52
09	Neck Pain Radiation	53
10	Pain Radiation Side	54
11	Neck Movements	54
12	Stiffness	55
13	Tingling Sensation	56
14	Vertigo	56
15	Mode of Onset	57
16	Nature of Pain	58
17	Course of Pain	58
18	Treatment Histories	59
19	Addiction	60
20	Aahar	60
21	Dominant Rasa	62
22	Vyayam	62
23	Nidra (Sleep)	63
24	Mala (Bowel Habit)	64
25	Mutra (Bladder Habit)	64
26	Prakaruti	65
27	Saratah	66
28	Samhanan	67
29	Pramanatah – Height	68
30	Pramanatah – Weight	68
31	Satmyatah	69
32	Satva	70
33	Abhyawaranshakti	70
34	Jaranshakti	71
35	Vyayamshakti	72
36	Vayatah	72
37	Neck Pain Observations	73
38	Neck Pain Radiation Observations	75
39	Stiffness Observations	76
40	Tingling Sensation Observations	77
41	Vertigo Observations	78
42	Neck Movements Observations	80
43	Pain Intensity	81

44	Personal Care	82
45	Lifting	83
46	Reading	84
47	Headache	85
48	Concentration	86
49	Work	88
50	Driving	89
51	Sleeping	90
52	Recreation	91
53	Effect of Therapy on Neck Pain – Within Group	93
54	Effect of therapy on Neck Pain - Group comparison	93
55	Effect of therapy on Radiation of Pain – Within Group	94
56	Effect of therapy on Radiation of Pain - Group comparison	95
57	Effect of therapy on Stiffness – Within Group	95
58	Effect of therapy on Stiffness - Group comparison	96
59	Effect of therapy on Tingling Sensation – Within Group	97
60	Effect of therapy on Tingling Sensation - Group comparison	97
61	Effect of therapy on Vertigo – Within Group	98
62	Effect of therapy on Vertigo - Group comparison	99
63	Effect of therapy on Movements of Neck – Within Group	99
64	Effect of therapy on Movements of Neck - Group comparison	100
65	Effect of therapy on Pain Intensity – Within Group	101
66	Effect of therapy on Pain Intensity - Group comparison	101
67	Effect of therapy on Personal Care – Within Group	102
68	Effect of therapy on Personal Care - Group comparison	103
69	Effect of therapy on Lifting – Within Group	103
70	Effect of therapy on Lifting - Group comparison	104
71	Effect of therapy on Reading – Within Group	105
72	Effect of therapy on Reading - Group comparison	105
73	Effect of therapy on Headache – Within Group	106
74	Effect of therapy on Headache - Group comparison	107
75	Effect of therapy on Concentration – Within Group	107
76	Effect of therapy on Concentration - Group comparison	108
77	Effect of therapy on Work – Within Group	109
78	Effect of therapy on Work - Group comparison	109
79	Effect of therapy on Driving – Within Group	110
80	Effect of therapy on Driving - Group comparison	111
81	Effect of therapy on Sleeping – Within Group	111
82	Effect of therapy on Sleeping - Group comparison	112
83	Effect of therapy on Recreation – Within Group	113
84	Effect of therapy on Recreation - Group comparison	113
85	Percentage wise relief in subjective parameter	114
86	Percentage wise relief in Neck Disability Index	116
87	Total score of Level of Disability - Group A	117
88	Total score of Level of Disability - Group B	119
89	Total score of Level of Disability - Group C	120

90	Total Effect of Therapy	121
91	Radiological Findings – X-ray	123

PREFACE

The 21st century is an era of advanced technology, especially alteration of computerised means of working. People's contemporary lifestyle has become much dominated by computer technology, working in front of computers for hours together, watching television for extended hours, excess travelling in a jerky condition, uncomfortable postures while standing or sitting and different positions of the body while playing sports, also no concern over eating and food habits these all contribute to the problems of cervical spine like neck pain, stiffness and neurological symptoms.

Nowadays Text neck is a new term coined. There is jerk to the cervical spine owing to continuous utilisation of electronic gadgets i.e. mobile phones, computers, tablets etc... An inadequate position and the extensive increase of electronic gadget usage have give rise to painful condition of neck, shoulder, both hand along with headaches and raised angle of the spine.¹ Considering neck pain as a worldwide, it is the fourth major cause of disability.² In contemporary populations neck pain in specific is considered as one of the prime health problem which influencing adults of general population in a year i.e. 30 to 50%. Persons with neck pain, almost 50 to 85% don't experience entire relief of symptoms and few could experience reducing pain and some chronic pain.³ Chronic neck pain which is more than three months in a duration will be experienced by 15% of the common population in their life. In a year 11 to 14% persons in working population suffers from movement restriction owing to neck pain. At the middle age prevalence gets top, also male are less frequently affected than female. There is multiple fear factors i.e. monotonous work, the spine continuously in forward bending position, excessive intellectual occupation struggle and old neck or shoulder trauma or injury.⁴

In earlier days Cervical spondylosis was a disease of late adulthood & old age, but nowadays changing in life styles causes the disease even to younger generation. Incidence varies with age. The adults above 40 years age have extreme degeneration of cervical spine, not less than one cervical level, commonly C5 to C6 which is based on MRI studies of population.⁵ According to WHO (World Health Organisation) COPCORD (Community Oriented Program for Control of Rheumatic Diseases) study, the Indian prevalence rate of cervical spondylosis is 17.3%.

Cervical spondylosis is generally owing to two things, first is articular surfaces alteration and second is projection of posterior lateral disc. Hence due to osteophytes

there will be reducing of intervertebral foramina. This reducing will be between C3 to C7 cervical vertebra, predominantly in C5 to C6 and C6 to C7 areas. Initially there will be movement restriction and stiffness along with the pain. Later on there will be cervical nerve roots compression, less intense aching in the occipital area or in lower neck.⁶

If ideal naming of the disease is not identifiable then in such situation, acharyas have suggested that one has to consider the status of dosha and dushya along with site indication and hetu i.e. etiological things.⁷ In Cervical Spondylosis there are group of symptoms present like degeneration, ankylosis, painful movements, radicular features, sensory impairments etc. Consequently, almost all disorders over the neck and vatajanatmajavikaras are compared with the Cervical Spondylosis like Greevastambha⁸, Manyastambha⁸, Greevahundanam⁹, Manyagraha¹⁰ etc.

Degenerative diseases can be added under the category of Vatavyadhi. Hence, the word 'Cervical Spondylosis' and its treatment should be perspective especially from VataVyadhi. In classics varieties of treatments have been mentioned for vatavyadhi, like snehana, swedana, basti, nasya¹¹ etc. There is common treatment in all kinds of vatavyadhi, i.e. snehana and swedana.¹²

The moderate, rapid, apprehensive, sedentary elegant lifestyles of so called advanced people have changed their dietary habits as well as time. They are under influence of different junk food advertisements. Neck pain is a major problem, so for time being more pain killer medicines are being used. The concurrent system of medicines do not have an effective conventional line of management for the course of time and it aims exclusively at pain relief using non steroidal anti-inflammatory drugs and analgesics, which have side effects like gastric aggravation and dependency on the medicines.

It's difficult to treat the disease, but not impossible. Relief of pain for a time duration without any side effects is to be evaluated. Considering this point, the external treatment, Snehana and Swedana which are mentioned in Charak Siddhithana was selected to get rid of from the doshic symptoms.¹³ Dalhana mentioned specific two types of swedana treatments, samshamananga and samshodhanangasweda. Samshamanangasweda which acts as a pradhanakarma and Samshodhananga acts as a poorvakarma.¹⁴ The definition of swedana is stambhagauravasheetaghna...¹⁵ it means swedana is mainly useful for reduction of stambha, also if we take a look at the indications of swedana, we found conditions like manyashoola, sankoch and

sthambha, which suggests that it is beneficial in both the conditions, pain as well as stiffness.¹⁶

In classics different kinds of swedana procedures are been mentioned like sankar, prastar, nadi, parishek¹⁷...etc. Among different swedana procedures, Nadisweda has been selected for this study which is a type of Ekanga and Snehayuktasweda. Greevabasti as such word is not mentioned in classics. However Vagbhata mentioned shirobasti while explaining the murdhni taila.¹⁸ In Shiro-Basti the head i.eshira is enclosed with oil by placing a leather cap. The meaning of Basti is to fill and reside, therefore the word Basti has been attached to Shiro... Considering these principles as well as techniques Greevabasti can be adapted for Greevapadesh.

Sahacharadi Kashaya¹⁹ has been mentioned in AshtangHridayavatavyadhichikitsa. It contains Sahachar, Surdaru and Nagar, these dravyas having Ushna, Tikshna&snigdha qualities, which are useful for swedana procedure. In this study, SahacharadiTaila was prepared out of these kashaya medicines and used for both the procedures Nadisweda (for local snehana) as well as Greevabasti. Distinct varieties of Nadiswedadravyas are been mentioned in classics like Varuna, Amruta, Eranda, Shigru etc.²⁰Erandamooladravya was selected for Nadisweda procedure in this study.

Previously different research studies were conducted on Greevabasti as well as Nadisweda for consecutive 14 days, both the treatment modalities are comes under the category of external treatments i.e. Bahiparimarjanchikitsa. Non steroidal anti-inflammatory drugs and muscle relaxants are internal treatment which are having adverse effects like gastric irritation, epigastric distress etc, considering all above things, the comparative study was conducted in between Nadisweda, Greevabasti, and Control group (Aceclofenac 100 mg + Thiocolchicoside 08 mg). (Nadisweda and Greevabasti for 14 consecutive days while control group for 07 days)

AIM AND OBJECTIVES

To compare the efficacy of Nadisweda and Greevabasti with Control Group.
(Aceclofenac 100 mg + Thiocolchicoside 08 mg).

ABHYNGA

Abhyanga is one of the external measures which can be used for relieving various ailments. It has got a long lasting health promoting effect and is also included in the Dincharya and Ritucharya. One which causes snehana (unctuousness), vishyandana (fluidity), mardavata (softness), kledakarak (moistness) is snehana. ²¹

- Snehana is an important component of the body and can be administered in different ways one of which is abhyanga. ²²
- Vayu is important for sparshjyana (sensation) and the site of sensation is twak (skin) and this justifies the procedure of abhyanga that is done to the skin itself. ²³
- It has been mentioned as bahya prakruti vighatana chikitsa and also as vyadhi viparita chikitsa. ²⁴

Table No - 01 Abhyanga according to Tailapaka

Samhita	Kharapaka	Madhymapaka
C S ²⁵	+	-
S S ²⁶	-	+
A H ²⁷	+	-
S H ²⁸	+	-

Table No - 02 Abhyanga Kala ²⁹

Dhatu	Matrakala
Romanta	300
Twacha	400
Rakta	500
Mamsa	600
Meda	700
Asthi	800
Majja	900

Dalhana specifically mentioned the kalas for abhyanga in terms of the matra required to reach a particular dhatu.

Table No - 03 Qualities of Abhyanga

Qualities	C S³⁰	S S³¹	A S³²
Drudha twak	+	-	-
Sutwak	+	-	+
Maruta abhadham	+	-	-
Klesh samsaham	+	-	-
Vyayama samsaham	+	-	-
Susparsha anga	+	-	+
Upachita anga	+	-	-
Balawan	+	-	-
Priyadarshana	+	-	-
Mardawakara	-	+	-
Vatanirodhana	-	+	-
Kaphanirodhana	-	+	-
Dhatupushthi	-	+	-
Shudhaprabha (dalhan)	-	+	-
Varnaprada	-	+	-
Balaprada	-	+	-
Vatahar	-	-	+
Jarahar	-	-	+
Shramaha	-	-	+
Brumhana	-	-	+
Swapna (nidra)	-	-	+
Dagdha rujahar	-	-	+
Bhagna rujahar	-	-	+
Kshata rujahar	-	-	+
Klamahar	-	-	+
Dardhyakrita	-	-	+

Table No - 04 Contraindications of Abhyanga

Conditions	S S³³	A H³⁴	Y R³⁵
Ajeerna	+	+	+
Tarun jwara	+	-	+
After Vamana	+	+	+
After Virechana	+	+	+

After Niruha Basti	+	-	+
Vridhha Sleshma	-	+	-
Satarpanjanya Roga	+	-	-

Snehayukta Swedana

- If swedana is administered after snehana, then it brings vata under control and thereby facilitates the elimination of purisha, mutra and retasa. Even a dry piece of wood can be bent by means of snehana & swedana ³⁶
- Before the administration of swedana in the form of sankarsweda, nadisweda etc. patient should be given abhyanga.³⁷
- As a dry wood can be easily bent as desired by the application of oil and fomentation, similarly even a curved or stiff limb can be slowly brought back to normalcy by the administration of snehana & swedana karma.³⁸
- Patient should be given snehana & swedana therapies repeatedly as a result of which the koshta becomes soft & the diseases of vayu do not get an opportunity to get lodged there permanently. ³⁹
- Swedana should never be employed in cases where abhyanga has not been done before as it is commonly observed that a wooden piece easily breaks if heated without applying oil to it. ⁴⁰

Swedana Definition

- The one which removes sthambha, gaurava, sheeta and brings out sweda is called as Swedana.⁴¹
- The process by which sweating is brought about in the body by the contact of heat is called as swedana.⁴²
- Swedana is referred as fomentation, act of heating / sweating. ⁴³

Application of Swedana Vis-A-Vis Dosha

1. It is mainly used in disordered of vata kapha origin.⁴⁴
2. As Poorvakarma ⁴⁵

Shodhananga sweda which is performed before shodhana like vamana, virechana, basti, nasya etc. can be taken as poorvakarma.

3. As Pradhanakarma ⁴⁶

Shamananga sweda is used as pradhan karma in vataj disorders.

4. As paschatakarma ⁴⁷

The sweda which is performed after removal of shalya, moodhagarbha and after prasava can be taken as paschatakarma.

5. As poorva and paschata karma ⁴⁸

In case of shastra karma for bhagandr, arsha, ashmari swedana karma can be performed before and after procedure.

Table No - 05 Indications of Swedana

Lakshana	C S ⁴⁹	S S ⁵⁰	A S ⁵¹	A H ⁵²	K S ⁵³
Pratishyaya	+	-	+	+	+
Kasa	+	-	+	+	+
Hikka	+	-	+	+	-
Shvasa	+	-	+	+	+
Anga Gourava	+	-	+	+	+
Karna Shula	+	-	+	+	+
Manya Shula	+	-	+	+	+
Sira Shula	+	-	+	+	+
Swara Bheda	+	-	+	+	+
Gala Graha	+	-	-	-	+
Pakshaghatha	+	-	+	-	+
Vinamaka	+	-	+	+	+
Kosta Anaha	+	-	-	-	+
Vibanda	+	-	+	+	+
Sukraghata	+	-	+	+	+
Vishesha Jrumbha	+	-	+	+	+
Parshva Graha	+	-	+	+	+
Pristha Graha	+	-	+	+	+
Kati Graha	+	-	+	+	+
Kukshi Graha	+	-	+	+	+
Mutra Krichra	+	-	+	+	+
Muska Roga	+	-	+	+	+
Angamarda	+	-	+	+	+
Pada Pida	+	-	-	+	-
Uru Pida	+	-	-	+	-
Shotha Roga	+	-	-	+	-
Khalli Roga	+	-	+	+	+
Ama Dosha	+	-	+	+	+
SheetaJanyaRog	+	-	+	+	+

Kampavata	+	-	+	+	+
Vatakantaka	+	-	+	+	+
Antarayama	+	-	+	+	+
Bahirayama	+	-	+	+	+
Anga Sthambha	+	-	+	+	-
Vata Vyadhi	-	-	+	+	-
Sleshma Roga	-	-	-	+	-
Adya Vata	-	-	+	+	-
Hanu Graha	-	-	+	+	+
Ekanga Vata	+	-	-	+	-
Sarvanga Vata	+	-	-	-	-
Gridhrasi	+	-	-	-	-
Janu Pida	+	-	-	-	-
Anga Sankocha	+	-	-	-	-
Shula	-	-	+	-	+
Apatanaka	-	-	+	-	-
Adhmana	-	-	+	+	-
Arbhuda	-	-	+	+	-
Granthi Shotha	-	-	+	+	-
Vrana Shotha	-	-	+	-	-
Gulma	-	-	-	-	-
Siro ruja	-	-	-	-	+
Siro Graha	-	-	-	-	+
Yakshma	-	-	-	-	+
Shalyapahata	-	+	-	-	-
Arsha	-	+	-	-	-
Ashmari	-	+	-	-	-
Bhagandhara	-	+	-	-	-
Shotha	-	+	-	-	-

Table No – 06 Contraindications of Swedana

Lakshana	C S⁵⁴	S S⁵⁵	A S⁵⁶	A H⁵⁷	K S⁵⁸
Madhyapa	+	+	+	+	+
Garbhini stri	+	+	+	+	+
Raktapitta	+	+	-	-	-
Atisara	+	+	-	-	-
Ruksha Vyakti	+	-	+	-	-
Madhumehi	+	+	-	+	-
Dagdha	+	-	+	+	+
Gudabhramsa	+	-	+	+	+
Gudavrana	+	-	+	+	-
Visha Vikara	+	+	+	+	+
Murcha	+	-	+	+	-

Sthoulya	+	+	+	+	-
Pittaj Prameha	+	-	+	-	+
Trushitha	+	+	+	+	+
Khruddha	+	-	+	+	+
Chinthagrastha	+	-	+	+	+
Kamala	+	-	+	+	-
Udara Roga	+	+	+	+	-
Kshata	+	-	+	+	-
Kamala	+	-	+	+	-
Udara Roga	+	+	+	+	-
Kshata	+	-	+	+	-
Vatarakta	+	-	+	-	-
Durbala	+	+	-	+	+
Timira Roga	+	-	+	+	+
Madhyaj Roga	+	-	-	-	-
Aanta Rogi	+	-	-	-	-
Kshuditha	+	-	-	+	-
Vishuska	+	-	-	-	-
Oja Ksaya	+	-	-	-	-
Pandu Roga	-	+	-	-	-
Kshaya Roga	-	+	-	-	-
Chardi Roga	-	+	-	-	-
Chardi Roga	-	+	-	-	-
AthyayikaRoga	-	-	+	+	-
Prasutha	-	-	+	+	-
Rajashwala	-	-	+	+	-
Pittaja Roga	-	-	+	+	-
Pandu	-	-	+	+	-
Bhaya Grastha	-	-	+	+	-
Shoka Grastha	-	-	+	+	-
Visarpa	-	-	+	+	-
Kusta	-	-	+	+	-
Dugdha Peeta	-	-	+	+	-
Chardi Roga	-	+	-	-	-
AthyayikaRoga	-	-	+	+	-
Prasutha	-	-	+	+	-
Rajashwala	-	-	+	+	-
Pittaja Roga	-	-	+	+	-
Pandu	-	-	+	+	-
Bhaya Grastha	-	-	+	+	-
Shoka Grastha	-	-	+	+	-
Visarpa	-	-	+	+	-
Kusta	-	-	+	+	-
Dugdha Peeta	-	-	+	+	-
Pandu	-	-	+	+	-
Bhaya Grastha	-	-	+	+	-

Table No - 07 Qualities of Swedana Dravya

Guna	C S ⁵⁹	A S ⁶⁰	A H ⁶¹
Ushna	+	+	+
Tikshna	+	+	+
Sara	+	+	+
Snigdha	+	+	+
Ruksha	+	+	+
Sukshma	+	+	+
Drava	+	+	+
Sthira	+	+	+
Guru	+	+	+

Table No - 08 Samyak Swinna Lakshana

Lakshana	C S ⁶²	S S ⁶³	A S ⁶⁴	A H ⁶⁵	K S ⁶⁶
Sheeta Vyuparama	+	-	+	+	-
Shoola Vyuparama	+	-	+	+	-
Sthambha Nigraha	+	-	-	-	-
Gaurava Nigraha	+	+	-	-	-
Tvak Mardavata	+	+	-	-	-
Anga Mardava	-	-	+	+	+
Sweda Srava	+	+	+	+	-
Vyadhi Hani	-	+	-	-	-
Laghutwa	-	+	-	-	-
Shitarthitya	-	+	-	-	-
Saukhyam	-	-	-	-	+
Roga Mrudhutha	-	-	-	-	+
Kale visrusti	-	-	-	-	+
Kale Kshuth	-	-	-	-	+
Kale Trushna	-	-	-	-	+

Table No – 09 Ati Swinna Lakshana

Lakshana	C S ⁶⁷	S S ⁶⁸	A S ⁶⁹	A H ⁷⁰	K S ⁷¹
Pitta Prakopa	+	+	+	+	+
Murcha	+	+	+	+	+
Sharira Sadana	+	-	+	+	-
Trusha	+	+	+	+	+
Daha	+	+	-	-	+
Svara Daurbalya	+	-	+	+	-
Anga Daurbalya	+	-	+	+	-
Sandhi pida	-	+	+	+	-
Sphota	-	+	-	-	-
Rakta Prakopa	-	+	+	+	+
Bhranti	-	+	+	+	+
Klama	-	+	-	-	-
Vishada	-	-	-	-	+
Arati	-	-	-	-	+
Jvara	-	-	+	+	-
Shyava Rakta Mandala Darshana	-	-	+	+	-
Chardi	-	-	+	+	-

Table No - 10 Aswinna / Manda Swinna Lakshana

Lakshana	S S ⁷²	K S ⁷³
Vyadhi Vruddhi	+	-
Gurutvam	+	+
Usnabhilasha	+	-
Deha Katinya	+	-
Vatasypragunyathvam	-	+
Sthabdha Gatrata	-	+
Glan	-	+
Trushna Vibhrama	-	+

Treatment of Ati Swinna: ⁷⁴

Madhura, Snigdha, Shitala Upachara which are mentioned under Grishma Rutu Charya should be followed.

Treatment of Manda Swinna:

After assessment of the Vyadhi Bala, Rogi Bala, Vaya, Dosha and Rutu, Swedana has to be repeated

Table No – 11 Swedana Classifications

Sr No	Sweada Types	C S⁷⁵	S S⁷⁶	A S⁷⁷	A H⁷⁸	K S⁷⁹	H S⁸⁰	B S⁸¹
01	Sankar	+	+	-	-	+	-	+
02	Prastar	+	+	-	-	+	-	+
03	Nadi	+	+	+	-	+	-	+
04	Parisheka	+	+	+	-	+	-	+
05	Avagaha	+	+	+	-	+	-	-
06	Ashmaghana	+	+	-	-	-	-	-
07	Jentaka	+	+	+	-	-	-	-
08	Karshu	+	+	-	-	-	-	-
09	Kuti	+	+	+	-	-	-	-
10	Bhu	+	+	-	-	-	-	+
11	Kumbhi	+	+	+	-	-	-	-
12	Kup	+	+	+	-	-	-	-
13	Holak	+	+	-	-	-	-	-
14	Taap	-	+	+	+	-	-	-
15	Ushma	-	+	+	+	-	-	-
16	Upanaha	-	+	+	+	+	-	-
17	Drava	-	+	+	+	-	-	-
18	Hasta	-	-	-	-	+	-	-
19	Pradeha	-	-	-	-	+	-	-
20	Loshtha	-	-	-	-	-	+	-
21	Bashpa	-	-	-	-	-	+	-
22	Agnijwala	-	-	-	-	-	+	-
23	Ghati	-	-	-	-	-	+	-
24	Jala	-	-	-	-	-	+	+
25	Phala	-	-	-	-	-	+	-
26	Valuka	-	-	-	-	-	+	-
27	Droni	-	-	-	-	-	-	+
28	Upkoshtha	-	-	-	-	-	-	+
29	Samshaniya	-	+	-	-	-	-	-
30	Sanshodhanag	-	+	-	-	-	-	-

Table No – 12 Niragni Sweda

Sr. No	Acharya	Number	Sweda
01	Charaka ⁸²	10	Vyayama, Ushnasadana, Gurupravrana, Kshudha, Bahupana, Bhaya, Krodha, Upanaha, Aahava, Aatapa.
02	Sushruta ⁸³	08	Nivata sadana, Aatapa sevana, Gurupravarana, Niyaddha, Adhva, Vyayama, Bhara harana, Amarsha.
03	Vagbhata Sangraha ⁸⁴	11	Nivata gruha, Gurupravarana, Muhur madhyapana, Vyayama, Kshudha, Aatapa, Niyudha, Adhva, Amarsha (Krodha), Bhaya, Bharaharan
04	Vagbhata Hrudaya ⁸⁵	10	Nivata Gruha, Ayasa, Gurupravarana, Bhaya, Upanaha, Ahava, Krodha, Bhuripana, Kshudha, Aatapa.
05	Sharangdhara ⁸⁶	07	Niyudha, Marga gaman, Gurupravran, Kshudha, Chinta, Vyayama, Bhara.

Table No - 13 Different Varieties of Sweda

Sr No	Variants	Sweada
01	According to Sthana ⁸⁷	1. Sarwanga 2. Ekanga
02	According to Guna ⁸⁷	1. Snigdha 2. Ruksha
03	According to Intensity ⁸⁷	1. Mahan 2. Madhyama 3. Durbala
04	According to Dosha ⁸⁸	1. Vata – Upanaha 2. Pitta – Drava 3. Kapha – Taapa & Ushma
05	According to Kala (Rutu) ⁸⁹	1. Sheeta – Mahan 2. Ushna – Durbala (Mridu)
06	According to Age ⁹⁰	New born to 04 months old baby – Hasta
07	According to site of the body ⁹¹	1. Mridu – Vrushan, Hrudaya, Chakshu 2. Madhyama – Vankshana

NADISWEDA

Nadi Sweda:

This is a process where sweating is done by vapours coming out of a tube attached to a kettle like vessel.

Table No – 14 Nadisweda Classification

Sr No	Variants	Sweada Type
01	According to Sthana	Ekanga
02	According to Guna	Snigdha
03	According to Intensity	Madhyama
04	According to Agni	Sagni

Table No - 15 Nadisweda Dravya according to Dosha ⁹²

Sr No	Vataj Vyadhi	Kaphaj Vyadhi	Vata-Kaphaj Vyadhi
01	Gramya mamsa	Varuna	Bhutika
02	Aanupa mamsa	Amruta	Panchamula
03	Udaka mamsa	Eranda	Sura
04	Paya	Shigrumula	Dadhi
05	Bastashira	Sarshapa	Mastu
06	Varahamadhya pitta asruka	Vasa	Mutra
07	Tila	Vansha	Amla
08	Tandula Varuna	Karanja	-
09	Amruta	Arka	-
10	-	Ashmantaka	-
11	-	Shobhanjana	-
12	-	Sairaiya	-
13	-	Malati	-
14	-	Tulasi	-
15	-	Arjaka	-

Classical Method of Nadi Sweda: ⁹³

- Charaka mentioned that drvyas for fomentation like Moola, Phala, Patra, Shringa atc or Mamsa of animals and birds that bring about heat are mixed with Amla, Lavana and Sneha with Mutra, Ksheera etc depending on the diseases.
- Then they are decocted in such a way the vapour does not leak out. A pipe made of Sharesheeka or leaves of Vamsha, Karanja or Arka with its fore part having the shape of the trunk of an elephant is then inserted into a pitcher.
- The length of pipe required is one or half Vyama with its circumference being 1/4th of a Vyama in its proximal end and 1/8th of Vyama in the distal end.
- All the clefts in the pipe should be well covered with the leaves that alleviate Vata. The pipe should be curved twice or thrice. Because curvatures of the pipe help to lessen the intensity of vapour and do not cause any burn in the body and thus foment comfortably.
- The patient should undergo Abhyanga with Vatahara Taila, before performing Nadisweda.

The Nadi Sweda used in this study was a modification of this classical technique where a pressure cooker of 5 to 10 lit capacity is used and a spiral rubber tube of 6 - 8 feet length is attached to the nozzle where normally the weight is attached.

Procedure of Nadiswedana

Poorva karma

1. Aatura pareeksha

Parameters like Desh, Rutu, Rogabala, Vaya etc should be assessed.

2. Sambhara Sangraha

Materials required for smooth conduction of the procedure were collected.

Table no - 16 Nadisweda Procedure Prerequisites

1.	Droni	One
2.	Chair / Stool	One of height of knee
3.	Stove, Gas cylinder	One
4.	Vessels	Two - For indirect heating of Sahacharadi Taila Two – For Kashaya (Decoction) Preparation
5.	Cooker	One

6.	Rubber Tube	One – About 6 to 8 feet long
7.	Water	One lit - For indirect heating of Sahacharadi Taila
8.	Kashaya Drug	Erandamoola Approximately 200 - 300 grams
9.	Sahacharadi Taila	Approximately 200 ml/day

3. Kashaya (Decoction) Preparation and Steam Generation.

- Kashaya is to be prepared by Erandmoola dravya to perform the Nadisweda.
- Prepared Kashaya (decoction) taken into the cooker and started to boiling it for steam generation.

4. Water is kept for boiling in a steel vessel.

5. The Sahacharadi Taila is made into lukewarm indirectly by placing it in a vessel containing water.

6. Position of the Patient

- Sitting position on Chair.
- The patient was made to lie in prone position on the table with the neck kept straight and a pillow or soft piece of cloth provided to him below the chest and chin region.

According to patients comfort, any one position among two was selected.

7. Sthanik snehana (Abhyanga)

- Sthanik snehana was done at cervical area, both the shoulders and both the upper limbs by Sahacharadi taila. (If pain present at both shoulders and hands)

Pradhan Karma

- Once the patient got his position, the generated steam in cooker is made to move on the neck region, both shoulder, and both hands accordingly.
- There should be convenient distance in between the body part and nozzle. It prevents overheating as well as burn injury which could be occurred by droplet of water collected in nozzle.
- The steam should be continued move on body parts as mentioned area till getting the proper swedana lakshanas.

Observations

- Desired effect of swedana i.e. samyak swinna lakshanas
- If there is any lakshanas of Aswinna or Atiswinna, then patient should be treated accordingly.

Paschat Karma

- Patient should take rest for 10 to 15 minutes after swedana.
- After rest patient should take hot water bath or the part where swedana karma done that is washed with warm water.

GREEVABASTI

In classics Greevabasti treatment is not mentioned or there is no reference as such. Different methods of oil application on head are mentioned under the heading of Murdhni Taila. Those are Shiro abhyanga, Shiro seka, Shiro pichu and Shiro basti.⁹⁴ In shiro basti the head is covered with oil by putting a leather cap. Greevabasti treatment also can be adopted from shirobasti by using the atidesha tantrayukti.⁹⁵

As described above said principles and techniques, the aushadhi dravya is kept on particular area of greeva for a stipulated period and named as Greeva Basti.

The word Greevabasti is derived from 2 words.

1. Greeva
2. Basti

Greeva – Back of the Neck ⁹⁶

The back part of the neck ⁹⁷

The word Greeva here used to denote Greeva pradesha. This may be compared to cervical region. As this is a treatment mainly used in the ailments of cervical spine, the word Greeva may be used precisely.

Basti

The Basti word is derived from “vasu nivase vas acchadane vas vasane surabhikarane”. Here ‘Nivasa’ means to reside or to lie, ‘Achadana’ means to cover.⁹⁸ These are supposed to denote the things like retention of medicaments and application of Aoushada for a stipulated period. Here in case of Greevabasti the aushada dravya is kept on particular area of greeva for a stipulated period and this is covering a precise area.

As Greeva basti don't have direct reference in classics, question arises whether it is a Snehana or Swedana. In this procedure oil is heated and used for a stipulated period and this leads to perspiration i.e. Swedana Karma. It reduces stambha and gaurava of the particular area. There will be rise in local temperature i.e. generation and increase of the heat in the surface of the body other than the applicant area. This denotes sheetaghna quality. This procedure also brings mardavata and snigdhatta in that particular area so this can be included in bahya snehana as well.

Considering above things, the qualities of swedana karma – Stambha, Gaurava, Sheetagnam, Swedanam Swedakarkam are fulfilled. Also it provides

mardavta and snigdhatta so it can be considered in bahya snehana. Hence the Greevabasti has dual effect of Snehana as well as Swedana.

Table No – 17 Greeva Basti with regarding classification

Sr No	Variants	Sweada Type
01	According to Sthana	Ekanga
02	According to Guna	Snigdha
03	According to Intensity	Mridu
04	According to Agni	Sagni

Greevabasti Procedure

Poorva karma

1. Aatura pareeksha

Parameters like Desh, Ritu, Rogabala, Vaya etc should be assessed.

2. Sambhara Sangraha

Materials required for smooth conduction of the procedure were collected.

Table No – 18 Greevabasti Procedure Prerequisites

1.	Droni & Pillow	One each for local Abhyanga as well Greevabasti
2.	Chair / Stool	One of height of knee
3.	Stove, Gas cylinder	One
4.	Vessels	Two - For indirect heating of Sahacharadi Taila
5.	Spatula	One for oil replacement
6.	Acrylic / Plastic Ring	One – if required for dough fixation
7.	Water	1 lit - For indirect heating of Sahacharadi Taila
8.	Masha (Blackgram) flour	250 Gms
9.	Sahacharadi Taila	Approximately 200 ml/day

3. Dough Preparation

- The dough is prepared by mixing black gram flour with adequate quantity of water.
 - The dough is then rolled and by joining the two ends a ring is prepared.
 - The consistency of the dough should not be too soft or hard, it should be of semi solid nature.
 - If the dough is too soft or watery then :
 - It will be difficult to roll and make a ring out of it.
 - When applied it will be difficult to remove the ring because of its stickiness.
 - If the dough is too hard then :
 - The roll will not be having flexibility and will break or cut off while making a ring out of it.
 - The ring will not stick to the back properly and there are chances of leakage.
- so care should be taken while pouring water and mixing the wheat / black gram flour.

4. Water is kept for boiling in a steel vessel.

5. The Sahacharadi Taila is made into lukewarm indirectly by placing it in a vessel containing water.

6. Position of the Patient

- The patient was made to lie in prone position on the table with the neck kept straight and a pillow or soft piece of cloth provided to him below the chest and chin region.
- Patient is made to sit on a knee high stool, with his arm and head resting on a chest high table kept in front of him. In this position the trunk is slightly bent forwards, neck is flexed and forehead is resting on the table.

Among two positions, as per patient's comfort position was selected.

Pradhan Karma

1. Application of Dough

- The circular ring prepared out of the dough is placed over the cervical region and fixed properly by pressing its edges from outside and inside.
- The height of the circular ring should be 8 –10 cms and diameter is about 12 cms.

2. Pouring of Sahacharadi Taila

- Take about 250ml of oil in a steel vessel and place it over the boiling water for few seconds (as initially oil is poured directly over the bare neck, luke warm oil is used, too hot oil initially will burn the skin).
- Take it out and pour some oil into the circular ring using a spatula, so that the underlying skin is completely immersed in oil, keep the remaining oil again for heating. Check the temperature and again pour the oil into the circular ring, while pouring care should be taken that the oil is just glided over the oil which is present inside the ring as pouring from a height will result in burn injury.

3. Temperature regulation of Oil

- After pouring, dip the finger into the oil and gently rotate in a clockwise direction. While rotating the oil the patient feels more temperature as the heat is distributed completely.
- As the temperature decreased the oil should be replaced with hot oil and this should be repeated for half an hour. The temperature tolerance varies from person to person.

4. Since it is a type of Sweda and Sneha, Samyak Sweda and Samyak Sneha Lakshanas can be considered. Samyak Sweda Lakshana Sheetoparama, Stambhanigraha, Gauravanigraha and Vyadhihani can be considered for assessment. In case of Samyak Snigdha Lakshanas Snigdha Gatravta and Mrudu Gatravta can be taken for assessment.

Paschat Karma

- The oil is emptied from the circular ring by using a spatula and then the circular ring is removed. Mild massage is given over the area and wipes the oil from that area. Then patient is asked to take bath after half an hour.
- Light liquid diet should follow after the bath
- Exposure to direct sunlight, open air or cold breeze should be avoided
- Intake of cold water should be avoided.

Duration of the Greevabasti

- It is about 25 to 30 minutes each day.
- Greevabasti course was carried out for 14 days

Precautions

- The dough should be correctly prepared and fixed to the back otherwise there are chances of leakage.

- The oil should not be poured from height; it should be glided over the oil which is already present in the dough.
- While taking out the oil from the dough for heating, care should be taken that the skin is not exposed. It may cause burn injuries while pouring the heated oil as the skin will directly come in contact with the hot oil.
- The temperature of the oil should be checked regularly and patient should be enquired about excess heat.

CERVICAL SPONDYLOSIS

Cervical degenerative disease or spondylosis represents a spectrum of clinical entities directly affecting the cervical spine. The intervertebral disc undergoes degeneration with height loss and possibly protrusion. The vertebrae themselves exhibit osteophyte formation and facet joint degeneration.⁹⁹

Cervical spine degeneration tends to progress with age and often develops at multiple interspaces. Many of the morphologic changes thought of as degenerative diseases are indistinguishable from the universal effects of ageing. Unlike the development of wrinkles, debilitating symptoms may arise, at which time a disease process is identified. The distinction between aging and disease is more easily made in patients with neurologic dysfunction than in those with axial pain alone.¹⁰⁰

Etiology¹⁰¹

There is no general agreement as to the cause of spondylosis. There are several contributing factors

1. Environment and genetics

1. Degenerative disease of the spine was thought for some time to be entirely due to loading stresses and repeated minor trauma to the discs, joints and ligaments. However, the aetiology of degenerative spine disease is now known to be more complex and multifactorial, with family history and childhood environment being of considerable importance.

2. Family and twin studies have demonstrated the significant role of genetic factors, and various specific genetic features have been shown to be associated with sciatica, lumbar disc degeneration and herniation.

3. There is also good evidence to link cigarette smoking and other cardiovascular risk factors to degenerative spine disease and to back pain. This is probably due to a reduction in blood supply resulting in anoxia in the intervertebral disc, and leading to cell death. The response to this cell death is inflammation, with in growth of blood vessels and nerves into the disc.

2. Heavy, repeated or abnormal loading

1 Physical loading of the spine almost certainly plays a part in the causation of back disorders.

2 The effects on the spine of compression, torsion and shearing have been investigated directly in various studies, both in the workplace and in the laboratory. In general, there appears to be a cause and effect relationship between the magnitude of

the forces exerted and the resulting damage, but the relationships are complicated and depend on posture when the forces are applied. In addition, tolerance to the damage and the degree of disability produced varies greatly between individuals.

3 It may be that heavy loading of certain types can cause more symptoms in some patients who already have age-related degenerative changes in the spine.

3. Ageing

As soon as growth ceases the body begins to degenerate. Nowhere is this process more apparent than in the spine, yet the border between normal degeneration and degenerative disease is difficult to define. Ageing gradually restricts movements; some becoming limited earlier than others e.g. the symmetrical loss of cervical side bending in the spine.

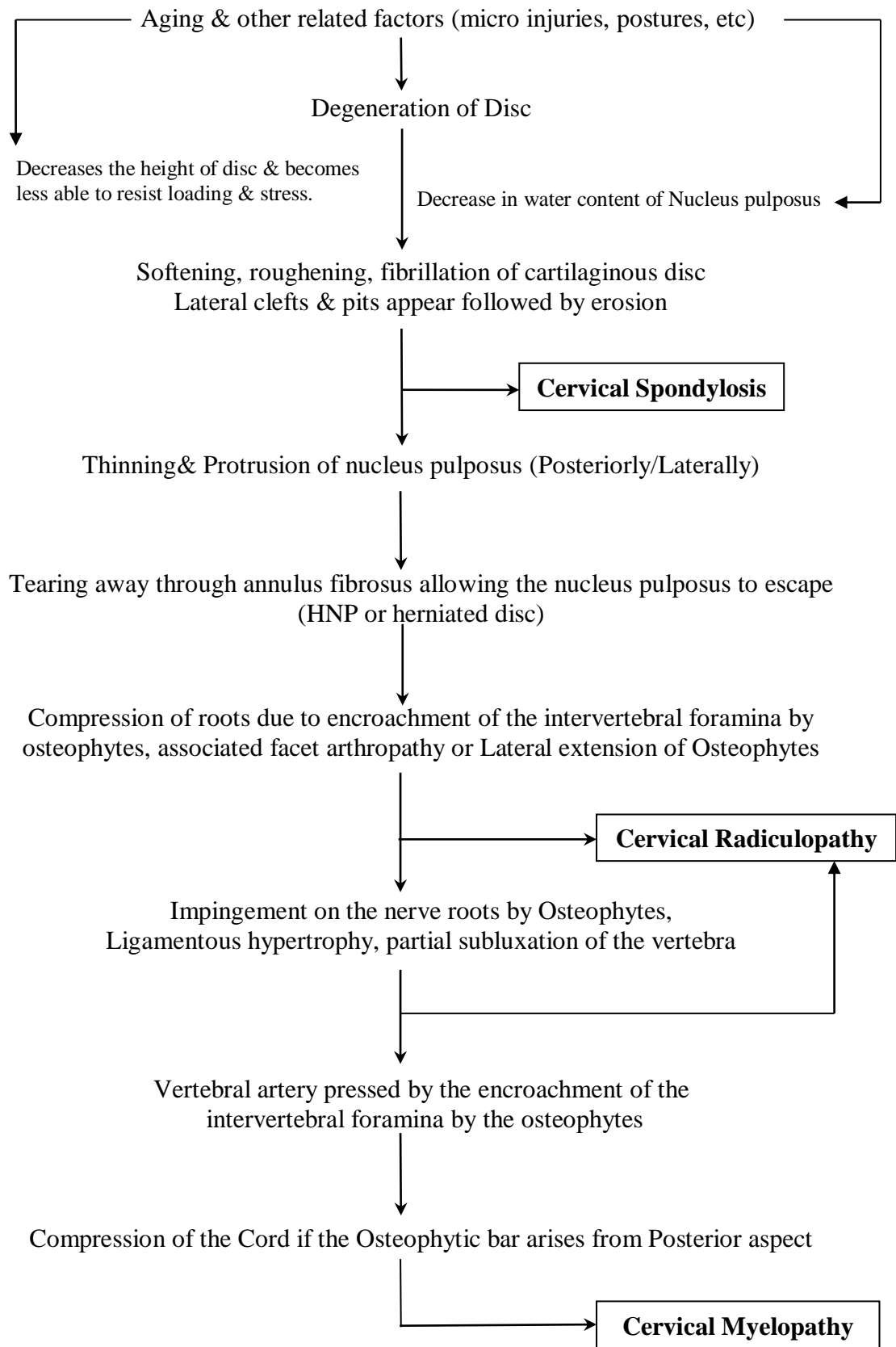
4. Posture

Spinal aches and pains directly attributable to unsuitable postures are well recognised. Common examples are luxuriously soft and comfortable armchairs, prolonged car driving in poorly designed seats, sustained occupational stooping postures of cervical regions. Incorrect positioning of the head in bed especially while lying on the tummy with the head turned to one side develops a stiff neck in some patients. Fast mechanical life which is full of tension, lack of exercise etc. factors can also be included under the etiological factor.

5. Trauma

Trauma especially in cervical region may play an important role in causing of Cervical Spondylosis. Exertion, regular travelling for long distances especially on bad roads, strainful movements etc. also cause trauma in cervical spine. Trauma may be single, sudden or slow and cumulative. Acceleration extension (whiplash) injuries of the cervical spine are familiar enough. Athletic and sports injuries are common to the point that overuse injuries are now being seen in children participating in organised sports.

The Pathogenesis of Cervical Spondylosis ¹⁰²



Symptomatology ¹⁰³

The clinical spectrum of symptomatology for cervical disc disease can be divided into four broad categories –

1. Cervical degenerative disc disease (internal disc disruption)
2. Cervical Radiculopathy
3. Cervical Myeloradiculopathy
4. Cervical Myelopathy

1. Degenerative disc disease

- It results from disc degeneration that is mechanical breakdown of disc integrity.
- Cervical disc degeneration most commonly results from aging, but the condition is affected by lifestyle, genetics, smoking, nutrition and physical activity.
- Radiographic degenerative changes may reflect simple aging and do not necessarily indicate a symptomatic or even a pathologic changes.
- Cervical disc degeneration includes degenerative annular tears, loss of disc height and nuclear degradation.
- Disc degeneration often develops insidiously, without overt clinical manifestations. Initial symptoms may reflect mechanical instability and only late denote neural compression.
- With aging the intervertebral discs desiccate resulting in disc height loss.
- Disc degeneration causes instability, resulting in irregular vertebral movement. This puts greater stress on the articular cartilage of the vertebrae and their respective end plates.
- Osteophytic spurs develop at the margins of these plates. Cervical instability produces posterior joint strain with consequent axial and referred pain from injured and stressed ligaments and damaged facet joints. Intervertebral disc height collapse forces bony prominences and the uncovertable joints of adjacent vertebral bodies to approach and ultimately oppose one another with resultant reactive hyperostosis and osteophyte formation.
- Compression of nerve root initially affects the larger, more pressure sensitive A fibers, resulting in the characteristic radiculopathic syndromes of weakness, numbness and reflex loss.

2. Cervical Radiculopathy

- Radiculopathy is defined as pain and associated neurologic deficits in a nerve root distribution. This results from compression of cervical nerve roots by herniated disc material or degenerative disc disease at or near the vertebral foramen.
- Discomfort and numbness in a root distribution are often the only symptoms.
- The pain is related to neck position and worsened by rotation, lateral flexion or extension of the head.
- Patients may be roused from sound sleep by severe neck pain.
- Moving or extending the neck reproduces the arm pain.
- The term radiculopathy implies consistently reproducing neurological findings – motor loss, sensory abnormalities and reflexes changes.

Table No - 19 Radiculopathy – Classic Nerve Root Involvement

Root	Sensory Change	Motor Change	Reflex Change
C5	Lateral arm	Deltoid, Biceps	Biceps
C6	Thumb, Index finger	Biceps, Wrist extensors, Brachioradialis	Biceps
C7	Middle finger	Triceps, Wrist flexors	Triceps
C8	Little finger	Hand Intrinsic	None

3. Cervical Myeloradiculopathy

- Myeloradiculopathy is defined as a radiculopathy with myelopathic findings.
- These finding are more common than root symptoms.
- Motor & reflex changes are observed more often than sensory changes and analgesia is more common than anesthesia.
- Arm findings can be unilateral, but leg findings are typically bilateral.
- Sensory disturbances can be variable and are typically below the area of compression.
- Touch is usually preserved, with decreased pain and temperature sensation.
- Reflex changes typically follow the pattern of motor involvement.

4. Cervical spondylotic myelopathy

- It is a neurologic disorder manifested in its most severe form by spastic gait, clumsy hands with atrophy and sensory impairment, sphincter disturbances and pain related to the underlying spondylosis of the cervical spine.

Table No - 20 Comparisons between Spondylosis and Arthrosis ¹⁰⁴

Features	Spondylosis	Arthrosis
General Incidence	Common	Less common
Segmental Incidence	Lower Cervical	Upper Cervical
Symptoms	May be asymptomatic and not requiring treatment or characterised by periodic episodes of symptoms	Almost always causes symptoms and needs treatment, never completely free of pain
Position	Pain related to position is important	Posture makes little difference to pain
Stiffness	Episodic and variability is over period of many weeks	Varies diurnally, easing after activity
Crepitus	None	Commonly present
Nerve root involvement	Nerve root and cord pressure is common due to disc degeneration, osseocartilaginous bars and disc prolapse	Sustained root pressure is less common but root irritation may occur on certain movements
Pathological Changes	Primarily in disc and vertebral bodies, disc degeneration, lipping and irregularity of vertebral bodies. Facet joints may be approximated where discs are narrowed.	Discs and vertebral bodies normal, with changes similar to other synovial joints, cartilage destruction, loss of joint space chondro-osteophyte formation at edges of facets
X ray Appearances	Common	Less common

Investigations ^{105, 106, 107}

- **X-Ray of Cervical Spine** – A plain X-ray of the cervical spine (AP, Oblique & Lateral view) is helpful. It is normal in soft lesions but in hard lesions the lateral view shows, impairment of natural cervical lordosis, reduction of intervertebral disc spaces, anterior or posterior osteophytic projection, and shortening of AP diameter of the cervical canal in a few cases. An oblique view shows the protruding osteophytes leading to distortion & encroachment of intervertebral foramina.

- **Myelography** – It helps in localizing the lesion but is invasive. For demonstration of compressive myelopathy, contrast myelogram is necessary which shows the presence of multiple disc protrusions as a negative indentation of the contrast column or total extradural obstruction.
- **CT scan** – with or without contrast can be more useful in evaluating traumatic conditions of the neck than degenerative conditions.
- **MRI** – It is better diagnostic modality as it is non-invasive & demonstrates the indentation of the thecal sac, hardening of the intervertebral discs, evidenced by altered MRI signal, foraminal narrowing & facet arthropathy. In more severe cases, compression of the spinal cord may also be demonstrated.
- **Discography** – It is occasionally used & its role is still debatable. Here, it helps in knowing accurate disc pathology by provocation of typical pain by intradiscal injection & its relief by intradiscal local anaesthetic by which precise identification of the offending disc is possible.

Treatment^{108, 109}

Treatment of cervical spondylosis can be broadly classified into two types i.e. Conventional and Surgical.

1. Conventional treatment – It is the more adoptable form of treatment in Cervical Spondylosis. It consists of the following:

- **Rest** – It is the foundation of the treatment as it allows soft parts to heal. Occupational therapists can advise the ergonomics of the workplace if the problem is work-related.¹¹⁸
- **Cervical Traction** – It could be continuous or intermittent depending on the severity of the symptoms. Traction helps by reducing the muscle spasm, increasing the disc space & reducing the tension on the nerve roots.
- **Physiotherapy** – like isometric exercises short-wave diathermy, infrared rays are useful.
- **Analgesics & NSAID's** – It will reduce inflammation around the nerve route decreasing its sensitivity to compression. There is no evidence that NSAIDs are more effective than pure analgesics
- **Muscle relaxant** - The use of muscle relaxants in cervical spondylosis is aimed at relieving any associated spasm of the trapezius and paraspinal muscles, as well improved sleep from sedative effects of these medications. It

should be noted that because of their habit-forming properties the duration of treatment with muscle relaxants should be tapered quickly and last for a maximum of two weeks

- **Corticosteroids** - There is limited evidence to support the use of systemic corticosteroids in the treatment of cervical radiculopathy. If used the general advice is that a 1-2-week course (tapered after 3 days) of steroid such as prednisone should be used only in carefully selected patients refractory to other medication.
- **Neck Exercises** – It aims to improve the mobility of the stiff neck & strengthen the weakened neck muscles. Hence, the following two sets of exercises are recommended:
 - i) **Mobilization Exercises** – This consists of gradual active mobilization of the neck by performing all the movements of the neck.
 - ii) **Strengthening Exercises** – Here the patient is instructed to offer resistance by the other hand to all active movements of the neck. These self-resistance exercises strengthen the neck muscles. Both these exercises should be done for 15 to 20 minutes every day.
- **Cervical Collar** – This device discovered by HO Thomas is a very good supportive form of treatment. It is indicated during acute exacerbation of chronic Spondylosis & should be worn only for a short duration. If used for long, it weakens the neck muscles, thereby nullifying the beneficial effects of neck exercises.

2. Surgical treatment –

- The surgical procedure usually consists of Anterior Cervical Discectomy with inter body fusion for single or 2 level disc involvement. Excision of large osteophytes can be done in this route. Corpectomy & Strut graft or cages for multiple level discs are involved. Laminectomy & Foraminotomy may be combined with osteophytes excision.

FEASIBLE & PROBABLE CONCEPTS OF CERVICAL SPONDYLOSIS – AYURVEDIC VIEW

Ayurveda and modern medicine are derived from different methodological and ontological postulates. Therefore, the approach to diagnosis of diseases as well as nomenclature differs. It is quite impossible to make one to one correlations or pick up equivalent terms. For example, anemia in modern medicine is not exactly Paṇḍu, which in a broader sense includes many other clinical conditions. Similarly, Prameha is not exactly diabetes mellitus. On the other hand, there are many diseases that can be correlated in a fairly straightforward manner. Hemorrhoids and fistula in ano are examples, which correlate well with the conditions known as Arshas and Bhagandara, respectively, in Ayurveda.¹¹⁰

In fact, there seems to be three categories of diseases that we can arrive at when we think of the possibility of correlating Ayurvedic and modern disease nomenclature. First of all, there are the diseases that match in description such that a one-to-one correlation is possible. Then there are the diseases that seem to strike resemblance but cannot be correlated as exact equivalents. Finally, there are the diseases entities described either in Ayurveda or in modern medicine, which seem to be not mentioned at all in the other system. For example, it is difficult to find an equivalent for Raktapitta in modern medicine. Similarly, Ayurvedic equivalents are not found for conditions like multiple sclerosis and Guillain–Barre syndrome.

The notion of nomenclature of diseases in Ayurveda has a definite background & was accomplished on few identifiable principles. However, acharya suggested that if specific nomenclature is not distinguishable, in such a situation, one has to treat the condition on the basis of dosha & dushya. The present practice of recognition of Cervical Spondylosis with one or two conditions like Vishwachi or Avabahuka would not clear the jumbling situation because the clinical features related to Cervical Spondylosis have the broad ranging signs & symptoms. Hence, an identification of one or the other condition exclusively for Cervical Spondylosis pauses with conflict. Entirely in Cervical Spondylosis, there is degeneration, ankylosis, painful movements, sensory impairments, wasting of muscles, radicular features, motor weakness are all mixed together because of the involvement of different nerve roots. Hence, an approach here is attempted wherein almost all disorders above the neck region (Urdhwajatrugata Vyadhi) are correlated with the Cervical Spondylosis.

There are degenerative changes at the level of cervical spine, in Greeva Hundana but it doesn't show any clinical picture. Among the nanatmaja vata vikara there is a condition 'Greeva Stambha' which is one and only related with stiffness & restricted movements of neck suggests ankylosing view (Nischalikarana). Manyastambha is again a nanatmaja vata vikara having another aspect of painful neck movements indicating compression of nerve root. Same phenomenon equivalent to the word Manyagraha or Greevagraha. BahuShirshagata Vata is the further stage of Spondylosis wherein radiation of pain to occipital area suggests development of pathology in the upper cervical nerve roots. The condition 'Vishwachi' & 'Avabahuka' are two discrete things wherein the former is having only motor deficit & the latter possessed with wasting which is suggestive of compressive myelopathy.

Predominantly, we can state that from a simple motor weakness to complex sensory impairment, a kind of radiculopathy, a type of ankylosis are all places together in the conditions ranging from Asthimajjagata vata to Avabahuka. Hence to understanding the Cervical Spondylosis with one or two complete conditions could not possible. Thus, for the satisfactory understanding, the table (No-21) which is given after this includes all the feasible & probable ayurvedic diagnostic entities relating to different clinical explanations of Cervical Spondylosis.

**Table No - 21 The Feasible & Probable Concepts of Cervical Spondylosis –
Ayurvedic View ^{111, 112}**

The Feasible & Probable Concepts of Cervical Spondylosis – Ayurvedic View						
Vata Vyadhi	Reference	Nidana	Samprapti	Lakshana	Chikitsa	Features of C.S.
Greeva -Hundana	Ch.Chi.28/22	Vataprakop aka	Antaha pravesh: Suggestive of structural deformity	Sthambha in the Neck region	Vatavyadhi Samanya Chikitsa	Stiffness, Restricted neck movements
Greeva -Stambha (one among Nanatmaja Vata Vikara)	Ch.Su.20/11 Ch.Chi.28/22	Vataprakop aka	Mentioned as synonym of Greeva -Hundana	Sthambha in the Neck region	Vatavyadhi Samanya Chikitsa	Neck Stiffness, Restricted neck movements
Manya -Stambha (one among Vataja Nanatmaja Vikara)	Ch.Su.20/11 Su.Ni.1/67	Diwaswapna, Vikrutaaasan and sthana, urdhwanirishana	Sleshmanavartuvata	Charaka described along with Antarayama & Bahirayama	Vatakapha-hara Nasya, Rukshasweda	Neck Stiffness, Restricted & painful neck movements
ManyaGraha (Greevagraha)	Ch.Su.5/29	Vataprakop aka	-	-	-	
Astimajja -gataVata	Ch.Chi.28/33	Vataprakop Aka	Aggravated vayu lodges in Asthi & Majja	Asthiparvabhedha, Snadhisoola, Mansabalakahsya, aswapna, ruka,	Bahya & Abhyantara Sneha	Neck pain, Motor weakness, Wasting of muscles
Astyavruta Vata	Ch.Chi.28/66	Vataprakop Aka	Occlusion of vayu by asthi	Ushana sparsha peedanamca abhinandant, sambhajyate seedati suchibirava	MahaSneha given in different routes	Neck pain, Parasthesia, pins & needles or numbness, sensory impairment
Bahushirash-agataVata	Ch.Chi.28/98	Vataprakop Aka	Aggravated vayu lodges in Bahu & Shiras	Clinical manifestation in Bahu & Shiras	Nasya Pana(Sneha)	Radiating pain to arm & head
Vishwachi	Su.Ni.1/75	Vataprakop Aka	Tala pratyangulina mtu kandara	Bahyo Karmakshayakari	Siravyadha Nasya	Radiating pain, Motor weakness
Avabahuka	Su.Ni.1/75	Vataprakop Aka	Ansadessthit o vayuhu sira aakunchya	Shoshayitwa Ansabandhanam	Rukshasweda Nasya	Wasting of muscles, Weakness

DRUG REVIEW

In classics while explaining the Vata vyadhi chikitsa, varieties of medicine formulations have been explained like oil, churna and kashaya. Vagbhata in vatavyadhi chikitsa of ashtang hridaya mentioned one kashaya named Sahacharadi kashaya.¹¹³ The contents of sahacharadi kashaya are sahachara, surdaru and nagar, which are having qualities like ushna, tikshana and snigdha. Consequently in this study, sahacharadi taila was prepared out of these dravyas. This oil was used for both, abhyanga in nadiswed as well as in greevabasti procedure. While explaining Nadisweda procedure in classics, distinct varieties of nadisweda dravyas have been mentioned. Ex – Amruta, Varuna, Shigru, Eranda etc.¹¹⁴ Erandamoola has been selected in this study for Nadisweda procedure.

Table No - 22 Ingredients of Sahacharadi Taila

Dravya	Sahachar ¹¹⁵	Surdaru ¹¹⁶	Nagara ¹¹⁷	Tila Taila ¹¹⁸	Erand ¹¹⁹
Latin Name	Barleria Prionitis	Cedrus Deodara	Zingiber Officinale	Seasamum Indicum	Ricinus Communis
Family	Acanthaceae	Pinaceae	Zingiberaceae	Pedaliaceae	Euphorbiaceae
Rasa	Tikta	Tikta	Katu	Madhur	Madhur, Tikta
Veerya	Ushna	Ushna	Ushna	Ushna	Ushna
Vipaka	Madhur	Katu	Madhur	Madhur	Madhur
Guna	Snigdha, Laghu	Snigdha, Laghu	Snigdha, Laghu	Guru, Sthir, Vikasi, Brumhana	Guru
Doshghnata	Vata & Kapha	Vata & Kapha	Vata & Kapha	Vata & Kapha	Vata & Kapha

Aceclofenac ^{120, 121, 122}

It is a phenyl acetic acid derivative which comes under the category of Non steroidal anti inflammatory drug.

Mechanism of Action

The anti-inflammatory effects of Aceclofenac have been shown in both acute and chronic inflammation. It inhibits various mediators of pain and inflammation including:

1. PGE₂ via cyclooxygenase inhibition (COX-1 and COX-2) after intracellular metabolism to 4' -hydroxyl aceclofenac and diclofenac in human rheumatoid synovial cells and other inflammatory cells.
2. IL-1 β , IL-6 and tumor necrosis factor (TNF) in human osteoarthritic synovial cells and human articular chondrocytes.

Dose

100 mg Twice a day orally.

Therapeutic Uses

- Anti-inflammatory (Acute & Chronic), Analgesics and Anti-Rheumatic
- Osteoarthritis, Rheumatoid arthritis, Ankylosing spondylitis, Dental pain, Acute lumbago, Musculoskeletal trauma

Adverse Effects

- Gastric irritation and erosion
- Dyspepsia
- Epigastric distress
- Moderate to severe Gastritis and gastric ulceration.

Thiocolchicoside ^{123, 124, 125}

Thiocolchicoside is a semi synthetic derivative of colchicoside (natural compound) which is obtained from the seeds of *Gloriosa superba* and *Colchicum autumnale*. It has a muscle relaxant pharmacological activity.

Mechanism of Action

Thiocolchicoside is a centrally acting Non-benzodiazepine muscle relaxant. It acts as a competitive GABA (g-aminobutyric acid) A receptor antagonist and also inhibits glycine receptors with similar potency and nicotinic acetylcholine receptors to a much lesser extent. Its mode of action includes modulation of chemokine and prostanoid production and inhibition of neutrophil and endothelial cell adhesion molecules by which it interferes with the initiation and amplification of the joint inflammation.

Dose

The maximum recommended oral dose is 8 mg every 12 hours for not more than 7 consecutive days.

Therapeutic Uses

- Painful muscle contractures in acute spinal pathology
- Acute and chronic lumbar and sciatic pain, cervico-brachial neuralgia, persistent torticollis, post-traumatic and post-operative pain.
- It acts both in contractures of central origin and in those of reflex type, rheumatic and traumatic. Spastic sequelae of hemiparesis, Parkinson's disease and iatrogenic Parkinson symptoms, particularly the neurodyslectic syndrome.

Adverse Effects

- sedation, drowsiness, blurred or double vision, constipation or diarrhoea, dizziness and drowsiness, nervousness and confusion, dry mouth, dyspepsia (chronic or recurrent pain in the upper abdomen, upper abdominal fullness, and feeling full earlier than expected when eating), fatigue, headache, heartburn, hiccups and nausea, insomnia, stomach cramps, trembling, vomiting, and weakness; and possible dependence following long-term use
Photosensitivity reactions.

Recent Safety Alerts for Thiocolchicoside

The review of thiocolchicoside was triggered by the Italian medicines regulatory agency, AIFA, following new experimental evidence which suggested that thiocolchicoside was broken down in the body into a metabolite called M2 or SL59.0955 that could damage dividing cells, resulting in aneuploidy (an abnormal number or arrangement of chromosomes).

PREVIOUS WORKDONE

Table No - 23 Nadisweda Research work with conclusion

1.	Name of University	Rajiv Gandhi University of Health Science, Banglore.
2	Year	2004
3	Name	Deepa P. M.
3.	Title of Thesis	Role of Karpasasthyadi Taila abhyanga & Dashmoola Ksheera Nadisweda in the management of Ardita
4.	Study Design	An observational study with pre test & post test design was carried out in 15 patients suffering from Ardita(Facial Paralysis) for 14 days.
5.	Results & Conclusion	Overall effect of the therapy is shown 40% of the patients got complete relief, 46.7% patients got marked improvement and 6.7% of each patients got marked-moderate improvement and mild improvement. No patients got the complete remission of the disease by the end of 14 days.

Table No - 24 Greevabasti Research work with Conclusion

1.	Name of University	Rajiv Gandhi University of Health Science, Banglore.
2	Year	2006
3	Name	Shobha B. K..
3.	Title of Thesis	Role of Greeva-Basti in the management of Cervical Spondylosis (Greeva Hundanam)
4.	Study Design	Comparative clinical study with pre test & post test design was carried out in each group of 15 patients suffering from Cervical spondylosis (Greeva Hundanam) where one group received Tila taila Greevabasti and other group received Ksheerbala Taila Greevabasti for 14 days.
5.	Results & Conclusion	Both the groups provided significant relief in the signs and symptoms of Cervical spondylosis (Greeva Hundanam), but comparatively Ksheerbala taila Greeva-Basti provided better relief on the signs and symptoms. The results of the follow up study showed that there is deterioration in the condition of the patient after three months of follow up.

1.	Name of University	Rajiv Gandhi University of Health Science, Bangalore.
2	Year	2006
3	Name	Kulkarni Harish
3.	Title of Thesis	A Critical study on GreevaBasti with Ksheerabala taila in Vishwachi
4.	Study Design	It was a single blind clinical study with pre test and post test design where in 20 patients diagnosed as vishvachi were administered griva basti with Kseerabala taila for a period of 7 days.
5.	Results & Conclusion	Analysis of overall effect of treatment with Grivabasti reveals that 58% of patients were responded best with the treatment whereas 42% of patients moderately responded to treatment. No patients showed neither complete cure nor mere absence of response to the treatment. Grivabasti was performed in all the patients for a duration of 7 days. None of the patients in this study developed any untoward symptoms during the course of the treatment and therefore the procedure is safe and effective.

Table No - 25 Cervical Spondylosis Research work with Conclusion

1.	Name of University	I.P.G.T & R.A, Gujarat.Ayurveda.University, Jamnagar.
2	Year	2001
3	Name	Patel Kalapi
3.	Title of Thesis	A Clinical Study on the development of subtype of Abhyanga with reference to its role in the management of Griva-Hundana (Cervical spondylosis)
4.	Study Design	It was a comparative clinical study with pre test and post test design where in 39 patients diagnosed as Cervical Spondylosis (Griva Hundanam) were divided in three groups, Abhyanga group, Rasansukti vati group and Abhyanga Rasansukti vati group.
5.	Results & Conclusion	Comparison of the results showed that the combined therapy provided the better relief on the signs and symptoms of cervical spondylosis.

1.	Name of University	I.P.G.T & R.A, Gujarat.Ayurveda.University, Jamnagar.
2	Year	2008
3	Name	Jaidipkumar Shah
3.	Title of Thesis	Effect of tikta ksheer basti and patrapinda sweda in the management of Cervical Spondylosis.(Asthigata Vata)
4.	Study Design	- It was a comparative clinical study with pre test and post test design where in 43 patients diagnosed as Cervical Spondylosis (Asthigata Vata) were divided in three groups, 1. Nirgundi Patrapindasweda along with Asthishrinkhala Vati group, 2. Panchatikta Ksheer Basti along with Asthishrinkhala vati group and 3. Asthishrinkhala Vati group.
5.	Results & Conclusion	Comparison of the effect of Therapies shows that pain, tenderness, vertigo and restricted neck movements were better managed by Patrapinda Sweda group whereas stiffness, tingling sensation, numbness, diminished muscle power and diminished reflexes were better relieved in Panchtiktakshira Basti group. Both of this group proved better in comparison to AsthishrinkhalaVati (Sahamana) group.

1.	Name of University	Rajiv Gandhi University of Health Science, Bangalore.
2	Year	2010
3	Name	Vinaykumar K. N.
3.	Title of Thesis	A clinical study of Nasyakarma in Cervical spondylosis
4.	Study Design	It was a comparative clinical study wherein 50 patients of Cervical Spondylosis were randomly assigned into two groups viz., Group-BDT(using Baladhatryadi Taila) & Group –MST(using Masha Taila) consisting of 25 patients in each group & both the groups were subjected to NasyaKarma in the dosage of 8 drops in each nostril performed for a period of 7 days.
5.	Results & Conclusion	Both the groups showed statistically significant improvement in major subjective & objective parameters of Cervical Spondylosis. But contingency coefficient values & p values revealed Group-BDT provided better relief when compared to Group-MST.

1.	Name of University	Tilak Maharashtra Vidyapeeth, Pune, Maharashtra
2.	Year	2010 PhD Thesis
3.	Name	Satyen Deshpande
3.	Title of Thesis	Comparative study of effect of Panchamrut Loha Guggul and Trayodashanga Guggul in Vishwachi w.s.r. to Cervical spondylosis
4.	Study Design	It was a comparative clinical study wherein 180 patients of Vishwachi with special reference to Cervical Spondylosis were selected into three groups., 1. Panchamruta Lohaguggul group. 2.Trayodashang Guggul Group 3. Panchamruta & Trayodashang Guggul Group. Consisting of 60 patients in each group.
5.	Results & Conclusion	Trayodashang Guggul group is effective in relieving pain of Cervical Spondylosis. Panchamrut Loha Guggul group is effective in reliving Tingling sensation. The combination of Panchamrut Loha Guggul & Trayodashang Guggul group relieved all the symptoms i.e. Pain, Tingling sensation, Vertigo & Movement restriction.

1.	Name of University	Banaras Hindu University.
2.	Year	1996 PhD Thesis
3.	Name	Anil Kumar Singh Bhadoria
3.	Title of Thesis	Cervical Spondylosis - Ayurvedic diagnosis and its management by PancaKarma Therapy with special reference to Abhyanga, Swedana and Nasya Karma
4.	Study Design	For this study 15 patients were selected and divided into two groups. Group I patients were given Snehana with Karpasasthyadi Taila (Sahasrayoga, Vata Vikara) and Nirgundi patra Nadi Sweda. Group II patients were given Karpasasthyadi Taila Snehana and Swedana with Nirgundi patra along with Nasya. The duration of each karma was decided for seven days.
5.	Results & Conclusion	Group I patients were given Snehana with Karpasasthyadi Taila (Sahasrayoga, Vata Vikara) and Nirgundi patra Nadi Sweda. Group II patients were given Karpasasthyadi Taila Snehana and Swedana with Nirgundi patra along with Nasya. The duration of each karma was decided for seven days. - 86.7% patients in group II and 80.2% patients in group I was relieved of the symptom of neck pain. The radiation of

		pain was reported to be relieved in 93.04% patients of group II and 73.4% patients of group I. In paraesthesia 90.1% patients of group II and 66.7% patients of group I showed relief
--	--	---

MATERIALS AND METHODS

Research Design

It was a randomized controlled trial.

Research Study Center

Vasantdada Patil Ayurvedic Medical College & Hospital, Sangli.

Method of collection of data

A comprehensive case sheet was prepared considering total points concerned to history, signs, symptoms & examinations which are mentioned in samhitas & modern sciences to confirm the diagnosis.

Criteria for Diagnosis

1. Pain and stiffness along with other sign and symptoms of Cervical Spondylosis
2. X-ray findings suggestive of Cervical Spondylosis

Inclusion criteria

1. Patients age group between 30 to 60 years
2. The symptoms of cervical spondylosis mainly pain and stiffness along with other radiological changes of cervical spondylosis.

Exclusion criteria

1. Traumatic, infective and neoplastic conditions of spine.
2. Cervical rib syndrome.

Grouping and Random Distribution

In this research study the patients who are willing to participate and sign the informed consent form were incorporated. Random numbers were generated through online process i.e. www.stattrek.com/statistics/random-number-generator.aspx for three groups namely Group A – Nadisweda, Group B – Greevabasti and Group C - Control group (Aceclofenac 100 mg + Thiocolchicoside 08 mg). Appropriately to the random numbers generated, minimum of 435 patients were distributed into three groups. (145 patients in each group)

Since this study was exclusively of bahiparimarjan chikitsa (External treatment), no internal medicine and diet regimen was given as well as advised.

Duration of the Therapy

1. Nadisweda Procedure for 14 days
2. Greeva basti for 14 days
3. Control Group for 07 days

Follow up period

3 months follow up (1 month of interval)

Total duration of the study – for group A & B - 14 days + 3 months

Total duration of the study – for group C - 07 days + 3 months

Investigations

1. Hb% , TC, DC, ESR, RBS
2. X ray of cervical spine AP and Lateral view
Twice i.e. before treatment and after 14 days of the treatment.

INTERVENTIONS

Group A - Nadisweda

Standard Operative Procedure for Nadisweda

1. Poorvakarma

- Prerequisite equipments
- Position – Sitting on the chair.
- Local abhyanga on neck and shoulder region was done by Sahacharadi Taila.
- Duration – for about 10 to 15 minutes.

2. Pradhankarma

- Nadisweda was done by Erandamoola kwatha vapours on neck and Shoulder region.
- Duration – for about 20 minutes.

3. Paschatkarma

- 10 minutes after the completion of procedure, the patients were advised to wash the part or take bath with Sukoshna Jala.
- Thereafter patient was allowed to take their routine diet.
- To avoid Asthamahadoshkar bhavas.

Group B - Greevabasti

Standard Operative Procedure for Greevabasti

1. Poorvakarma

- Prerequisite equipments
- Position – Patients were in prone or sitting posture leaning head over table.
- Preparation and application of Dough (Masha) on neck region.

2. Pradhankarma

- Pouring of oil in dough, maintaining the temperature and changing of oil was done.
- Duration - for about 25 to 30 minutes, depend upon patient's condition.

3. Paschatkarma

- 10 minutes after the completion of procedure, the patients were advised to wash the part or take bath with Sukoshna Jala.
- Thereafter they were allowed to take their routine diet.
- To avoid Asthamahadoshkar bhavas.

Group C – Control group

- Selected Patients were given internal medicine in combination of Non Steroidal anti-inflammatory drug (NSAID) and muscle relaxant.
- Drug – Aceclofenac 100 mg + Thiocolchicoside 08 mg
- Dose – 1 tab BD i.e. after Lunch and Dinner with sufficient water

ASSESSMENT PARAMETERS

1. Subjective Parameters

- Neck pain
- Pain Radiation
- Neck Movements – Painful / Inadequate
- Stiffness
- Vertigo
- Tingling Sensation

2. Questionnaire of Neck disability index

OBSERVATIONS

Demographic Data

Table No. 26 Age

Age (Years)	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
30-39 years	11	7.586	14	9.655	29	20	54	37.24
40-49 years	51	35.172	51	35.172	53	36.552	155	106.90
>50 years	83	57.241	80	55.172	63	43.448	226	155.86

The maximum numbers of patients were in the age group of >50 years in all the three Groups A, B & C i.e. 57.24 % , 55.17 % and 43.44 % respectively. In the age group of 40-49 years, Group A & B having 35.17 % patients, while in Group C, 36.55 % patients were seen. In the age group of 30-39 years, Group A, B and C were 7.58 % , 9.56 % , and 20 % respectively.

Graph No.01 Age

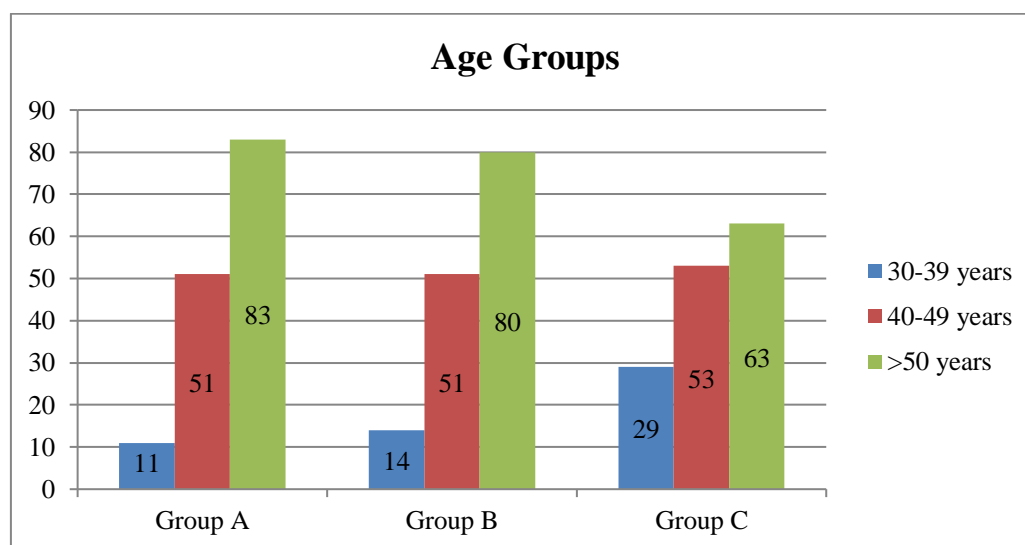


Table No. 27 Gender

SEX	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Females	35	24.138	51	35.172	46	31.724	132	91.03
Male	110	75.862	94	64.828	99	68.276	303	208.97

Maximum numbers of patients in Group A, B and C were Male i.e. 75.8 %, 64.8% and 68.2 % respectively

Graph No. 2 Gender

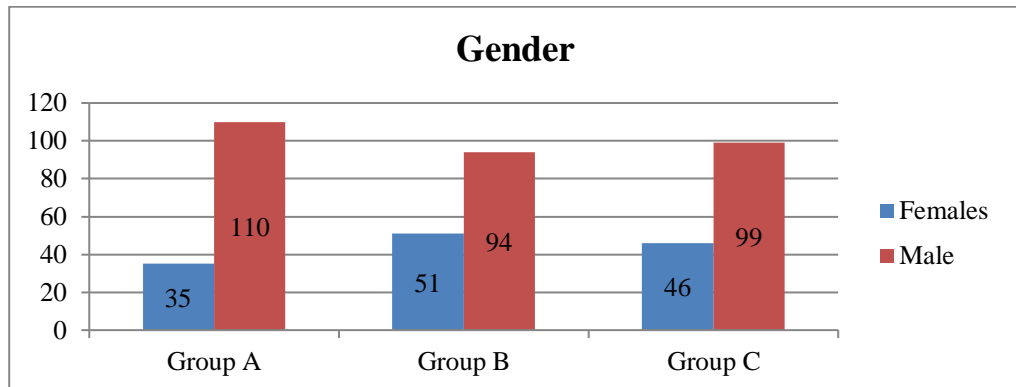


Table No. 28 Religion

Religion	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Christian	0	0.000	0	0.000	1	0.690	1	0.69
Hindu	133	91.724	138	95.172	142	97.931	413	284.83
Muslim	12	8.276	7	4.828	2	1.379	21	14.48

In all the three groups maximum numbers of patients were belonging to Hindu community i.e. 91.7 %, 95.1% & 97.9 in Group A,B and C respectively.

Graph No. 03 Religion

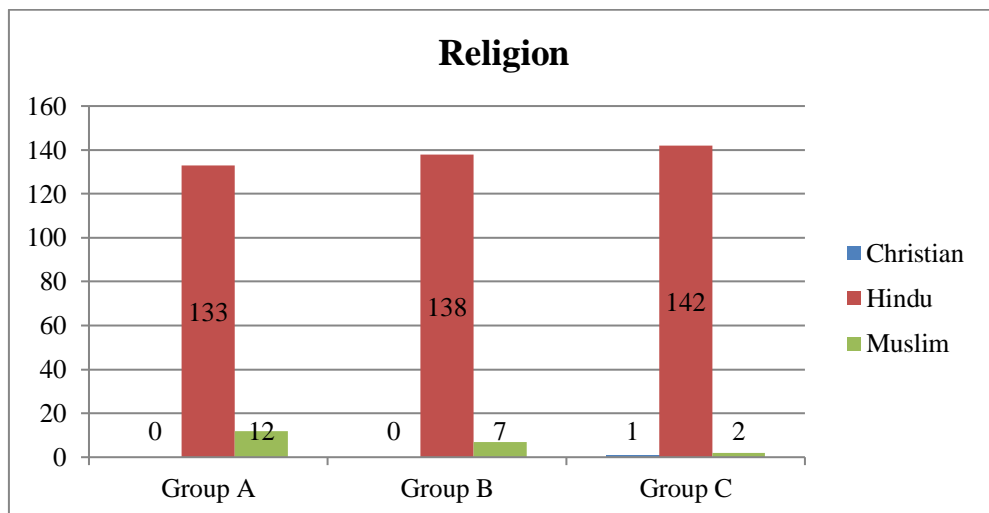


Table No. 29 Education

Education	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Graduate	119	82.069	105	72.414	116	80	340	234.48
Higher	2	1.379	3	2.069	1	0.689	6	4.14
Medium	4	2.759	4	2.759	1	0.689	9	6.21
Primary	0	0.000	6	4.138	1	0.689	7	4.83
Post Graduate	16	11.034	18	12.414	26	17.931	60	41.38
Pre University	4	2.759	9	6.207	0	0	13	8.97

In all the three groups maximum numbers of patients were educated i.e. 82%, 72.4% & 80% in Group A, B and C respectively.

Graph No. 04 Education

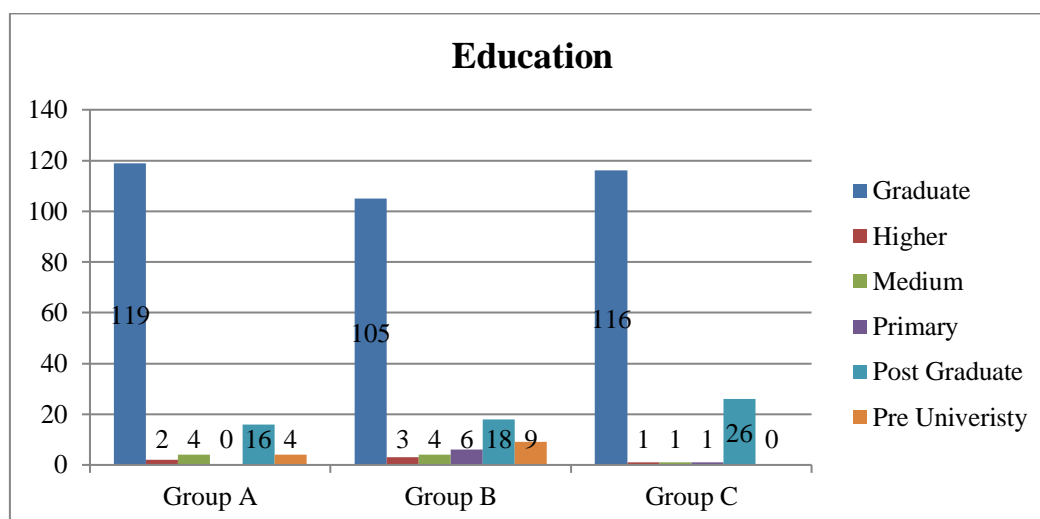


Table No. 30 Occupations

Occupation	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Agriculture	22	15.172	28	19.310	20	13.793	70	48.28
Business	22	15.172	18	12.414	18	12.414	58	40.00
Housewife	7	4.828	11	7.586	9	6.207	27	18.62
Labour	5	3.448	8	5.517	2	1.379	15	10.34
Service	89	61.379	80	55.172	96	66.207	265	182.76

In all the three groups maximum numbers of patients were in service i.e. 61.3%, 55.1% & 66.2% in Group A, B and C respectively.

Graph No. 05: Occupation

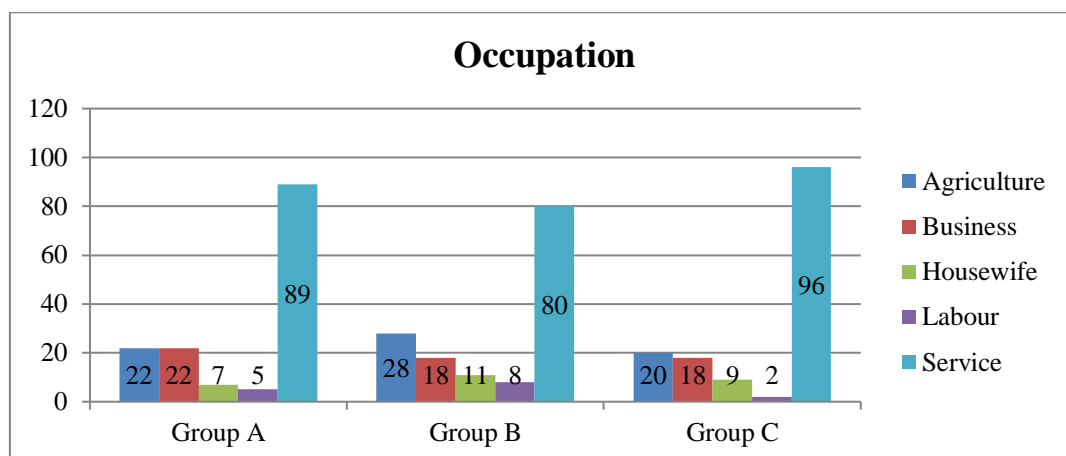


Table No. 31 Social-Economic Status

Social-Economic Status	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Lower middle	2	1.379	6	4.138	2	1.379	10	6.90
Middle	85	58.621	83	57.241	90	62.069	258	177.93
Poor	1	0.690	5	3.448	0	0.000	6	4.14
Rich	6	4.138	6	4.138	3	2.069	15	10.35
Upper middle	51	35.172	45	31.034	50	34.483	146	100.69

In all the three groups maximum numbers of patients were from middle class i.e. 58.6%, 57.2% & 62% in Group A, B and C respectively, while 35.1%, 31% and 34.4% were from upper middle class in Group A, B and C respectively.

Graph No. 06 Social-Economic Statuses

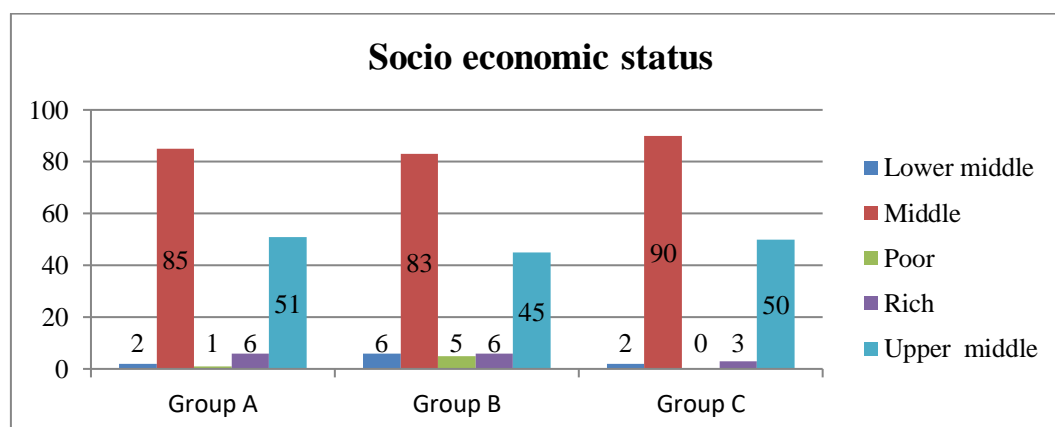


Table No. 32 Marital status

Marital status	Number of Patients			
	Group A	Group B	Group C	Total

	n	%	n	%	n	%	n	%
Married	145	100.000	145	100.000	145	100.000	435	300.00

All patients were married in all the groups i.e. 100 % in Group A, B and C respectively.

Graph No. 07 Marital status

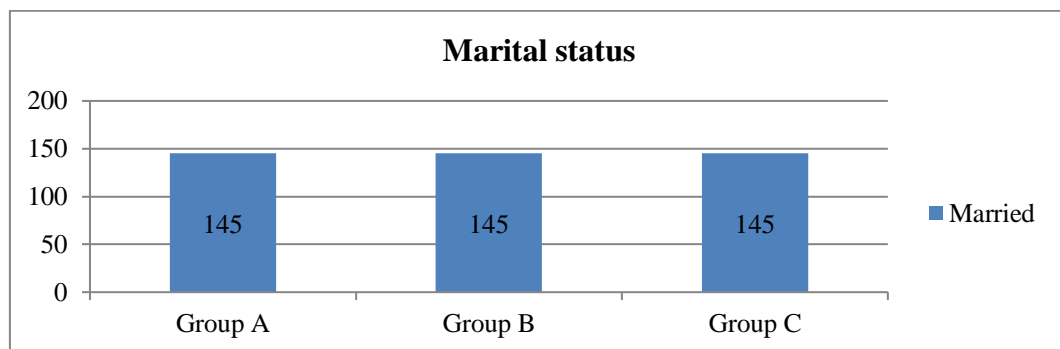


Table No.33 Neck Pain

Neck Pain	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Diffuse	114	78.621	105	72.414	117	80.690	336	231.73
Localized	31	21.379	40	27.586	28	19.310	99	68.28

all the three groups maximum numbers of patients had diffuse neck pain i.e. 78.6%, 72.4% & 80.6% in Group A, B and C respectively.

Graph No. 08 Neck Pain

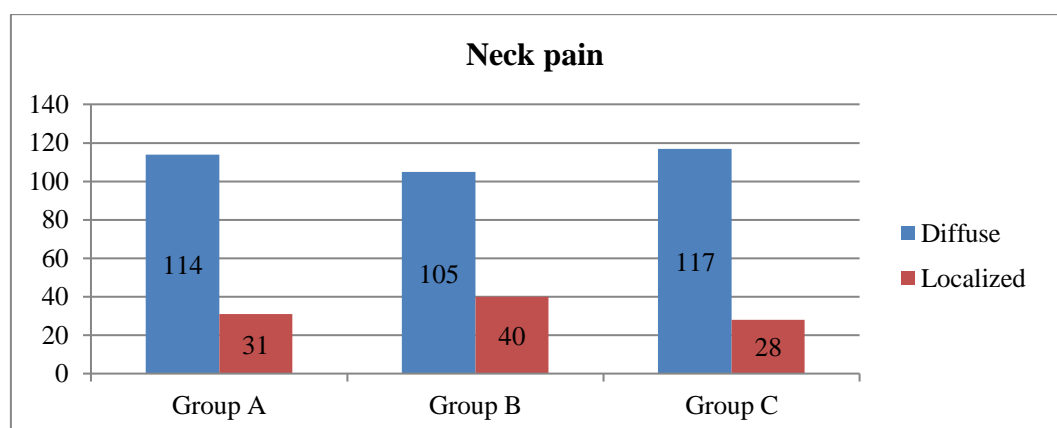


Table No.34 Neck Pain Radiation

Neck Pain Radiation	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
No	32	22.06	41	28.276	28	19.310	101	69.65
Yes	113	77.93	104	71.724	117	80.690	334	230.34

In all the three groups maximum numbers of patients had neck pain radiation i.e. 77.9%, 71.7% & 80.6% in Group A, B and C respectively.

Graph No. 09 Neck Pain Radiation

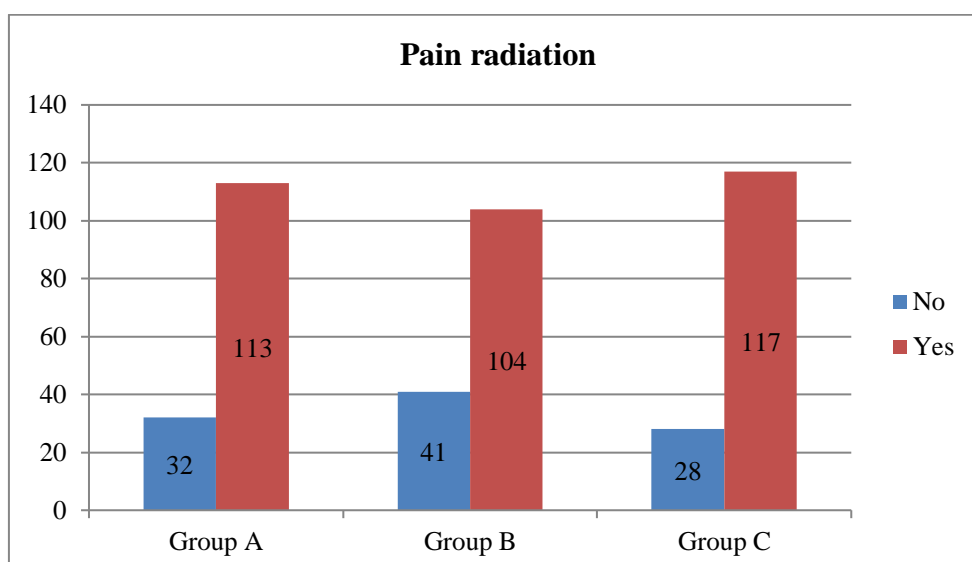


Table No.35 Pain radiation side

Pain radiation side	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Both	51	35.172	32	22.069	49	33.793	132	91.03
Left	41	28.276	56	38.621	58	40.000	155	106.90
Right	22	15.172	17	11.724	10	6.897	49	33.79
No	31	21.379	40	27.586	28	19.310	99	68.28

Maximum numbers of patients had both side neck pain in group A i.e.35.17% while in group B and C maximum patients had left side neck pain radiation i.e. 38.62% and 40% respectively.

Graph No. 10 Pain radiation side

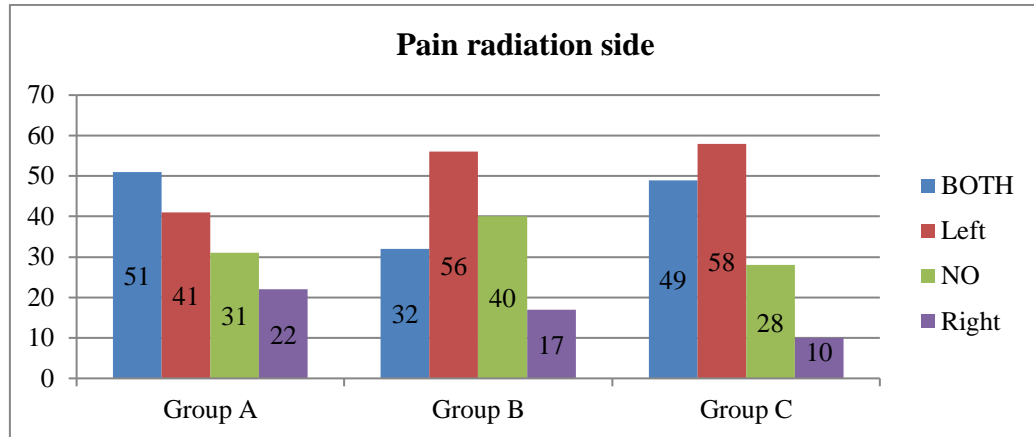


Table No.36 Neck Movements

Neck Movements	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Not Painful	13	8.966	11	7.586	27	18.621	51	35.17
Painful	132	91.034	134	92.414	118	81.379	384	264.83

In all the three groups maximum numbers of patients had painful neck movements i.e. 91%, 92.41% & 81.3% in Group A, B and C respectively.

Graph No. 11 Neck Movements

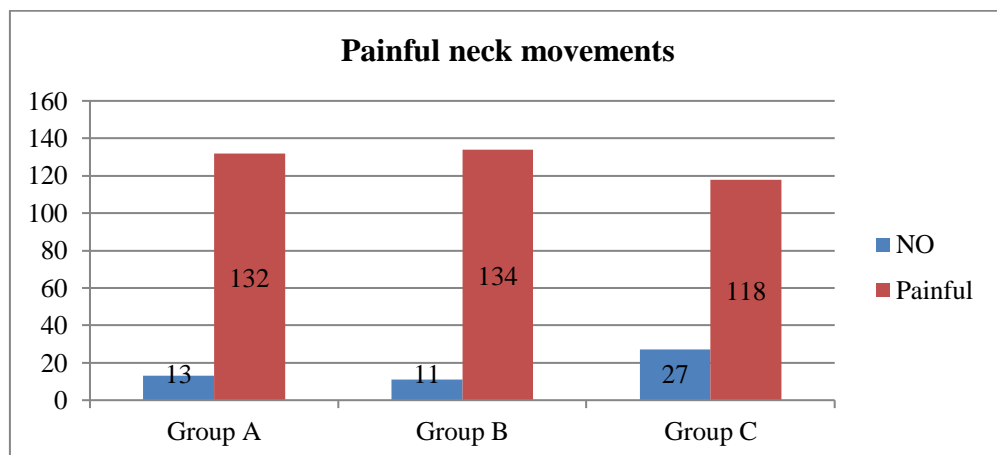


Table No.37 Stiffness

Stiffness	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
No	45	31.034	45	31.034	60	41.379	150	103.45
Yes	100	68.966	100	68.966	85	58.621	285	196.55

In all the three groups maximum numbers of patients had stiffness. Group A and B both had 100% while Group C had 85% of stiffness.

Graph No. 12 Stiffness

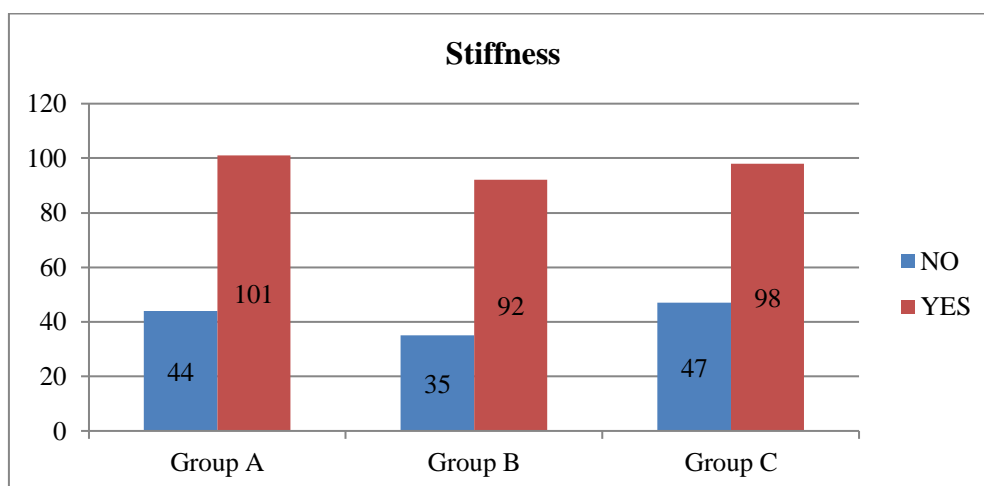


Table No.38 Tingling Sensation

Tingling Sensation	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
No	44	30.345	35	24.138	47	32.414	126	86.90
Yes	101	69.655	92	63.448	98	67.586	291	200.69

In all the three groups maximum numbers of patients had Tingling Sensation. Group A had 69.65% while Group B and C had 63.44% & 67.58 % of Tingling Sensation respectively.

Graph No. 13 Tingling Sensation

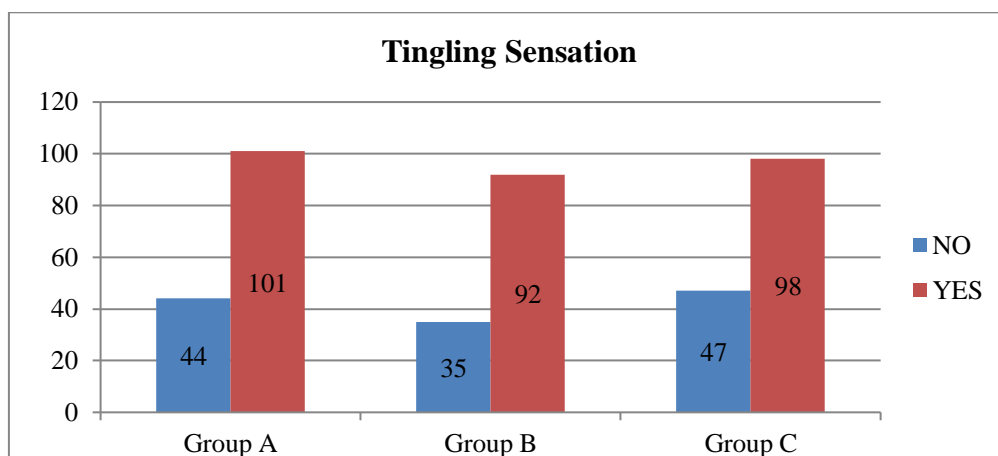


Table No.39 Vertigo

Vertigo	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
No	141	97.241	141	97.241	142	97.931	424	292.41
Yes	4	2.759	4	2.759	3	2.069	11	7.59

Maximum numbers of patients in all groups were not having vertigo symptom, i.e. 97.2% in group A and B while 97.9% in group C.

Graph No. 14 Vertigo

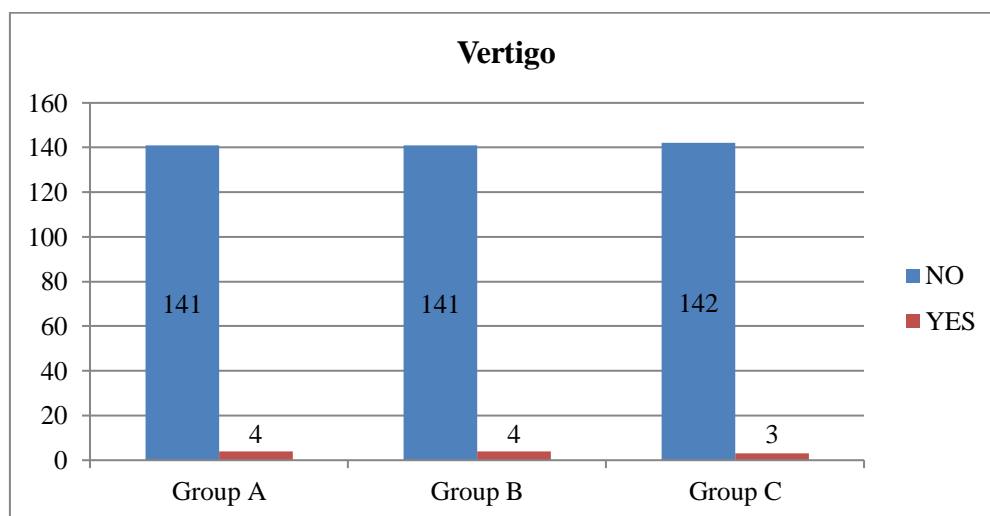
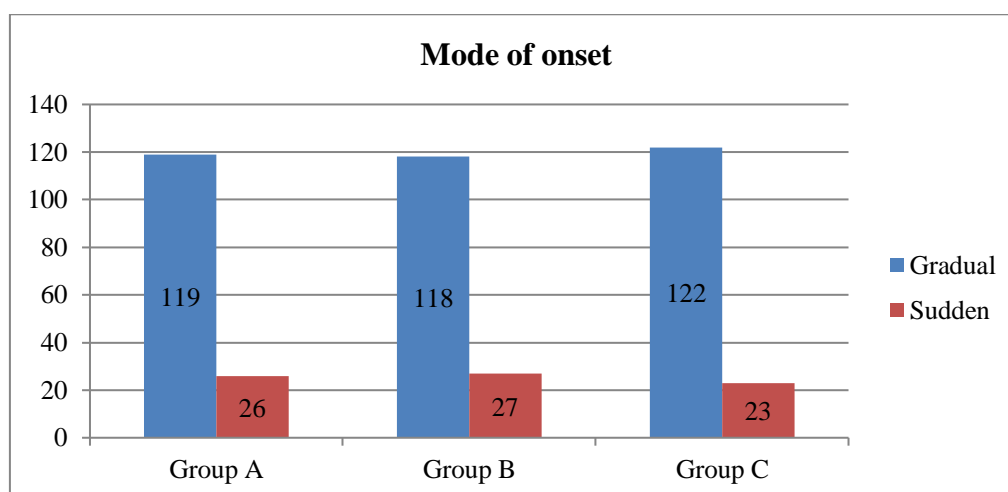


Table No.40 Mode of Onset

Mode of Onset	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Gradual	119	82.069	118	81.379	122	84.138	359	247.59
Sudden	26	17.931	27	18.621	23	15.862	76	52.41

Maximum numbers of patients in all groups had gradual mode of onset, i.e. 82.06% in group A, 81.37% in group B and 84.13% in group C.

Graph No. 15: Mode of Onset**Table No.41 Nature of Pain**

Nature of Pain	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Deep aching	73	50.345	61	42.069	50	34.483	184	126.90
Dragging	60	41.379	52	35.862	63	43.448	175	120.69
Preeking	2	1.379	0	0.000	3	2.069	5	3.45
Sharp	10	6.897	32	22.069	29	20.000	71	48.97

Group A and B were having maximum number of patients of deep aching, i.e.50.34% & 42% respectively. Group C had maximum patients of dragging type of pain, i.e. 43.44%.

Graph No. 16 Nature of Pain

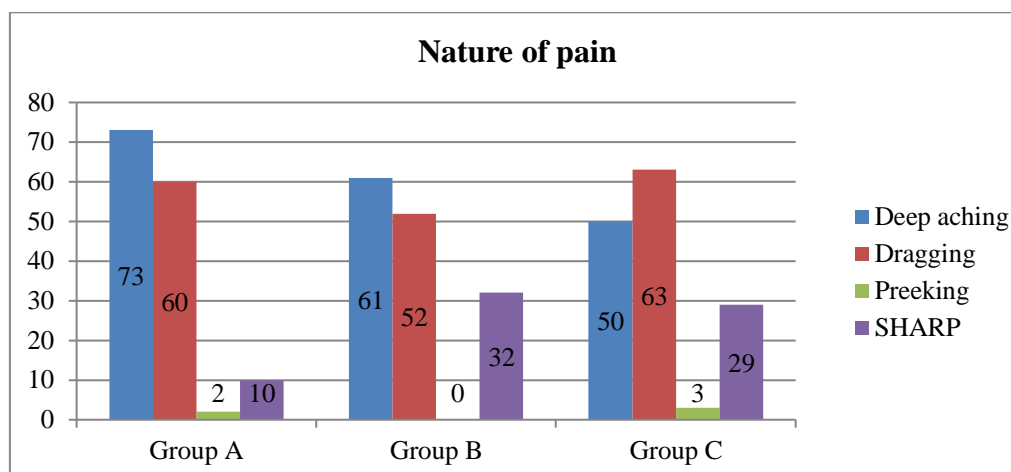


Table No.42 Course of Pain

Course of Pain	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Continuous	127	87.586	112	77.241	110	75.862	349	240.69
Intermittent	18	12.414	33	22.759	35	24.138	86	59.31

In all the three groups maximum numbers of patients had continuous course of pain i.e. 87.58%, 77.24% & 75.86% in A, B and C Group respectively.

Graph No. 17 Course of Pain

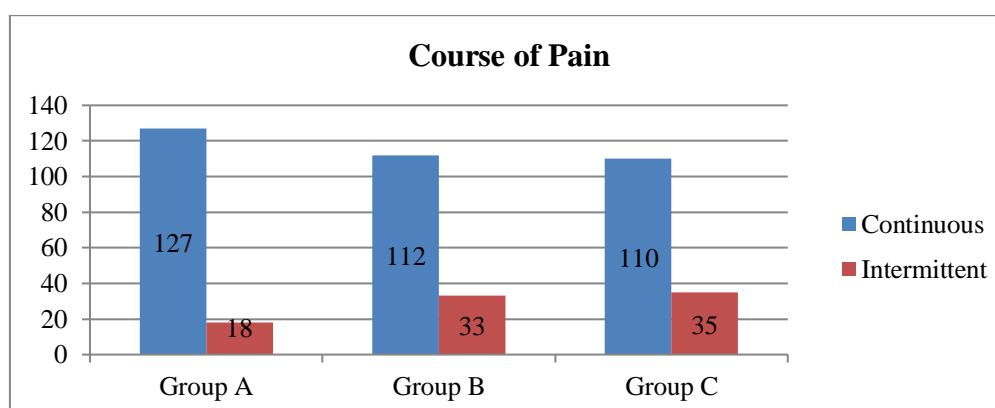
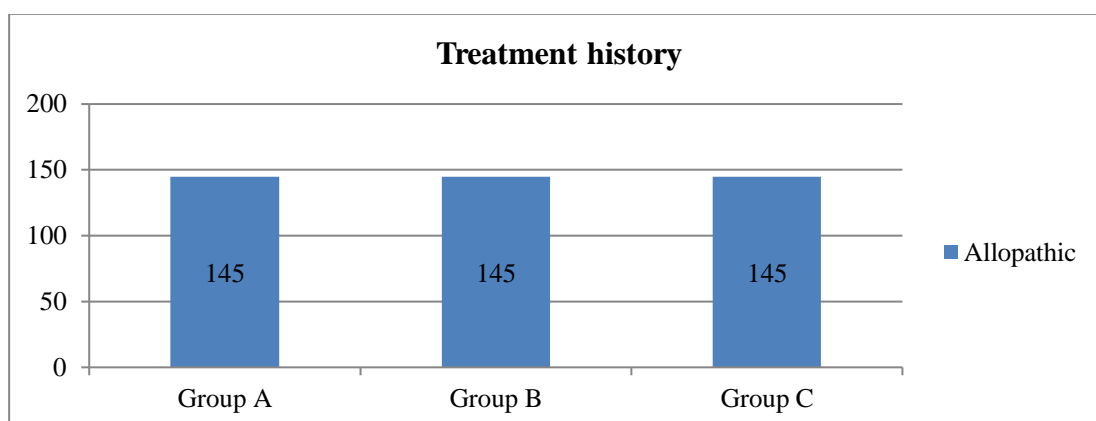


Table No.43 Treatment History

Treatment History	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Allopathic	145	100.000	145	100.000	145	100.000	435	300.00

Maximum numbers of patients were taken allopathic treatment i.e. 100% in A, B and C group respectively.

Graph No. 18 Treatment Histories**Table No.44 Addiction**

Addiction	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Alcohol	6	4.138	10	6.897	6	4.138	22	15.17
Alcohol & smoking	12	8.276	20	13.793	26	17.931	58	40.00
Smoking	22	15.172	0	0.000	9	6.207	31	21.38
Tobacco	47	32.414	54	37.241	32	22.069	133	91.72
None	58	40.000	61	42.069	72	49.655	191	131.72

Most of the patients in all the three groups were free from addiction i.e. 40%, 42% and 49.6% respectively in group A, B and C. In group A, B and C respectively 32.41%, 37.24% and 22% patients were tobacco addicted. 15.17% were addicted to smoking in group A. 13.79% and 17.93% were alcohol and smoking addicted in group B and C respectively.

Graph No. 19 Addiction

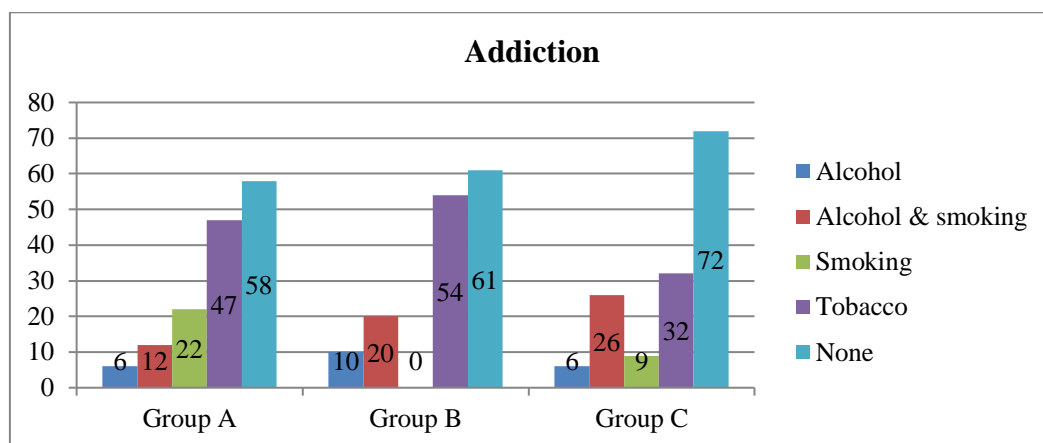


Table No.45 Aahar

Aahar	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Mixed	114	78.621	112	77.241	97	66.897	323	222.76
Veg	31	21.379	33	22.759	48	33.103	112	77.24

Majority of the patients i.e. 78.62%, 77.24% and 66.89% were following mixed diet in the A, B and C group respectively.

Graph No. 20 Aahar

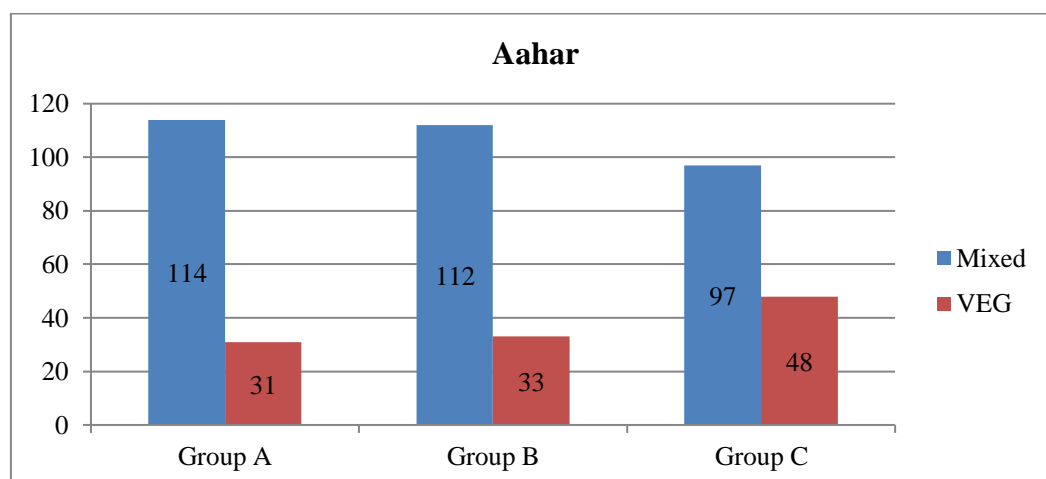


Table No.46 Dominant rasa

Dominant rasa	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
AK	0	0.000	0	0.000	19	13.103	19	13.10
AL	1	0.690	0	0.000	0	0.000	1	0.69
ALK	20	13.793	31	21.379	8	5.517	59	40.69
K	15	10.345	7	4.828	3	2.069	25	17.24
KT	0	0.000	1	0.690	0	0	1	0.69
LK	4	2.759	4	2.759	0	0	8	5.52
LKT	0	0.000	1	0.690	0	0	1	0.69
M	4	2.759	5	3.448	14	9.655	23	15.86
MA	32	22.069	33	22.759	8	5.517	73	50.35
MAK	17	11.724	18	12.414	24	16.552	59	40.69
MAL	6	4.138	6	4.138	16	11.034	28	19.31
MALK	4	2.759	15	10.345	23	15.862	42	28.97
MALKT	2	1.379	0	0.000	16	11.034	18	12.41
MK	34	23.448	16	11.034	12	8.276	62	42.76
ML	6	4.138	8	5.517	0	0	14	9.66
MLK	0	0.000	0	0.000	2	1.379	2	1.38

M – Madhur , A – Amla, L- Lavana, K – Katu, T – Tikta, Kh – Kashaya.

Majority of the patient in Group A were madhur and katu rasa satmya i.e. 23.44%. In group B were madhur and amla rasa satmya i.e.22.75%. In group C were madhur, amla and katu satmya i.e.16.55%.

Graph No. 21 Dominant rasa

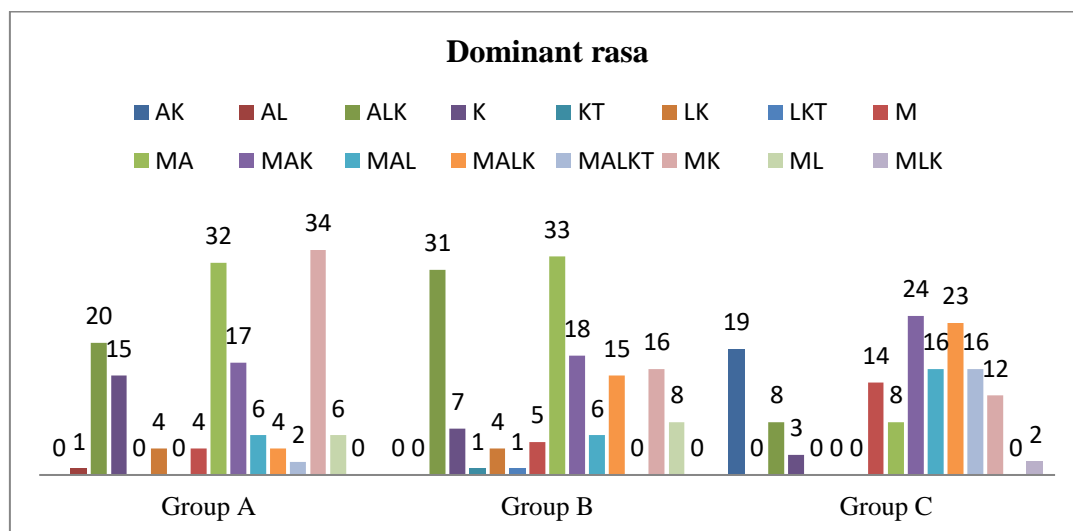


Table No. 47 Vyayam

Vyayam	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
No	123	84.828	131	90.345	123	84.828	377	260.00
Yes	22	15.172	14	9.655	22	15.172	58	40.00

Maximum numbers of patients were not doing vyayam i.e. 84.82%, 90.34% & 84.82% in A, B and C group respectively.

Graph No. 22 Vyayam

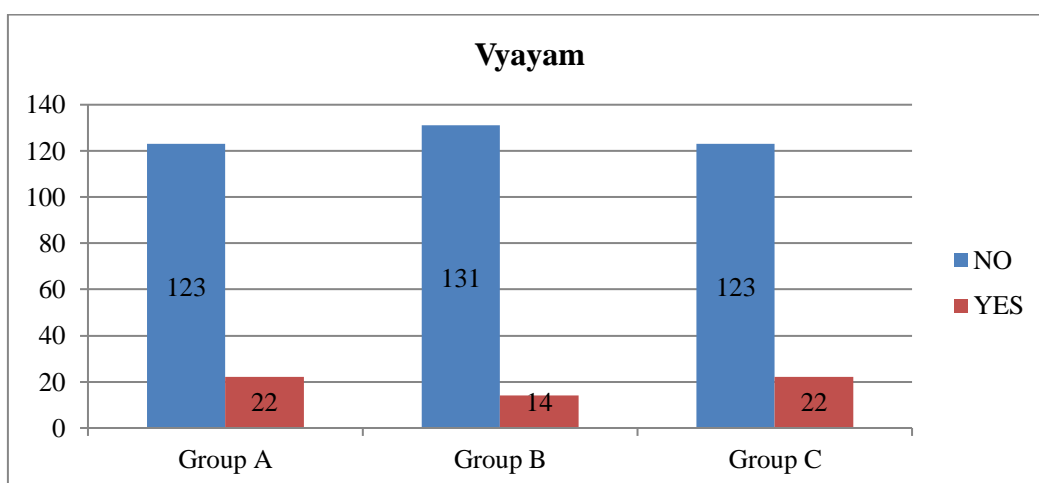


Table No.48 Nidra (Sleep)

Nidra	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Delayed	0	0.000	0	0.000	1	0.690	1	0.69
Disturbed	118	81.379	118	81.379	102	70.345	338	233.10
Sound	27	18.621	27	18.621	42	28.966	96	66.21

Maximum numbers of patients had disturbed nidra (sleep) i.e. 81.37% in group A and B respectively while 70.34% in group C.

Graph No. 23 Nidra (Sleep)

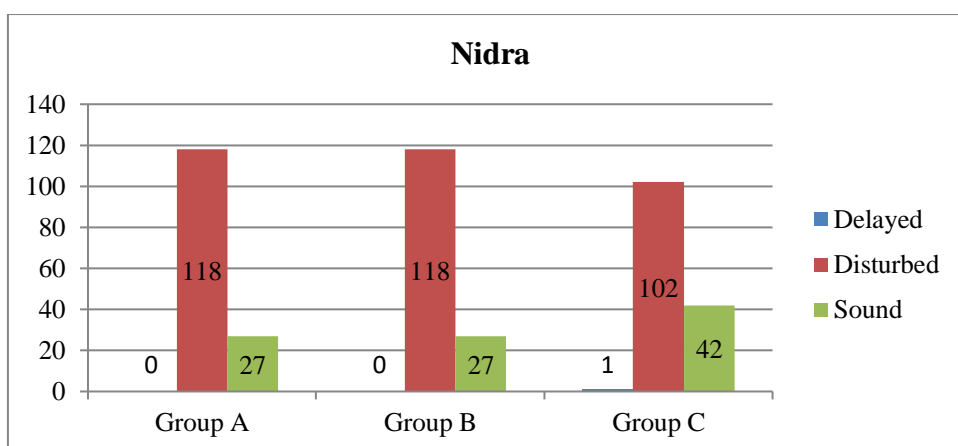


Table No.49 Mala

Mala (Bowel Habit)	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Constipation	1	0.690	2	1.379	4	2.759	7	4.83
Irregular	24	16.552	24	16.552	19	13.103	67	46.21
Regular	120	82.759	119	82.069	122	84.138	361	248.97

Maximum numbers of patients had irregular bowel habit i.e. 16.55% in group A and B respectively while 13.10% in group C.

Graph No. 24 Mala

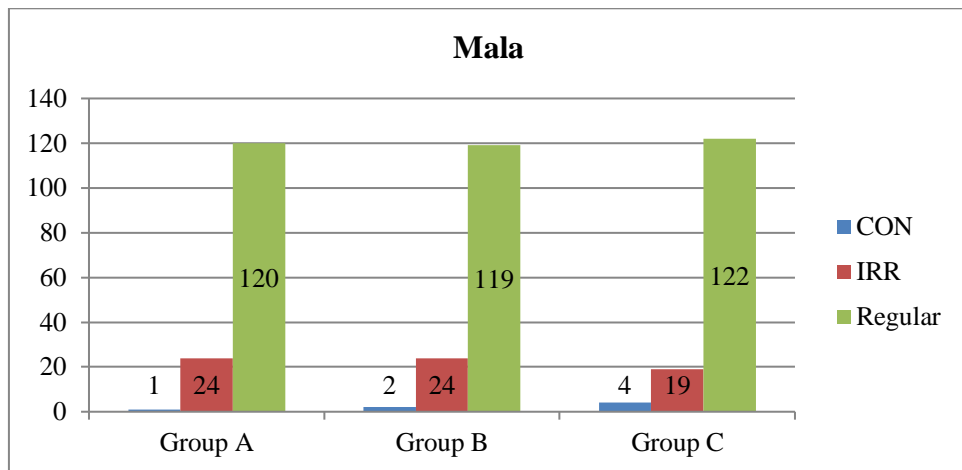


Table No.50 Mutra (Bladder Habit)

Mutra (Bladder Habit)	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Normal	145	100	145	100	145	100	435	300

All patients had normal mutra pravartuti (bladder habit) i.e. 100% in group A, B and C. respectively.

Graph No. 25 Mutra (Bladder Habit)

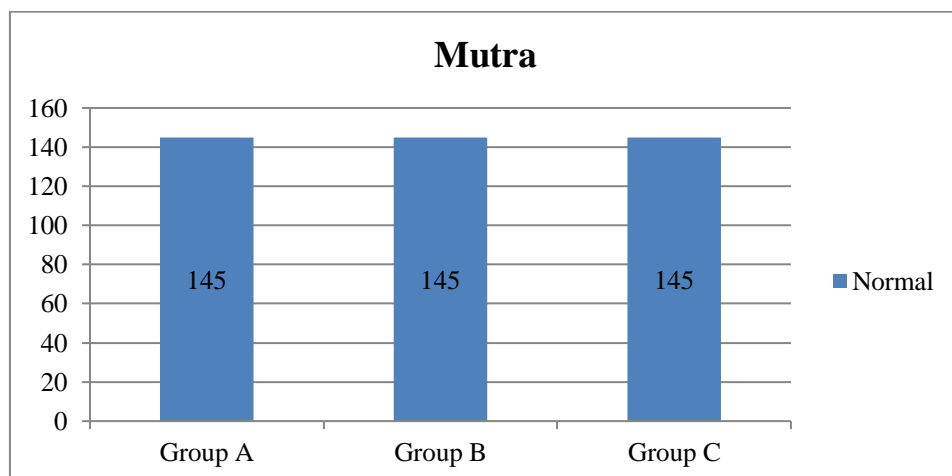
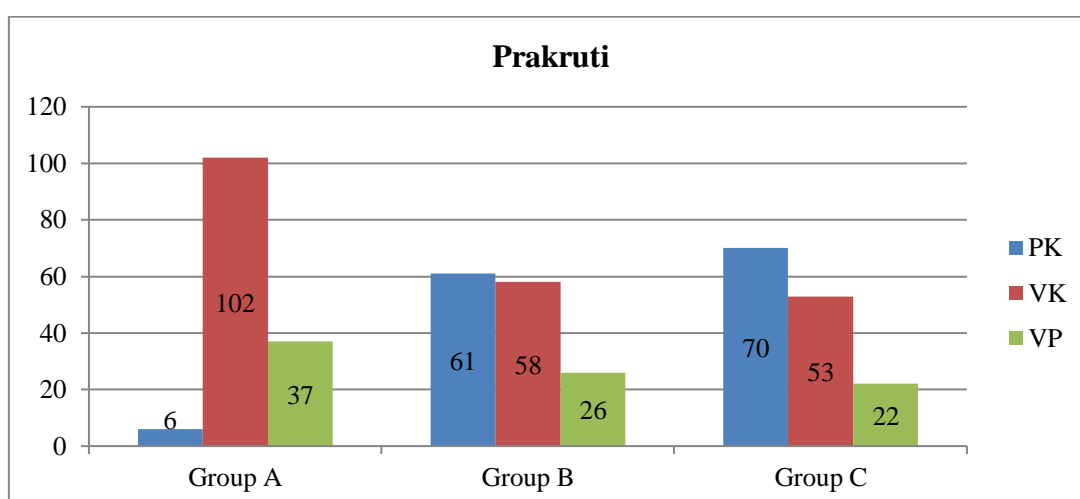


Table No.51 Prakruti

Prakruti	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Pitta-Kapha	6	4.138	61	42.069	70	48.2759	137	94.48
Vata-Kapha	102	70.345	58	40.000	53	36.5517	213	146.90
Vata-Pitta	37	25.517	26	17.931	22	15.1724	85	58.62

Majority of the patients were of Vata-Kaphaj prakruti i.e. 70.34% in Group A, while Pitta-Kaphaj in Group B and C i.e. 42% and 48.27% respectively.

Graph No. 26 Prakruti**Table No.52 Saratah**

Saratah	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Asthi	12	8.276	4	2.759	1	0.6897	17	11.72
Mans	11	7.586	14	9.655	0	0	25	17.24
Mans,Asthi	1	0.690	0	0.000	0	0	1	0.69
Meda	21	14.483	19	13.103	5	3.448	45	31.03

Rakta	15	10.345	15	10.345	7	4.828	37	25.52
Rakta, Asthi	1	0.690	0	0.000	1	0.690	2	1.38
Rakta, Mansa	5	3.448	4	2.759	8	5.517	17	11.72
Rakta,Meda	3	2.069	2	1.379	4	2.759	9	6.21
Twak	36	24.828	52	35.862	26	17.931	114	78.62
Twak,Asthi	12	8.276	3	2.069	21	14.483	36	24.83
Twak,Mans	6	4.138	9	6.207	23	15.862	38	26.21
Twak,Mansa,Asthi	0	0.000	0	0.000	4	2.759	4	2.76
Twak,Meda	7	4.828	8	5.517	15	10.345	30	20.69
Twak,Rakta	15	10.345	15	10.345	30	20.690	60	41.38
Meda	21	14.483	19	13.103	5	3.448	17	11.72

Majority of the patients were of Twak saratah i.e. 24.8% and 35.8% in Group A and B respectively, while Twak-rakta in Group C i.e. 20.69% and 48.27%.

Graph No. 27 Saratah

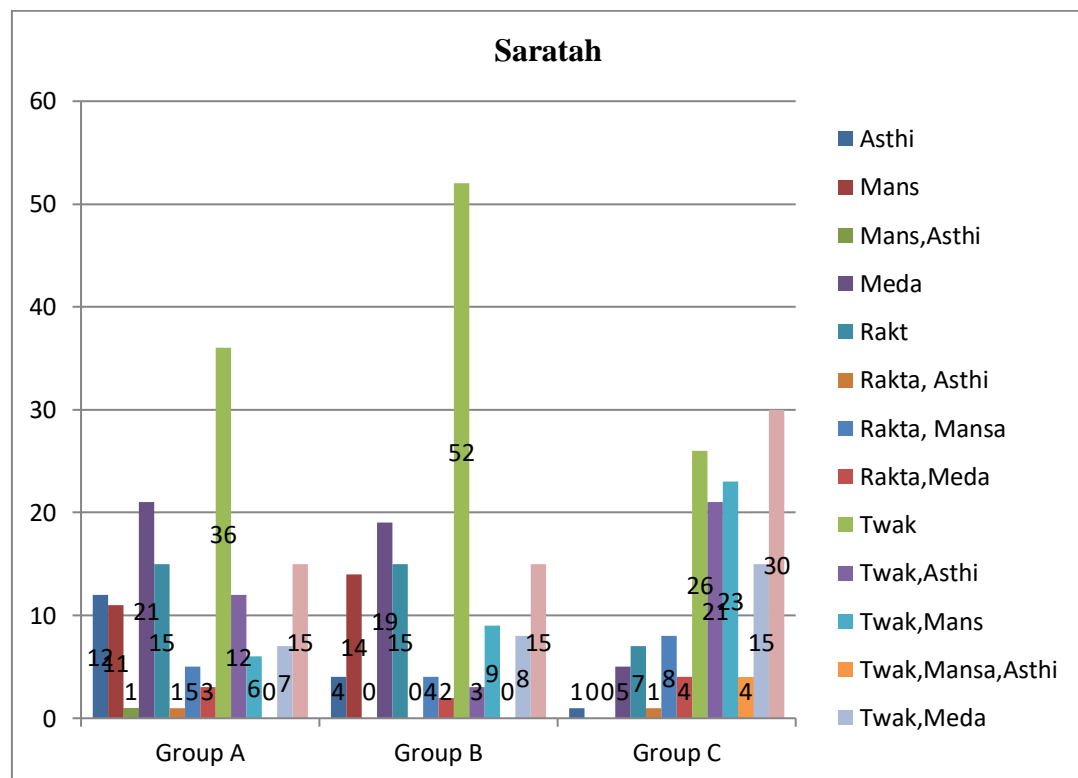


Table No.53 Samhanan

Samhanan	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Avar	1	0.690	4	2.759	5	3.448	10	6.90
Madhyam	139	95.862	139	95.862	136	93.793	414	285.52
Pravar	5	3.448	2	1.379	4	2.759	11	7.59

Maximum numbers of patients had Madhyam samhanan i.e. 95.86% in group A and B respectively while 93.79% in group C.

Graph No. 28 Samhanan

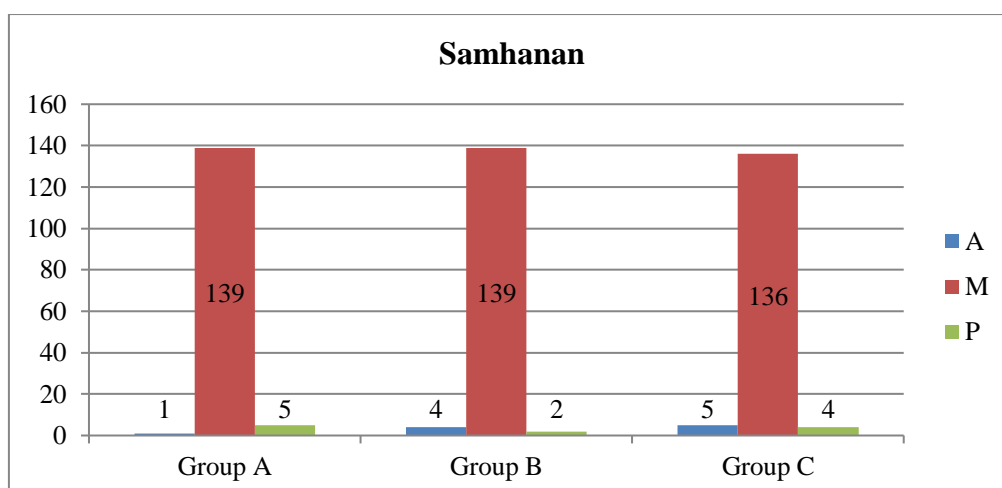


Table No.54 Pramanataha - Height

Pramanataha Height	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
4-5 feet	9	6.207	11	7.586	19	13.103	39	26.90
>5 feet	136	93.793	134	92.414	126	86.897	396	273.10

Maximum numbers of patients had height above 5 feet i.e. 93.79% in group A, 92.41% in group B and 86.89% in group C.

Graph No. 29 Pramanataha - Height

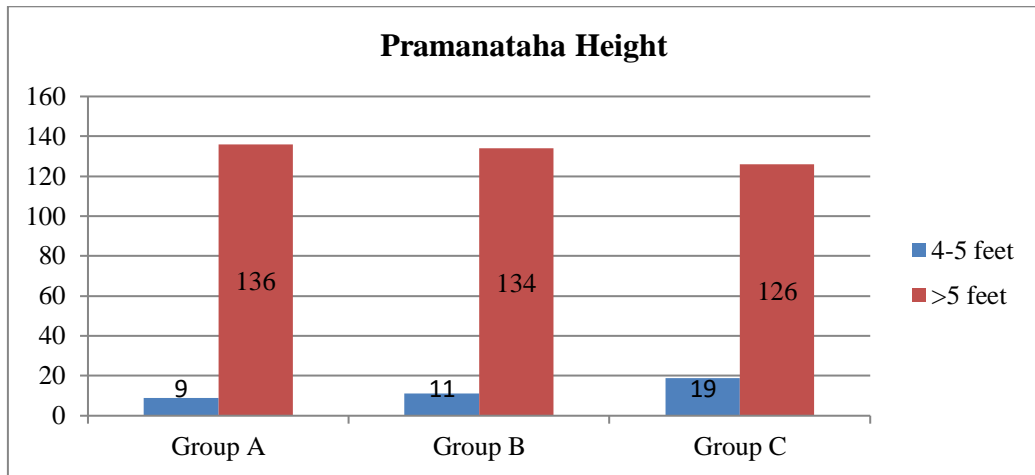


Table No.55 Pramanatah Weight

Pramanatah Weight	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
40-49	9	6.207	13	8.966	19	13.103	41	28.28
50-59	63	43.448	71	48.966	67	46.207	201	138.62
60-69	52	35.862	47	32.414	39	26.897	138	95.17
70-79	19	13.103	12	8.276	15	10.345	46	31.72
>80	2	1.379	2	1.379	5	3.448	9	6.21

Majority patients in group A, B and C were in 50 -59 range of weight i.e. 43.44%, 48.96% and 46.20% respectively.

Graph No. 30 Pramanatah Weight

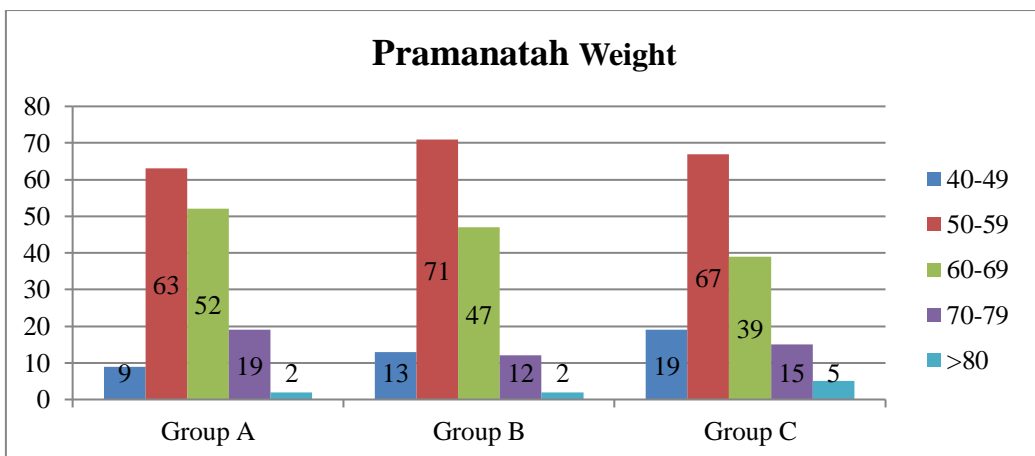


Table No.56 Satmyata

Satmyata	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Avar	2	1.379	1	0.690	1	0.690	4	2.76
Madhyam	140	96.552	142	97.931	139	95.862	421	290.35

Maximum numbers of patients had Madhyam satmya in all the three groups i.e. 96.55%, 97.93% and 95.86% in group A,B and C respectively.

Graph No. 31 Satmyata

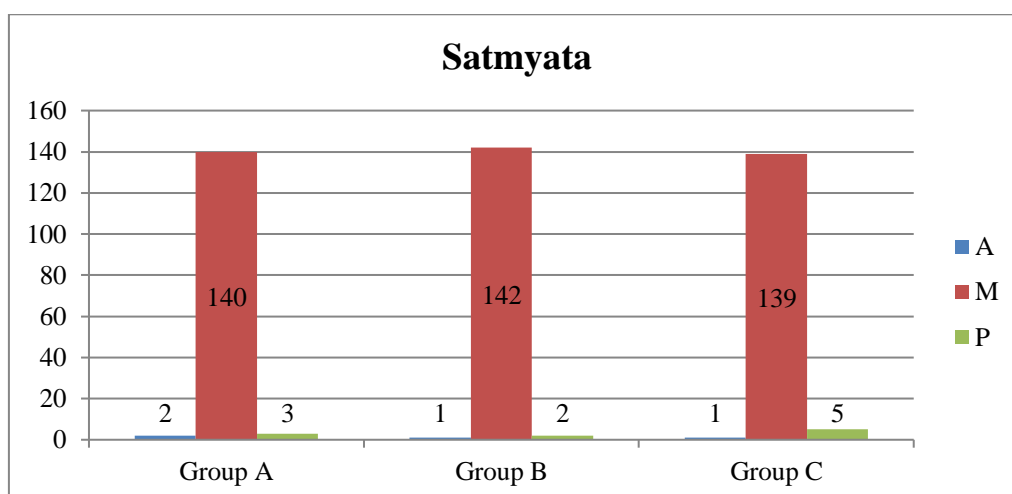


Table No.57 Satva

Satva	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Avar	0	0.000	3	2.069	2	1.379	5	3.45
Madhyam	140	96.552	140	96.552	138	95.172	418	288.28
Pravar	3	2.069	2	1.379	5	3.448	12	8.28

Majority patients had Madhyam satva i.e.96.55% in Group A and B respectively, while group C had 95.17%.

Graph No. 32 Satva

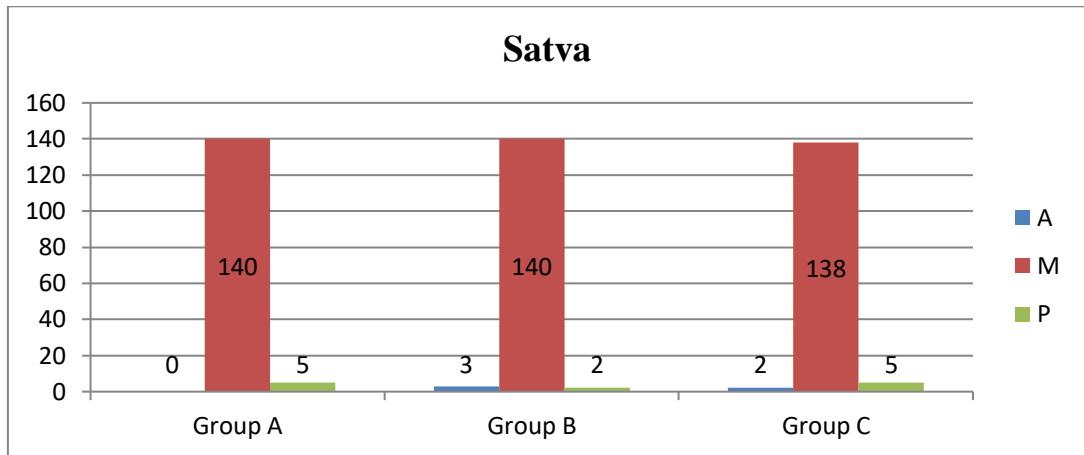


Table No.58 Abhyawaranshakti

Abhyawaranshakti	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Pravar	71	48.966	50	34.483	61	42.069	253	174.48
Madhyam	74	51.034	95	65.517	84	57.931	182	125.52

Majority of the patients in Group A had Madhyam and Pravar abhyawaranshakti i.e. 51% and 48.96%. In group B and C maximum patients had Madhya i.e. 65.51% & 57.93% respectively.

Graph No. 33 Abhyawaranshakti

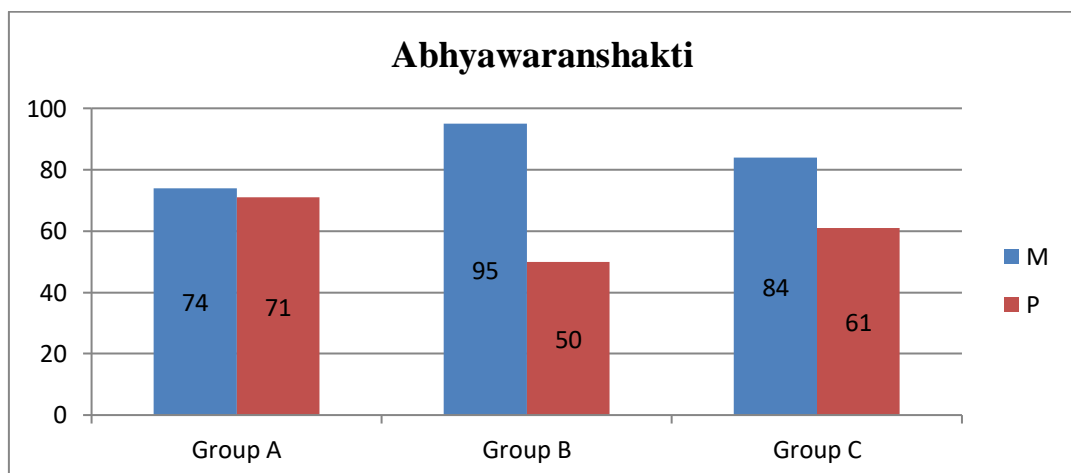


Table No.59 Jaranshakti

Jaranshakti	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Avar	16	11.034	16	11.034	7	4.828	39	26.90
Madhyam	76	52.414	99	68.276	84	57.931	259	178.62
Pravar	53	36.552	30	20.690	54	37.241	137	94.48

Maximum numbers of patients had Madhyam Jaranshakti in group A, B and C i.e. 54.41%, 68.27% and 57.93% respectively.

Graph No. 34 Jaranshakti

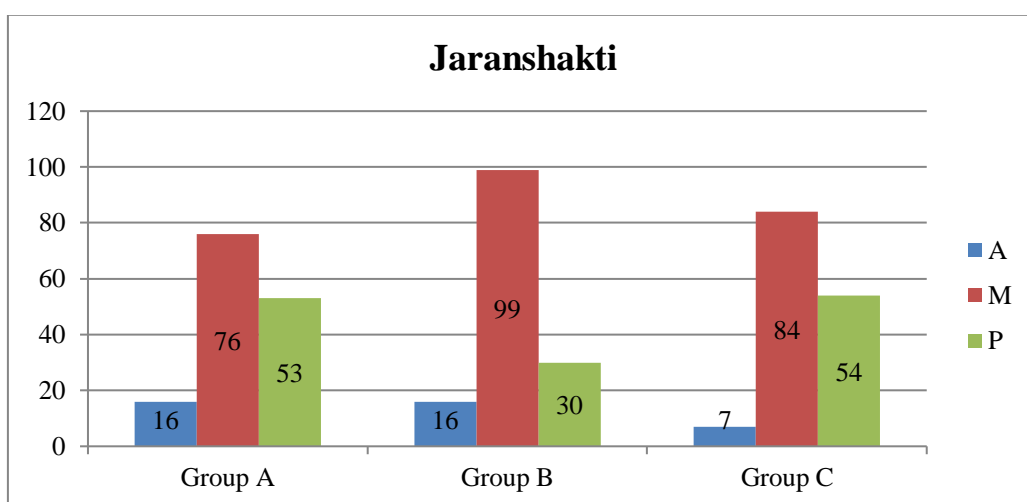


Table No.60 Vyayamshakti

Vyayamshakti	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Avar	1	0.690	1	0.690	9	6.207	11	7.59
Madhyam	142	97.931	142	97.931	123	84.828	407	280.69
Pravar	2	1.379	2	1.379	13	8.966	17	11.72

Maximum numbers of patients had Madhyam Jaranshakti in group A, B and C i.e. 97.93%, 97.93% and 84.82% respectively.

Graph No. 35 Vyayamshakti

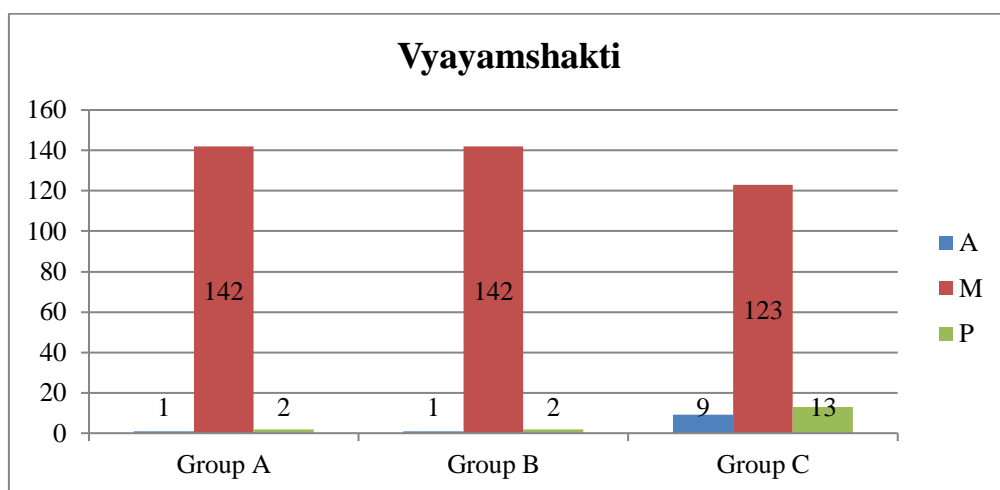


Table No.61 Vayatah

Vayatah	Number of Patients							
	Group A		Group B		Group C		Total	
	n	%	n	%	n	%	n	%
Madhyam	145	100	145	100	145	100	434	299.31

All the patients in group A, B and C are of Madhyam Vaya i.e. 100%

Graph No. 36 Vayatah

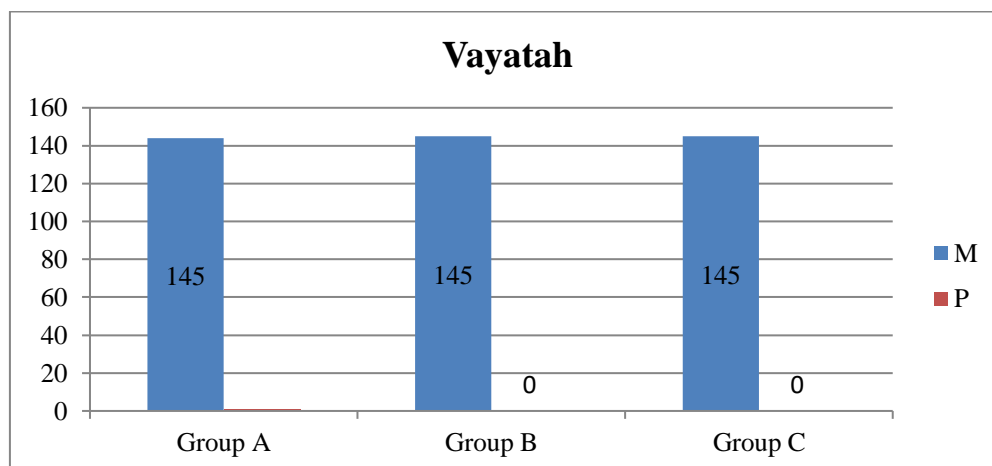


Table No. 62 Neck Pain Observations

Neck pain	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	1	1	0.690	0	0.000	1	0.690
	2	88	60.690	90	62.069	123	84.828
	3	56	38.621	55	37.931	21	14.483
AT	0	101	69.655	111	76.552	60	41.379
	1	41	28.276	32	22.069	69	47.586
	2	3	2.069	2	1.379	16	11.034
F1	0	1	0.690	1	0.690	0	0.000
	1	66	45.517	74	51.034	13	8.966
	2	76	52.414	66	45.517	115	79.310
	3	2	1.379	4	2.759	17	11.724
F2	1	1	0.690	0	0.000	1	0.690
	2	93	64.138	91	62.759	124	85.517
	3	51	35.172	54	37.241	20	13.793
F3	1	0	0.000	0	0.000	1	0.690
	2	91	62.759	90	62.069	124	85.517
	3	54	37.241	55	37.931	20	13.793

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

It was observed that majority of patents had a grade 2 Before Treatment, which became grade 0 After Treatment for group A and B, while it was grade 1 for group C. It shows that group A and B treatment had better result compared to group C. In First follow up period i.e. F1, group A and C had grade 2, while group B had grade 1, in majority of patients, which shows group B treatment is better than group A and C. In second and third follow up i.e. F2 and F3, all the 3 groups showed same grade i.e.2.

Graph No. 36 Neck Pain observations

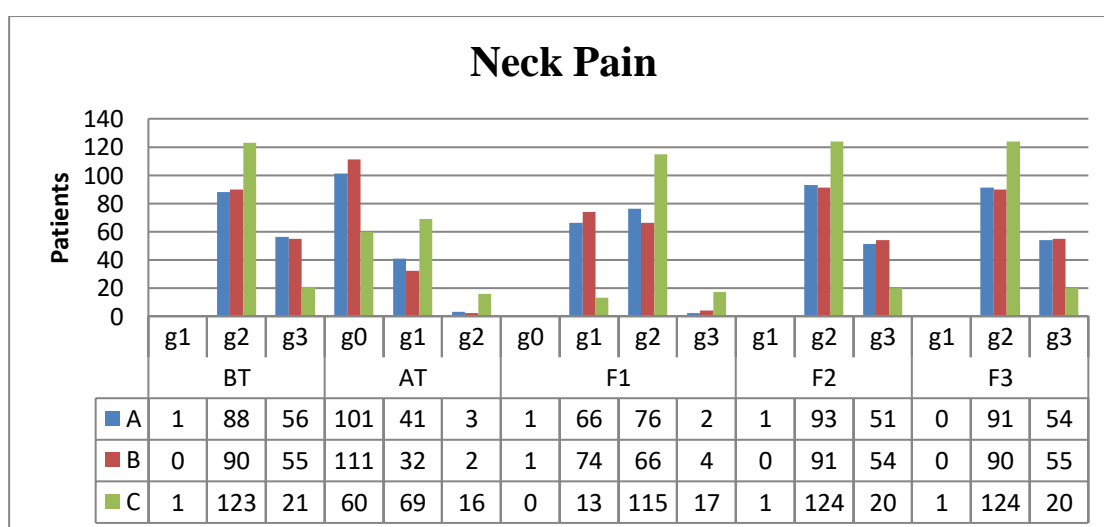


Table No. 63 Neck Pain Radiation Observation

Neck Pain Radiation	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	0	30	20.69	40	27.59	28	19.31
	1	3	2.07	4	2.76	5	3.45
	2	64	44.14	71	48.97	71	48.97
	3	7	4.83	6	4.14	10	6.90
	4	41	28.28	24	16.55	31	21.38
AT	0	73	50.34	83	57.24	32	22.07
	1	31	21.38	40	27.59	17	11.72
	2	40	27.59	22	15.17	65	44.83
	3	1	0.69	0	0.00	14	9.66
	4	0	0.00	0	0.00	17	11.72
F1	0	31	21.38	41	28.28	28	19.31
	1	36	24.83	35	24.14	7	4.83
	2	41	28.28	46	31.72	70	48.28
	3	18	12.41	15	10.34	12	8.28
	4	19	13.10	8	5.52	28	19.31
F2	0	30	20.69	40	27.59	28	19.31
	1	3	2.07	4	2.76	5	3.45
	2	64	44.14	72	49.66	71	48.97
	3	8	5.52	5	3.45	10	6.90
	4	40	27.59	24	16.55	31	21.38
F3	0	30	20.69	40	27.59	29	20.00
	1	3	2.07	4	2.76	5	3.45
	2	64	44.14	69	47.59	70	48.28
	3	7	4.83	8	5.52	10	6.90
	4	41	28.28	24	16.55	31	21.38

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

It was observed that majority of patients had a grade 2 at Before Treatment in all the 3 groups , which became grade 0 at After Treatment for group A and B, while group C had same grade 2. Which shows that group A and B had better result compared to group C. In first, second and third follow up i.e.F1, F2 and F3, all the 3 groups showed same grade i.e.2.

Graph No. 37 Neck Pain Radiation Observation

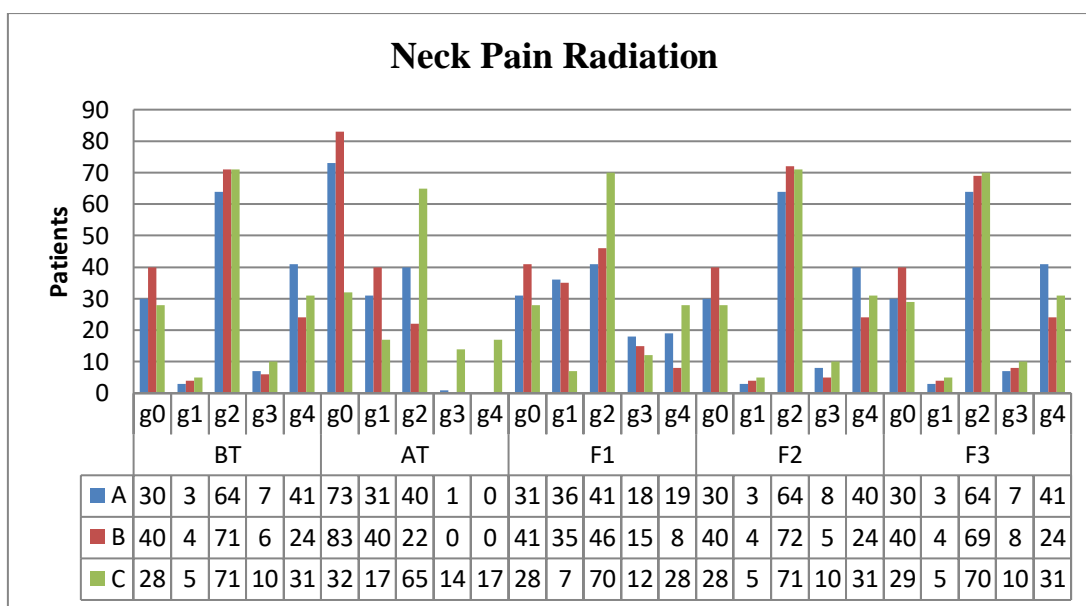


Table No. 64 Stiffness Observations

Stiffness	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	0	50	34.48	49	33.79	72	49.66
	1	7	4.83	8	5.52	7	4.83
	2	82	56.55	78	53.79	65	44.83
	3	6	4.14	10	6.90	1	0.69
AT	0	98	67.59	108	74.48	82	56.55
	1	46	31.72	37	25.52	46	31.72
	2	1	0.69	0	0.00	17	11.72
F1	0	54	37.24	49	33.79	72	49.66
	1	30	20.69	41	28.28	9	6.21
	2	59	40.69	52	35.86	63	43.45
	3	2	1.38	3	2.07	1	0.69
F2	0	50	34.48	49	33.79	72	49.66
	1	7	4.83	7	4.83	7	4.83
	2	82	56.55	80	55.17	65	44.83
	3	6	4.14	9	6.21	1	0.69
F3	0	50	34.48	49	33.79	72	49.66
	1	7	4.83	7	4.83	7	4.83
	2	82	56.55	80	55.17	64	44.14
	3	6	4.14	9	6.21	2	1.38

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

It was observed that, group A and B patients had majority of a grade 2 at Before Treatment, which became grade 0 at After Treatment. It shows that group A and B had good results. In follow up 1, 2 and 3 period group A and B had same grade 2 for majority of patients. In group C all majority patients were grade 0 at BT, AT, F1, F2 & F3.

Graph no. 38 Stiffness Observations

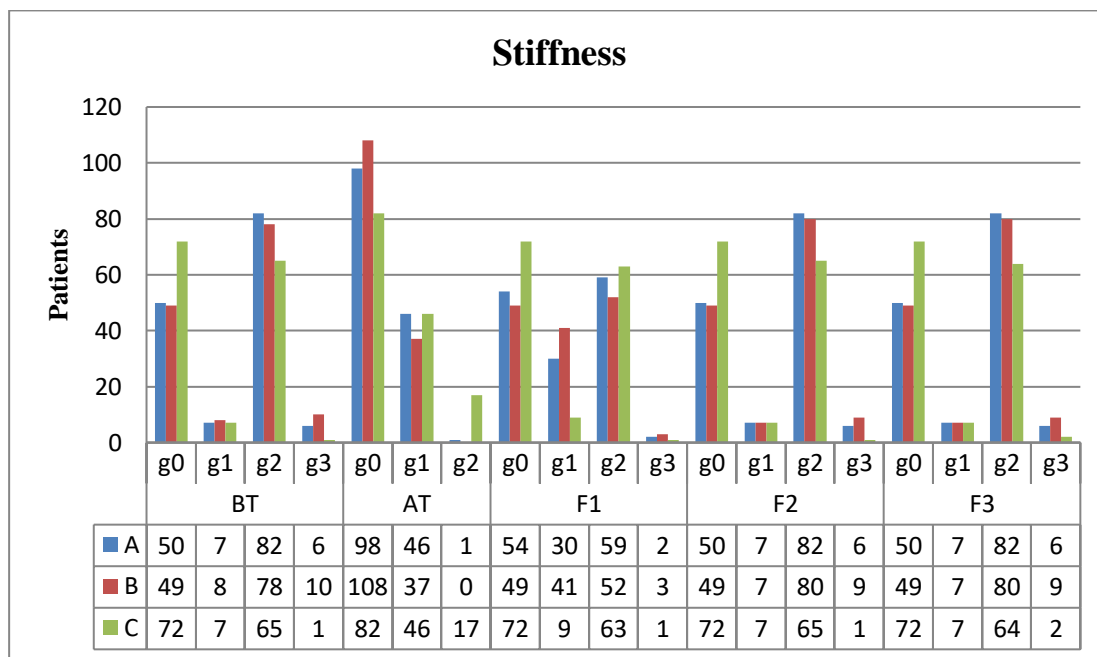


Table No. 65 Tingling Sensation Observations

Tingling Sensation	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	0	43	29.66	53	36.55	48	33.10
	1	1	0.69	4	2.76	4	2.76
	2	71	48.97	60	41.38	67	46.21
	3	28	19.31	26	17.93	26	17.93
	4	2	1.38	2	1.38	0	0.00
AT	0	92	63.45	94	64.83	51	35.17
	1	38	26.21	41	28.28	9	6.21
	2	15	10.34	9	6.21	64	44.14
	3	0	0.00	1	0.69	21	14.48
F1	0	44	30.34	53	36.55	48	33.10
	1	28	19.31	31	21.38	5	3.45
	2	60	41.38	54	37.24	67	46.21
	3	13	8.97	6	4.14	25	17.24
	4	0	0.00	1	0.69	0	0.00
F2	0	43	29.66	53	36.55	48	33.10

	1	1	0.69	4	2.76	4	2.76
	2	72	49.66	65	44.83	67	46.21
	3	28	19.31	21	14.48	26	17.93
	4	1	0.69	2	1.38	0	0.00
F3	0	43	29.66	53	36.55	48	33.10
	1	1	0.69	4	2.76	4	2.76
	2	71	48.97	62	42.76	67	46.21
	3	28	19.31	24	16.55	26	17.93
	4	2	1.38	2	1.38	0	0

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

It was observed that, all the three groups patients had majority of a grade 2 at Before Treatment, which became grade 0 at After Treatment in group A and B, while remained same grade 2 in group C. It shows that group A and B had good results compared to C group. In follow up 1, 2 and 3 periods group A, B and C had same grade 2 for majority of patients.

Graph No. 39 Tingling Sensation Observations

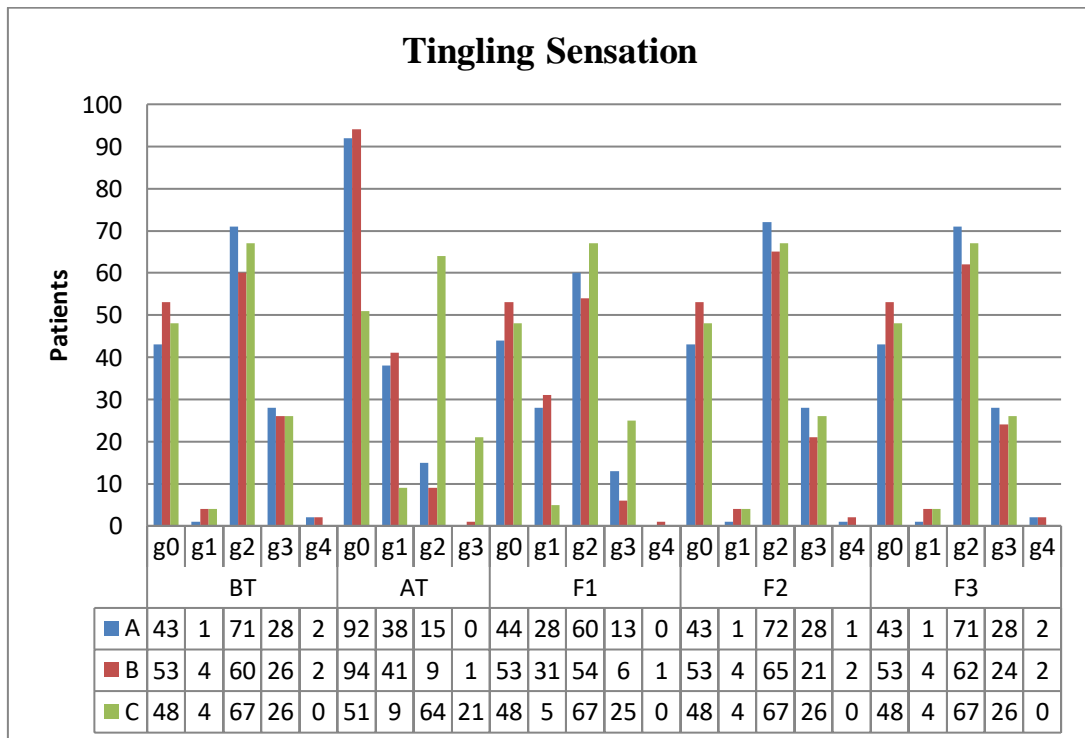


Table No. 66 Vertigo Observations

Vertigo	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	0	142	97.93	143	98.62	142	97.93
	1	3	2.07	1	0.69	3	2.07
	2	0	0.00	1	0.69	0	0.00
AT	0	143	98.62	143	98.62	142	97.93
	1	2	1.38	2	1.38	3	2.07
F1	0	142	97.93	143	98.62	142	97.93
	1	3	2.07	1	0.69	3	2.07
	2	0	0.00	1	0.69	0	0.00
F2	0	142	97.93	143	98.62	142	97.93
	1	3	2.07	1	0.69	3	2.07
	2	0	0.00	1	0.69	0	0.00
F3	0	142	97.93	143	98.62	142	97.93
	1	3	2.07	1	0.69	3	2.07
	2	0	0.00	1	0.69	0	0.00

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

Majority of the patients in all the three groups had grade 0 at BT, AT, F1, F2 and F3. It means there no effect of all the three groups treatment on Vertigo.

Graph No. 40 Vertigo Observations

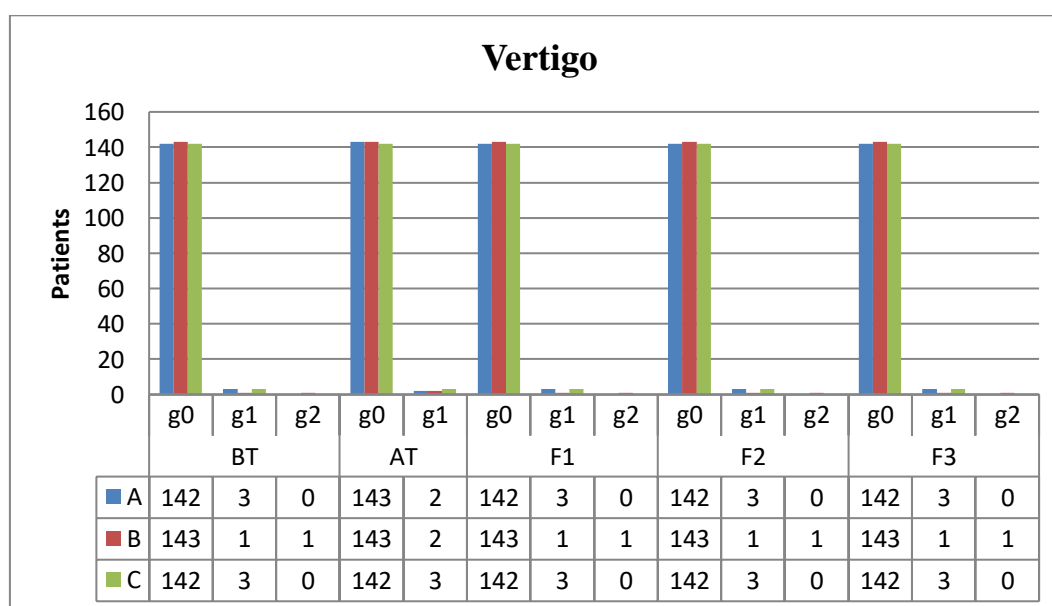


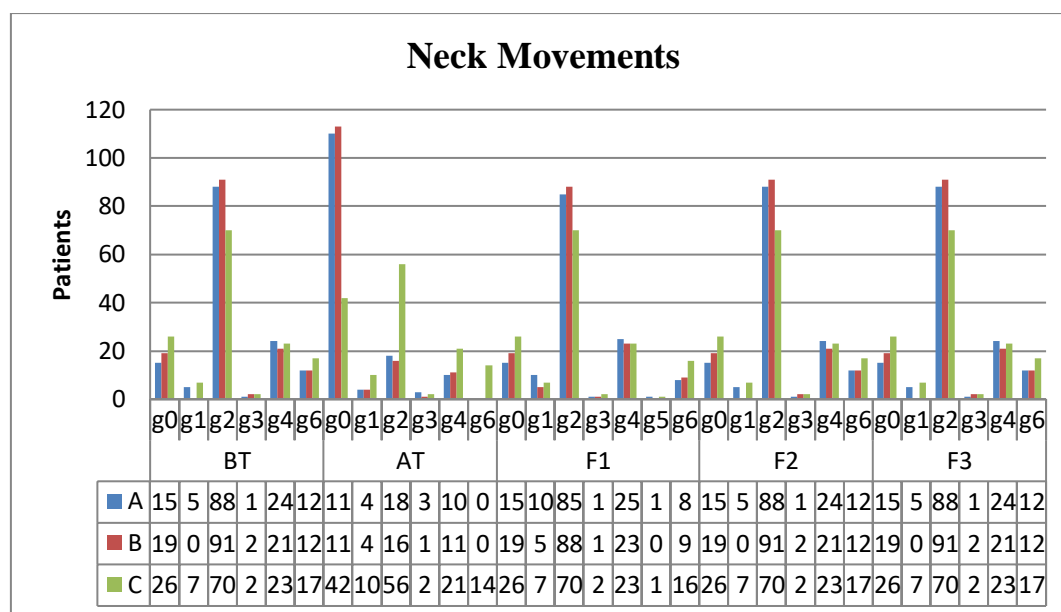
Table No. 67 Neck Movements Observations

Neck Movements	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	0	15	10.34	19	13.10	26	17.93
	1	5	3.45	0	0.00	7	4.83
	2	88	60.69	91	62.76	70	48.28
	3	1	0.69	2	1.38	2	1.38
	4	24	16.55	21	14.48	23	15.86
	6	12	8.28	12	8.28	17	11.72
AT	0	110	75.86	113	77.93	42	28.97
	1	4	2.76	4	2.76	10	6.90
	2	18	12.41	16	11.03	56	38.62
	3	3	2.07	1	0.69	2	1.38
	4	10	6.90	11	7.59	21	14.48
	6	0	0.00	0	0.00	14	9.66
F1	0	15	10.34	19	13.10	26	17.93
	1	10	6.90	5	3.45	7	4.83
	2	85	58.62	88	60.69	70	48.28
	3	1	0.69	1	0.69	2	1.38
	4	25	17.24	23	15.86	23	15.86
	5	1	0.69	0	0.00	1	0.69
	6	8	5.52	9	6.21	16	11.03
F2	0	15	10.34	19	13.10	26	17.93
	1	5	3.45	0	0.00	7	4.83
	2	88	60.69	91	62.76	70	48.28
	3	1	0.69	2	1.38	2	1.38
	4	24	16.55	21	14.48	23	15.86
	6	12	8.28	12	8.28	17	11.72
F3	0	15	10.34	19	13.10	26	17.93
	1	5	3.45	0	0.00	7	4.83
	2	88	60.69	91	62.76	70	48.28
	3	1	0.69	2	1.38	2	1.38
	4	24	16.55	21	14.48	23	15.86
	6	12	8.28	12	8.28	17	11.72

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

It was observed that majority of patients had a grade 2 at Before Treatment, which became grade 0 at After Treatment in group A and B, while in group C majority patients had grade 2. It shows that group A and B had better results compared to group C. In follow up periods 1, 2 and 3, the group A, B and C had same grade 2 for majority of patients

Graph No. 41 Neck Movements



Observations on Neck Disability Index

Table No. 68 Pain Intensity Observations

Pain Intensity	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	1	2	1.38	0	0.00	2	1.38
	2	85	58.62	101	69.66	126	86.90
	3	58	40.00	44	30.34	17	11.72
AT	0	103	71.03	107	73.79	49	33.79
	1	39	26.90	37	25.52	81	55.86
	2	3	2.07	1	0.69	15	10.34
F1	1	84	57.93	90	62.07	28	19.31
	2	57	39.31	54	37.24	103	71.03
	3	4	2.76	1	0.69	14	9.66
F2	1	2	1.38	0	0.00	3	2.07
	2	93	64.14	106	73.10	126	86.90
	3	50	34.48	39	26.90	16	11.03
F3	1	1	0.69	0	0.00	3	2.07
	2	85	58.62	101	69.66	125	86.21
	3	59	40.69	44	30.34	17	11.72

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

It was observed that majority of patients had a grade 2 at Before Treatment, which became grade 0 at After Treatment for a majority in group A and B, while majority had grade 1 in group C, which shows group A and B had better results than C.

Majority of patients had a grade 1 at F1 i.e. follow up period 1 in group A and B, while in group C majority had grade 2 , which shows group A and B had better results than C in follow up period F1.

In follow up period F2 and F3 majority of patients in all the three groups had grade 2.

Graph No. 42 Pain Intensity Observations

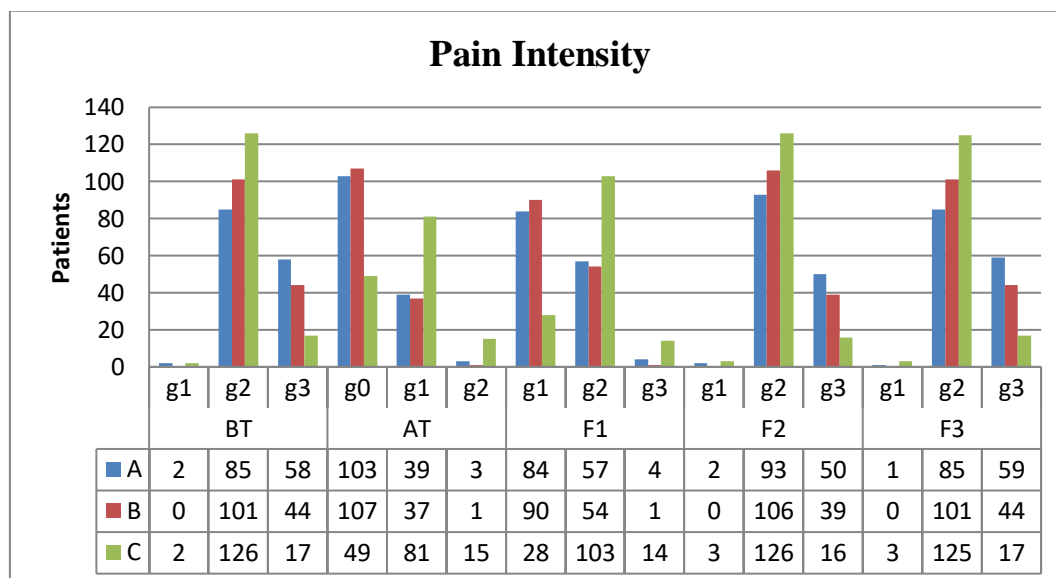


Table No. 69 Personal Care Observations

Personal Care	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	1	3	2.07	3	2.07	5	3.45
	2	116	80.00	116	80.00	135	93.10
	3	26	17.93	26	17.93	5	3.45
AT	0	79	54.48	69	47.59	11	7.59
	1	60	41.38	68	46.90	83	57.24
	2	6	4.14	8	5.52	49	33.79
	3	0	0.00	0	0.00	2	1.38
F1	1	73	50.34	60	41.38	12	8.28
	2	65	44.83	77	53.10	128	88.28
	3	7	4.83	8	5.52	5	3.45
F2	1	3	2.07	3	2.07	5	3.45
	2	115	79.31	115	79.31	135	93.10
	3	27	18.62	27	18.62	5	3.45
F3	1	3	2.07	3	2.07	5	3.45
	2	115	79.31	115	79.31	134	92.41
	3	27	18.62	27	18.62	6	4.14

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

It was observed that majority of patients had a grade 2 at Before Treatment, which became grade 0 at After Treatment in group A and B, while majority had grade 1 in group C, which shows group A and B had better results than C. Majority of patients had a grade 2 at F1 i.e. follow up period 1 in group B and C, while in group A majority had grade 1, which shows group A had better results than group B and C in follow up period F1. In follow up period F2 and F3 majority of patients in all the three groups had grade 2.

Graph No. 43 Personal Care Observations

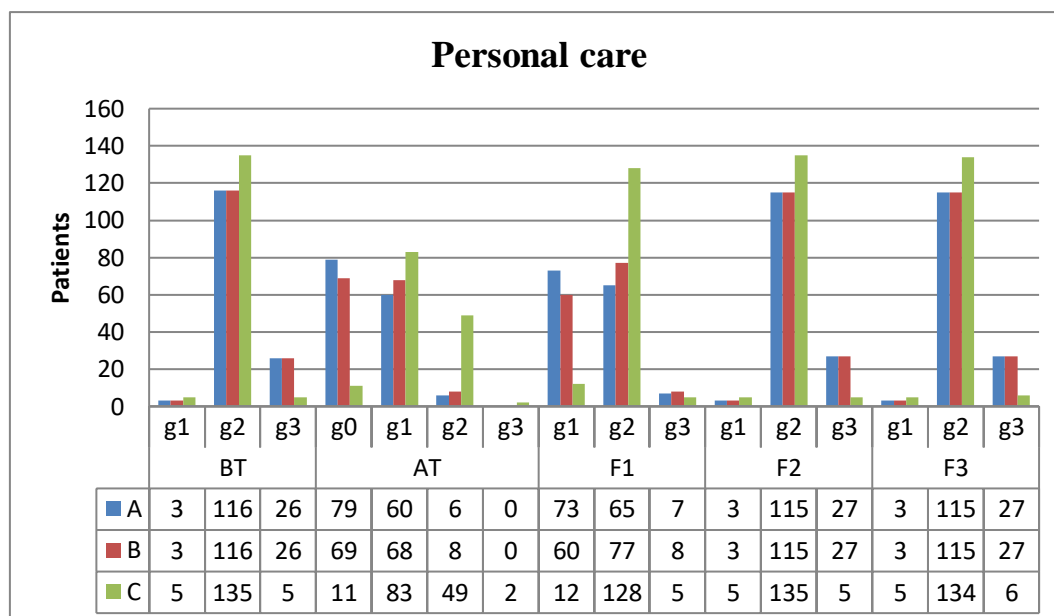


Table No. 70 Lifting Observations

Lifting	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	1	5	3.45	4	2.76	7	4.83
	2	131	90.34	126	86.90	137	94.48
	3	9	6.21	15	10.34	1	0.69
AT	0	43	29.66	48	33.10	7	4.83
	1	96	66.21	92	63.45	69	47.59
	2	6	4.14	5	3.45	68	46.90
	3	0	0.00	0	0.00	1	0.69
F1	0	0	0.00	0	0.00	1	0.69
	1	40	27.59	45	31.03	10	6.90
	2	103	71.03	94	64.83	133	91.72
	3	2	1.38	6	4.14	1	0.69
F2	1	5	3.45	3	2.07	7	4.83

	2	133	91.72	128	88.28	137	94.48
	3	7	4.83	14	9.66	1	0.69
F3	1	5	3.45	3	2.07	7	4.83
	2	133	91.72	127	87.59	137	94.48
	3	7	4.83	15	10.34	1	0.69

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

It was observed that majority of patients had a grade 2 at Before Treatment, which became grade 1 at After Treatment in all the three groups, which shows group A,B and C had similar results. In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

Graph No. 44 Lifting Observations

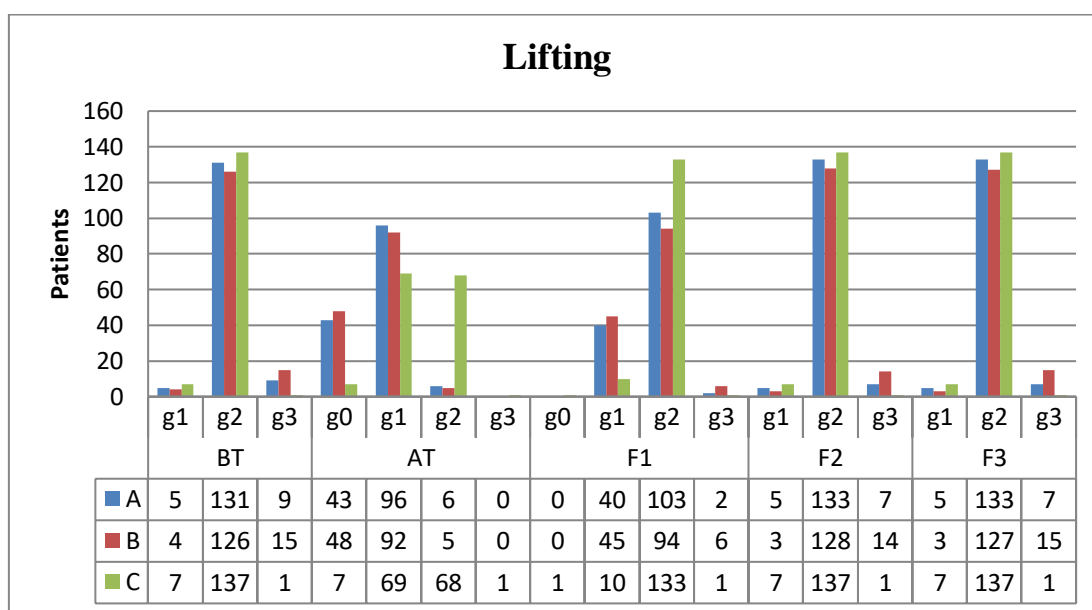


Table No. 71 Reading Observations

Reading	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	0	0	0.00	1	0.69	0	0.00
	1	5	3.45	4	2.76	5	3.45
	2	132	91.03	132	91.03	138	95.17
	3	8	5.52	8	5.52	2	1.38
AT	0	37	25.52	44	30.34	8	5.52
	1	103	71.03	96	66.21	64	44.14
	2	5	3.45	5	3.45	72	49.66
	3	0	0.00	0	0.00	1	0.69
F1	0	0	0.00	3	2.07	0	0.00
	1	40	27.59	39	26.90	10	6.90
	2	102	70.34	102	70.34	133	91.72

	3	3	2.07	1	0.69	2	1.38
F2	0	0	0.00	1	0.69	0	0.00
	1	5	3.45	4	2.76	5	3.45
	2	132	91.03	132	91.03	138	95.17
	3	8	5.52	8	5.52	2	1.38
F3	0	0	0.00	1	0.69	0	0.00
	1	5	3.45	4	2.76	5	3.45
	2	132	91.03	132	91.03	137	94.48
	3	8	5.52	8	5.52	3	2.07

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

It was observed that majority of patients had a grade 2 at Before Treatment, which became grade 1 at After Treatment in all the three groups, which shows group A, B and C had similar results. In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

Graph No. 45 Reading Observations

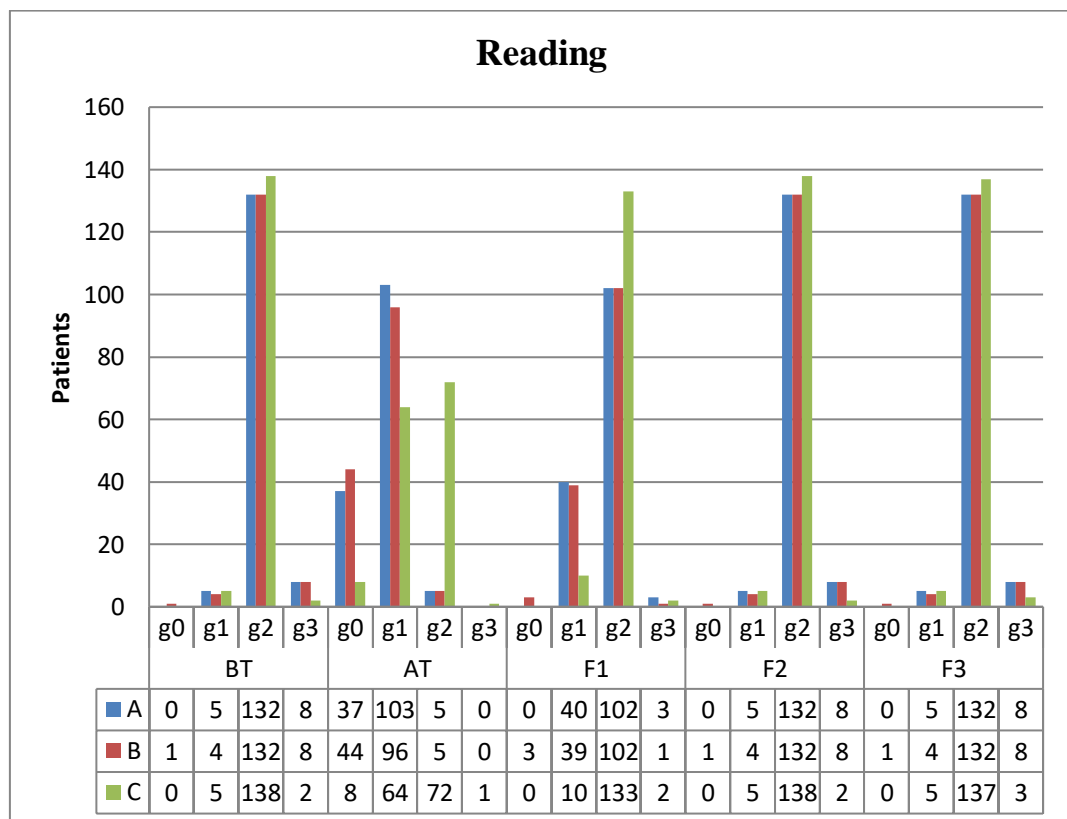


Table No. 72 Headache Observations

Headache	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	0	141	97.24	142	97.93	138	95.17
	1	0	0.00	2	1.38	5	3.45
	2	4	2.76	1	0.69	2	1.38
AT	0	142	97.93	144	99.31	141	97.24
	1	3	2.07	1	0.69	4	2.76
F1	0	141	97.24	142	97.93	138	95.17
	1	1	0.69	2	1.38	5	3.45
	2	3	2.07	1	0.69	2	1.38
F2	0	141	97.24	142	97.93	138	95.17
	1	0	0.00	2	1.38	5	3.45
	2	4	2.76	1	0.69	2	1.38
F3	0	141	97.24	142	97.93	138	95.17
	1	0	0.00	2	1.38	5	3.45
	2	4	2.76	1	0.69	2	1.38

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

Majority of the patients in all the three groups had grade 0 at BT, AT, F1, F2, F3.

Graph No. 46 Headache Observations

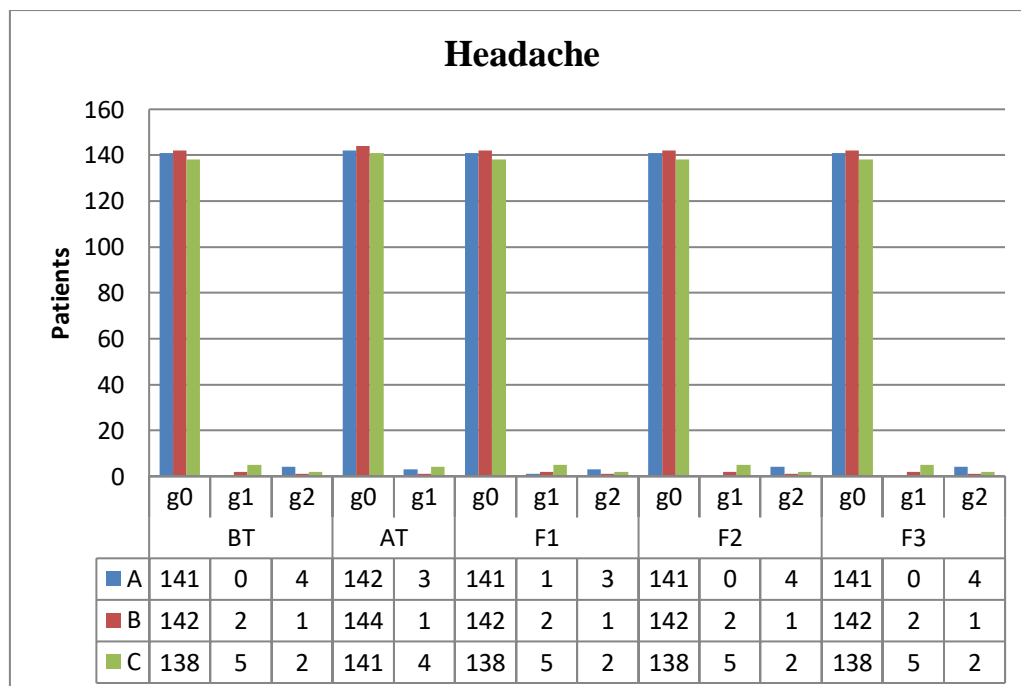


Table No. 73 Concentration Observations

Concentration	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	1	2	1.38	3	2.07	7	4.83
	2	134	92.41	136	93.79	134	92.41
	3	9	6.21	6	4.14	4	2.76
AT	0	31	21.38	46	31.72	8	5.52
	1	106	73.10	94	64.83	83	57.24
	2	8	5.52	5	3.45	53	36.55
	3	0	0.00	0	0.00	1	0.69
F1	1	31	21.38	46	31.72	11	7.59
	2	109	75.17	97	66.90	129	88.97
	3	5	3.45	2	1.38	5	3.45
F2	1	2	1.38	3	2.07	7	4.83
	2	135	93.10	137	94.48	133	91.72
	3	8	5.52	5	3.45	5	3.45
F3	1	2	1.38	3	2.07	7	4.83
	2	134	92.41	137	94.48	133	91.72
	3	9	6.21	5	3.45	5	3.45

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

It was observed that majority of patients had a grade 2 at Before Treatment, which became grade 1 at After Treatment in all the three groups, which shows group A, B and C had similar results. In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

Graph No. 47 Concentration Observations

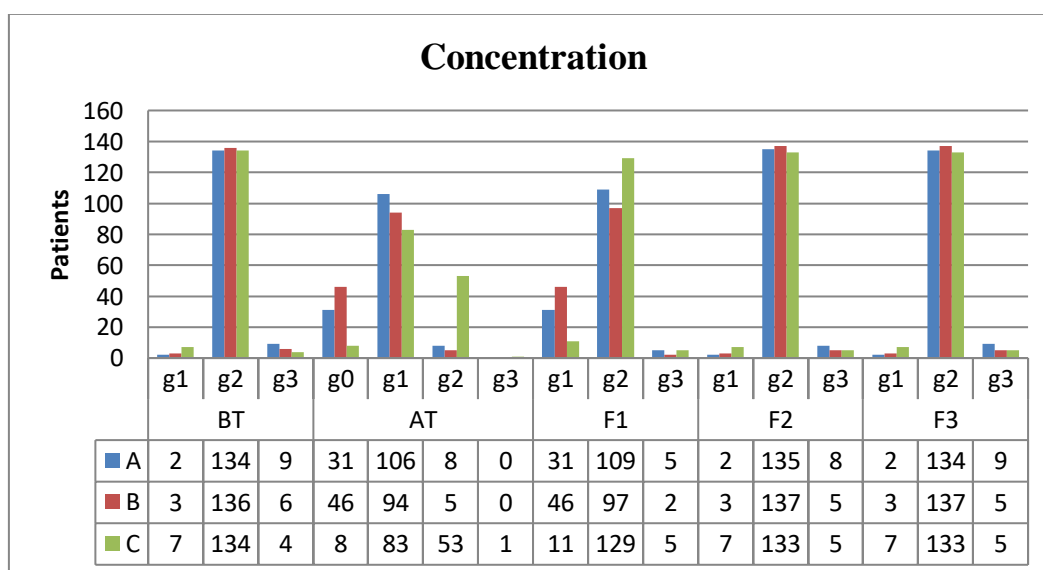


Table No. 74 Work Observations

Work	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	1	4	2.76	1	0.69	7	4.83
	2	117	80.69	130	89.66	137	94.48
	3	24	16.55	14	9.66	1	0.69
AT	0	101	69.66	109	75.17	46	31.72
	1	40	27.59	36	24.83	88	60.69
	2	4	2.76	0	0.00	11	7.59
F1	1	87	60.00	91	62.76	32	22.07
	2	56	38.62	52	35.86	112	77.24
	3	2	1.38	2	1.38	1	0.69
F2	1	4	2.76	2	1.38	7	4.83
	2	121	83.45	132	91.03	137	94.48
	3	20	13.79	11	7.59	1	0.69
F3	1	4	2.76	2	1.38	7	4.83
	2	118	81.38	131	90.34	137	94.48
	3	23	15.86	12	8.28	1	0.69

BT – Before Treatment AT – After Treatment F – Follow up n - Frequency

It was observed that majority of patients had a grade 2 at Before Treatment, which became grade 0 at After Treatment in group A and B, while it became grade 1 in group C, which shows A, B group had better results than that of group C. In follow up period i.e. F1, majority of patients in group A and B had grade 1, while in group C it had grade 2, which shows better results of treatment in group A and B than that of C. In follow up period F2 and F3 majority of patients in all the three groups had grade 2.

Graph No. 48 Work Observations

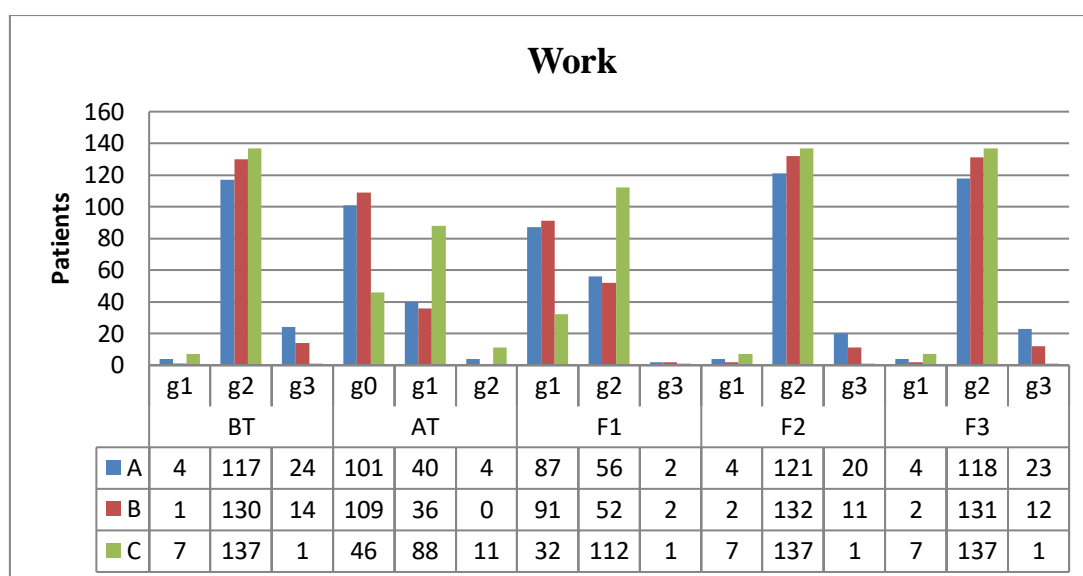


Table No. 75 Driving Observations

Driving	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	0	0	0.00	0	0.00	3	2.07
	1	9	6.21	12	8.28	14	9.66
	2	130	89.66	130	89.66	127	87.59
	3	6	4.14	3	2.07	1	0.69
AT	0	35	24.14	40	27.59	11	7.59
	1	106	73.10	103	71.03	73	50.34
	2	4	2.76	2	1.38	61	42.07
F1	0	0	0.00	1	0.69	3	2.07
	1	36	24.83	38	26.21	16	11.03
	2	106	73.10	105	72.41	125	86.21
	3	3	2.07	1	0.69	1	0.69
F2	0	0	0.00	0	0.00	3	2.07
	1	9	6.21	11	7.59	14	9.66
	2	131	90.34	132	91.03	127	87.59
	3	5	3.45	2	1.38	1	0.69
F3	0	0	0.00	0	0.00	3	2.07
	1	8	5.52	11	7.59	14	9.66
	2	131	90.34	132	91.03	127	87.59
	3	6	4.14	2	1.38	1	0.69

BT – Before Treatment AT – After Treatment F – Follow up n – Frequency

It was observed that majority of patients had a grade 2 at Before Treatment, which became grade 1 at After Treatment in all the three groups, which shows group A, B and C had similar results. In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

Graph No.49 Driving Observations

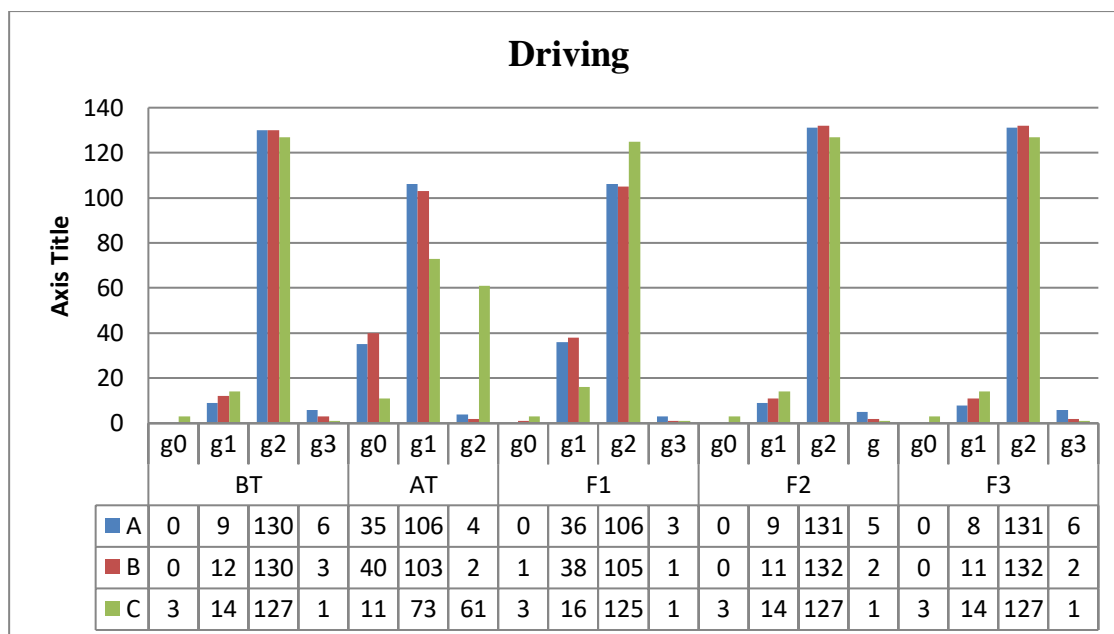


Table No. 76 Sleeping Observations

Sleeping	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	0	19	13.10	22	15.17	32	22.07
	1	1	0.69	0	0.00	6	4.14
	2	114	78.62	115	79.31	104	71.72
	3	11	7.59	8	5.52	3	2.07
AT	0	47	32.41	52	35.86	39	26.90
	1	95	65.52	92	63.45	41	28.28
	2	3	2.07	1	0.69	65	44.83
	3	0	0.00	0	0.00	0	0.00
F1	0	19	13.10	22	15.17	32	22.07
	1	29	20.00	30	20.69	9	6.21
	2	92	63.45	92	63.45	102	70.34
	3	5	3.45	1	0.69	2	1.38
F2	0	19	13.10	22	15.17	32	22.07
	1	0	0.00	1	0.69	6	4.14
	2	115	79.31	115	79.31	104	71.72
	3	11	7.59	7	4.83	3	2.07
F3	0	19	13.10	22	15.17	32	22.07

	1	0	0.00	1	0.69	6	4.14
	2	115	79.31	115	79.31	104	71.72
	3	11	7.59	7	4.83	3	2.07

BT – Before Treatment AT – After Treatment F – Follow up n – Frequency

It was observed that majority of patients had a grade 2 at Before Treatment, which became grade 1 at After Treatment in all the three groups, which shows group A, B and C had similar results. In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

Graph No. 50 Sleeping Observations

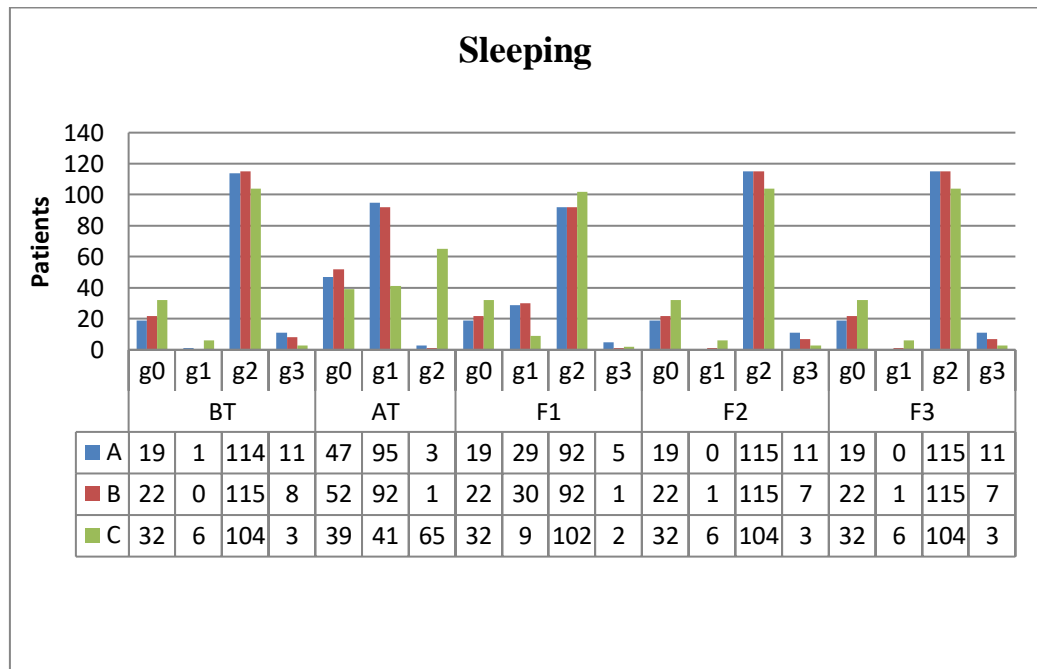


Table No. 77 Recreation Observation

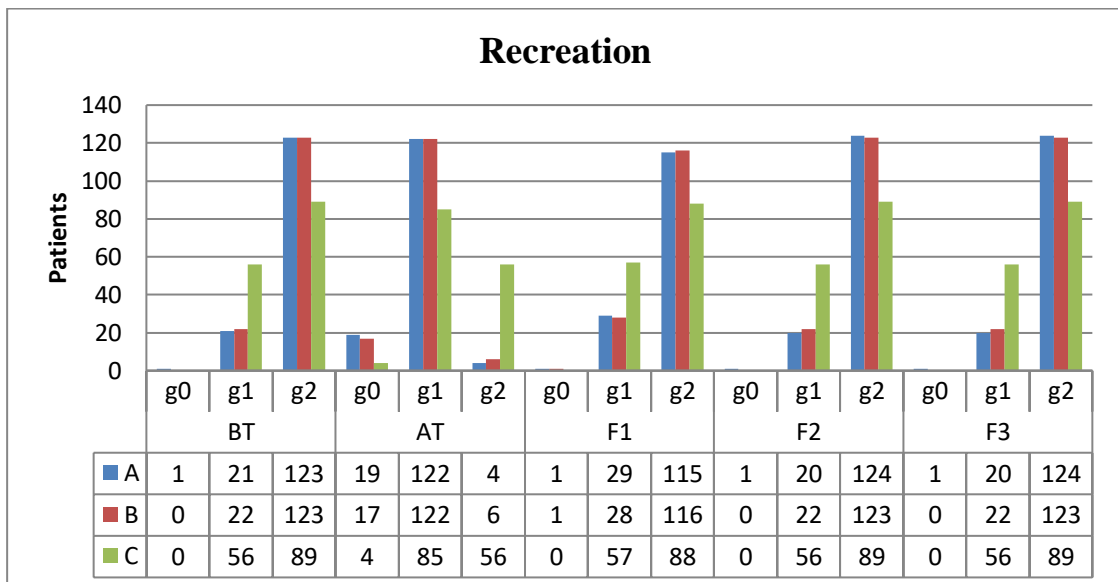
Recreation	Grades	Groups					
		A		B		C	
		n	%	n	%	n	%
BT	0	1	0.69	0	0.00	0	0.00
	1	21	14.48	22	15.17	56	38.62
	2	123	84.83	123	84.83	89	61.38
AT	0	19	13.10	17	11.72	4	2.76
	1	122	84.14	122	84.14	85	58.62
	2	4	2.76	6	4.14	56	38.62
F1	0	1	0.69	1	0.69	0	0.00
	1	29	20.00	28	19.31	57	39.31
	2	115	79.31	116	80.00	88	60.69

F2	0	1	0.69	0	0.00	0	0.00
	1	20	13.79	22	15.17	56	38.62
	2	124	85.52	123	84.83	89	61.38
F3	0	1	0.69	0	0.00	0	0.00
	1	20	13.79	22	15.17	56	38.62
	2	124	85.52	123	84.83	89	61.38

BT – Before Treatment AT – After Treatment F – Follow up n – Frequency

It was observed that majority of patients had a grade 2 at Before Treatment, which became grade 1 at After Treatment in all the three groups, which shows group A, B and C had similar results. In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

Graph No. 51 Recreation Observation



RESULTS

Statistical analysis

Statistical analysis was done by using Statistical Software: SPSS 17.0, MS-Excel

Data: Efficacy of the Group A, Group B and Group C, treatment for each of the assessment criteria was assessed by subjecting the pre & post-treatment data for the patients from all the three groups to Wilcoxon Paired Signed-Rank Test.

Comparison among Three Groups was done with the help of Kruskal Wallis Test. Since observations were on ordinal scale.

Statistical Test for Effectiveness Testing was done by Wilcoxon Paired Signed-Rank Test. This test was carried separately for each of the assessment criterion:

For all the statistical tests, $p < 0.05$ was considered to be statistically significant

Hypothesis

H0: There is no significant difference in effect of Nadisweda, Greevabasti and Control group in the management of Cervical Spondylosis.

H1: There is significant difference in effect of Nadisweda, Greevabasti and control group in the management of Cervical Spondylosis.

Table No. 78 Effect of Therapy on Neck Pain – Within Group

Neck Pain	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	0	2	2	2	-11.203 ^a	0.000	86.4	Significant
Group B	2	0	1	2	2	-11.107 ^a	0.000	89.6	Significant
Group C	2	1	2	2	2	-10.797 ^a	0.000	67.4	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control.

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3

Since observations were on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, Group B and Group C. It was observed that P-Values for all three groups were less than 0.05 hence it could be concluded that effect observed in all three groups were significant. Also, effect observed in Group A was 86.4%, Group B was 89.6% and Group C was 67.4%.

Graph No. 52 Effect of Therapy on Neck Pain – Within Group

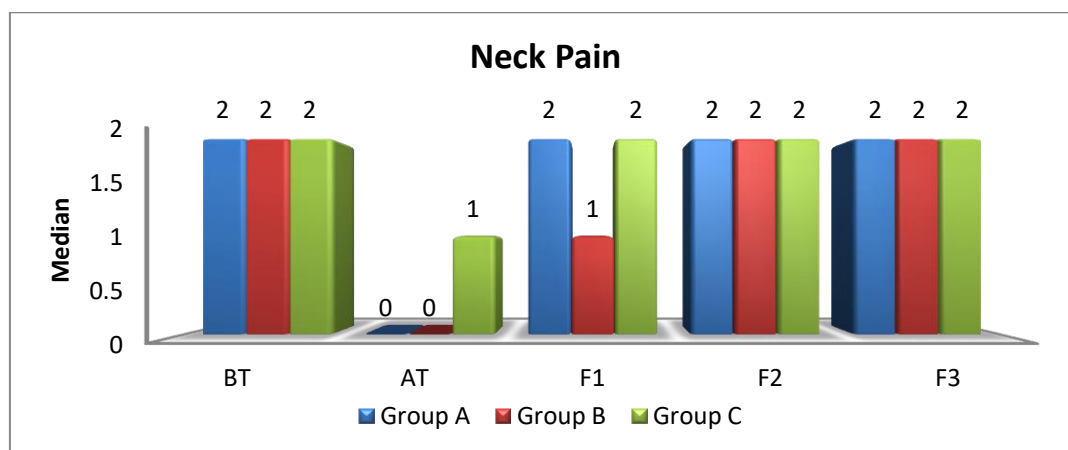


Table No. 79 Effect of therapy on Neck Pain - Group comparison

Group	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	252.38	134.684	0.000	Significant
Group B	145	265.64			
Group C	145	135.98			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale was applied. It was observed that P-Value was less than 0.05 hence there was significant difference in effect of three groups. Mean rank of Group B was highest followed by Group A & Group C which revealed, Group B was more effective followed by Group A & Group C.

Graph No. 53 Effect of therapy on Neck Pain - Group comparison

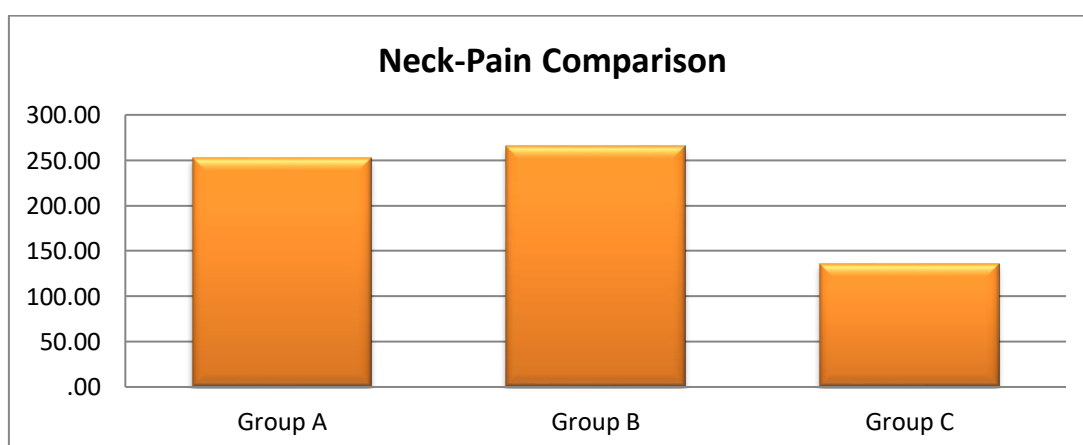


Table No. 80 Effect of therapy on Radiation of Pain – Within Group

Radiation of Pain	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	0	2	2	2	-9.830 ^a	0.000	63.9	Significant
Group B	2	0	1	2	2	-9.081 ^a	0.000	67.7	Significant
Group C	2	2	2	2	2	-5.445 ^a	0.000	14.6	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3

Since observations were on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, Group B and Group C. It was observed that P-Values for all three groups were less than 0.05 hence the effect observed in all three groups was significant. Effect observed in Group A was 63.9%, while in Group B & C was 67.7% & 14.6% respectively.

Graph No. 54 Effect of therapy on Radiation of Pain – Within Group

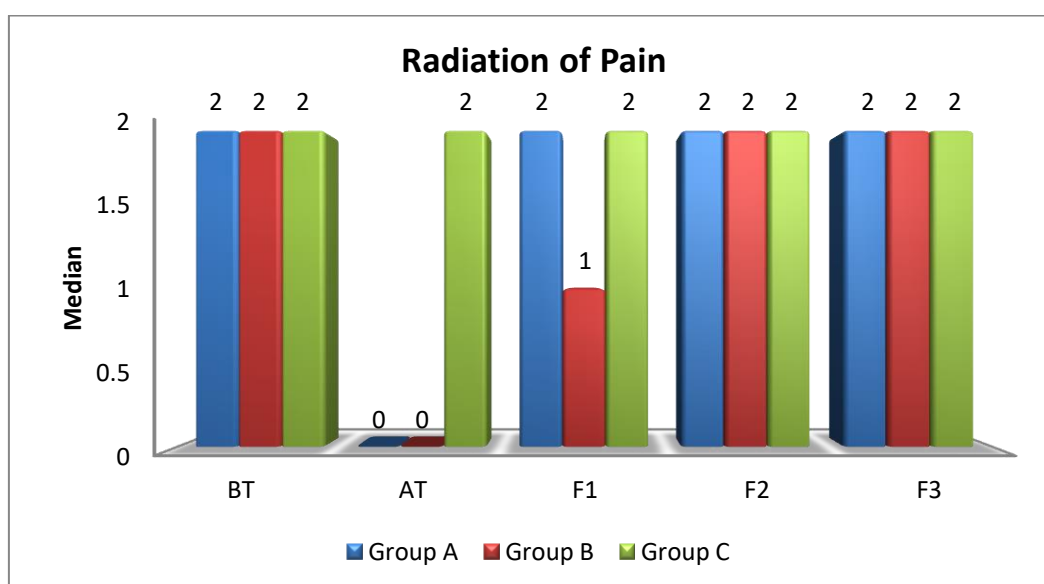


Table No. 81 Effect of therapy on Radiation of Pain - Group comparison

Radition of Pain	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	274.05	119.311	0.000	Significant
Group B	145	247.63			
Group C	145	132.32			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. It was observed that P-Value was less than 0.05 hence there was significant difference in effect of three groups. Mean rank of Group A was highest followed by Group B & Group C showing that Group A was more effective followed by Group B & Group C.

Graph No. 55 Effect of therapy on Radiation of Pain - Group comparison

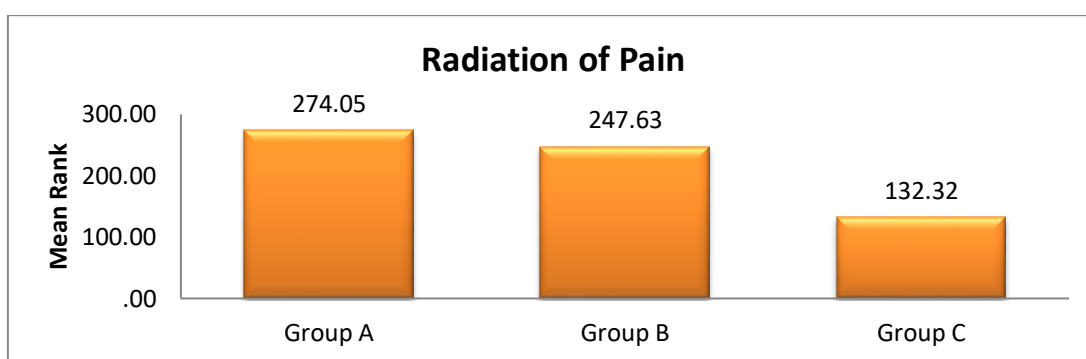


Table No. 82 Effect of therapy on Stiffness – Within Group

Stiffness	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	0	1	2	2	-8.690 ^a	0.000	74.6	Significant
Group B	2	0	1	2	2	-8.846 ^a	0.000	80.9	Significant
Group C	1	0	1	1	1	-6.909 ^a	0.000	42.9	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control
 BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3

Since observations are on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, Group B and Group C. It was observed that P-Values for all three groups were less than 0.05 hence the effect observed in all three groups were significant. Effect observed in Group A was 74.6%, Group B was 80.9% and in Group C was 42.9%.

Graph No. 56 Effect of therapy on Stiffness – Within Group

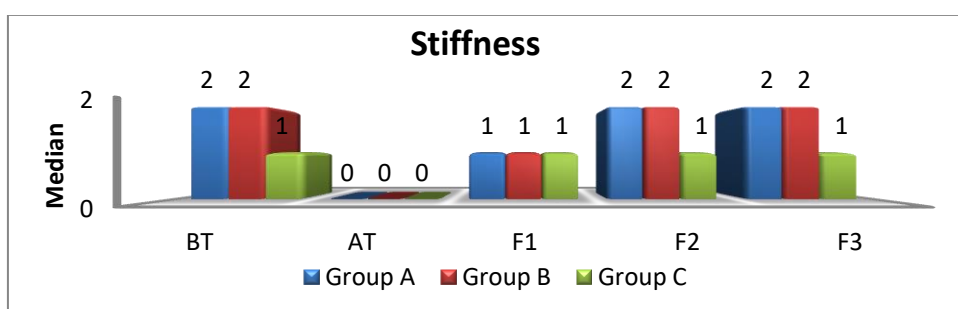


Table No. 83 Effect of therapy on Stiffness - Group comparison

Stiffness	N	Mean Rank	Kruskal Wallis H	P-Value
Group A	145	239.61	52.686	0.000
Group B	145	253.54		
Group C	145	160.85		
Total	435	-		

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

Kruskal Wallis test (Since data is on ordinal scale) was applied for comparison among three groups. It was observed that P-Value was less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group B was highest followed by Group A & Group C showing that Group B was more effective followed by Group A and Group C.

Graph No. 57 Effect of therapy on Stiffness - Group comparison

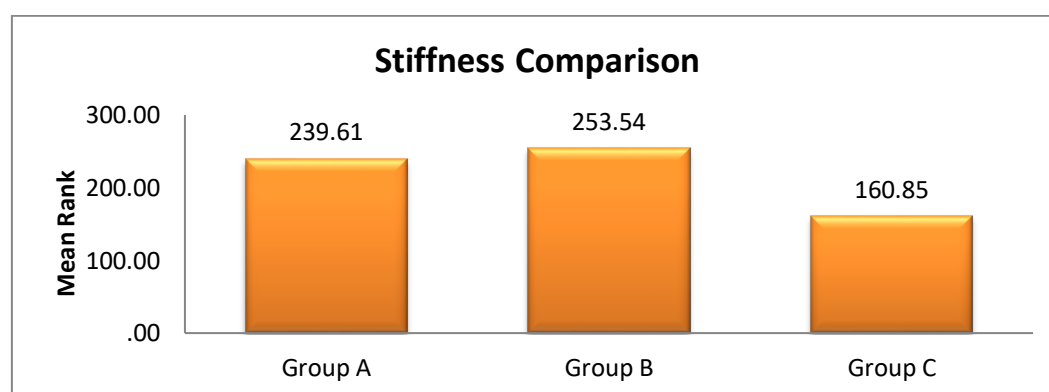


Table No. 84 Effect of therapy on Tingling Sensation – Within Group

Tingling Sensation	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	0	2	2	2	-9.066 ^a	0.000	71.1	Significant
Group B	2	0	1	2	2	-8.432 ^a	0.000	70.5	Significant
Group C	2	2	2	2	2	-3.557 ^a	0.000	7.4	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3

Since observations were on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, Group B and Group C. It was observed that P-Values for all three groups were less than 0.05 hence the effect observed in all three groups were

significant. The effect observed in Group A was 71.1% while in Group B & C it was 70.5% and 7.4% respectively.

Graph No. 58 Effect of therapy on Tingling Sensation – Within Group

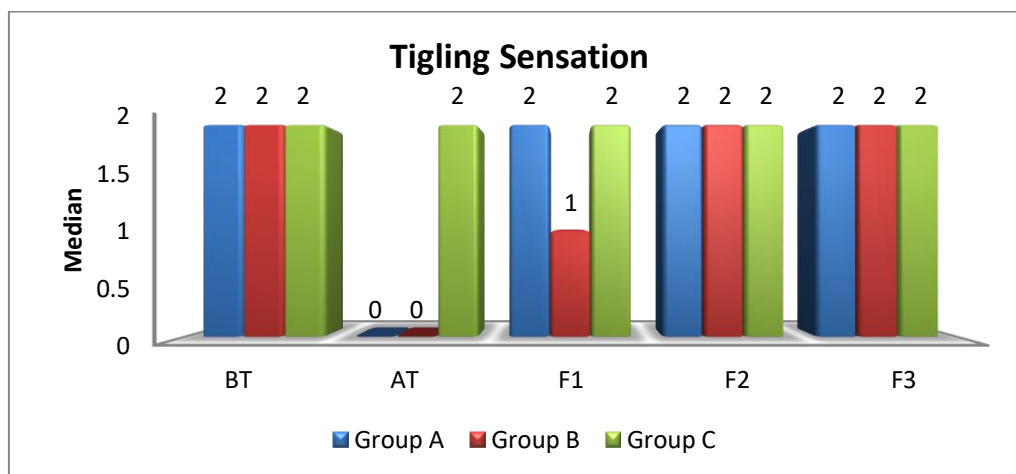


Table No. 85 Effect of therapy on Tingling Sensation - Group comparison

Tingling Sensation	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	270.16	123.869	0.000	Significant
Group B	145	251.32			
Group C	145	132.52			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. It was observed that P-Value was less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group A was highest followed by Group B & Group C showing that Group A was more effective followed by Group B and Group C.

Graph No. 59 Effect of therapy on Tingling Sensation - Group comparison

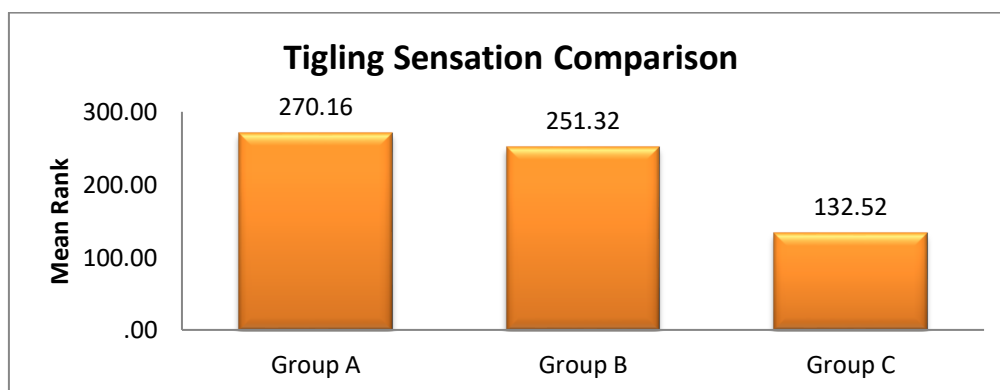


Table No. 87 Effect of therapy on Vertigo – Within Group

Vertigo	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	0	0	0	0	0	-1.000 ^a	0.317	33.3	NS
Group B	0	0	0	0	0	-1.000 ^a	0.317	33.3	NS
Group C	0	0	0	0	0	.000 ^b	1.000	0.0	NS

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3

NS – Not Significant

Since observations are on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, Group B and Group C. P-Values for all three groups were greater than 0.05 hence the effect observed in all three groups were not significant.

Graph No. 60 Effect of therapy on Vertigo – Within Group

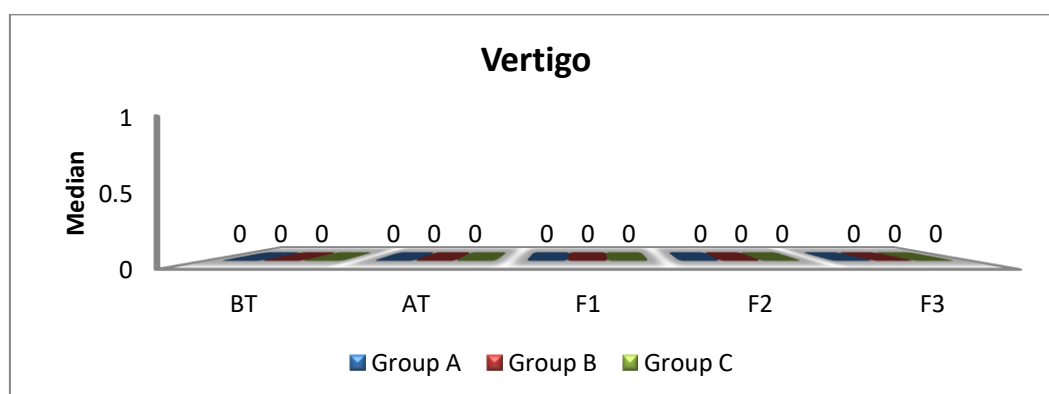


Table No. 87 Effect of therapy on Vertigo - Group comparison

Vertigo	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	218.50	1.002	0.606	Not Significant
Group B	145	218.50			
Group C	145	217.00			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

Kruskal Wallis test (Since data is on ordinal scale) was applied to compare the three groups. P-Value is more than 0.05 hence there was no significant difference in effect of three groups. The mean rank of Group A, B and C showing same mean rank which revealed that effect observed in all three groups were not significant.

Graph No. 61 Effect of therapy on Vertigo - Group comparison

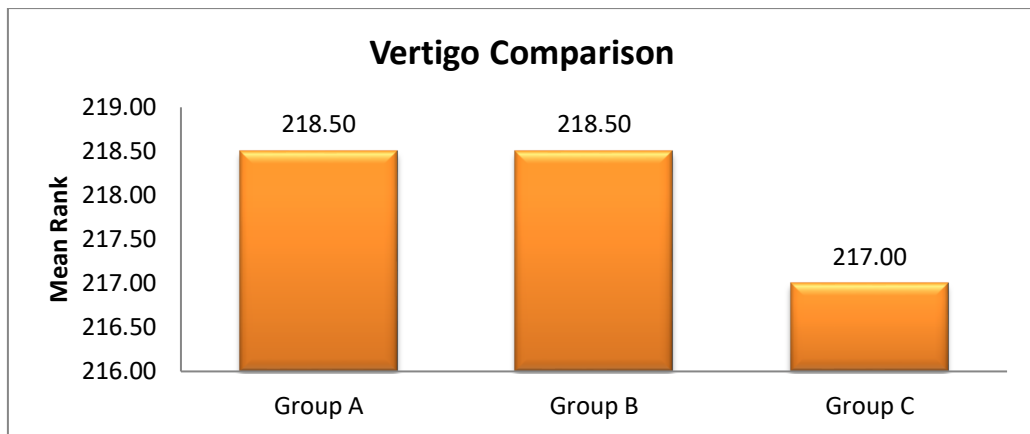


Table No. 88 Effect of therapy on Movements of Neck – Within Group

Movements of Neck	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	0	2	2	2	-10.410 ^a	0.000	74.7	Significant
Group B	2	0	2	2	2	-10.425 ^a	0.000	75.9	Significant
Group C	2	2	2	2	2	-4.663 ^a	0.000	14.7	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3
 Since observations are on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, Group B and Group C. It was observed that P-Values for all three groups were less than 0.05 hence the effect observed in all three groups were significant. Effect observed in Group A was 74.7%, Group B was 75.9% and Group C was 14.7%.

Graph No. 62 Effect of therapy on Movements of Neck – Within Group

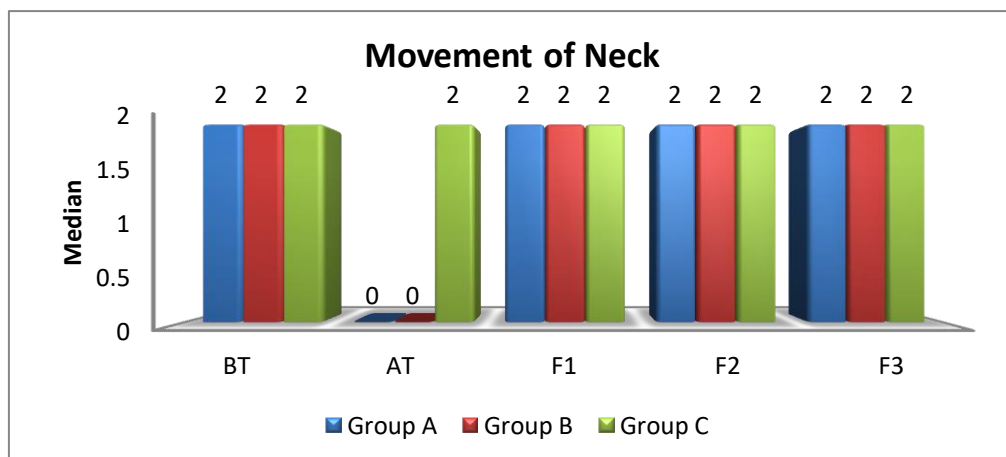


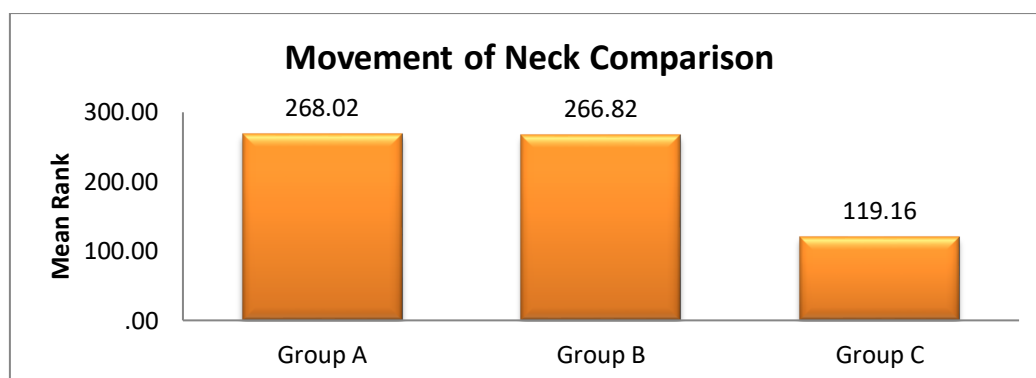
Table No. 89 Effect of therapy on Movements of Neck - Group comparison

Movements of Neck	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	268.02	168.025	0.000	Significant
Group B	145	266.82			
Group C	145	119.16			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. P-Value was less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group A was highest followed by Group B and Group C showing that Group A was more effective followed by Group B and Group C.

Graph No. 63 Effect of therapy on Movements of Neck - Group comparison



Neck Disability Index

Table No. 90 Effect of therapy on Pain Intensity – Within Group

Pain Intensity	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	0	1	2	2	-11.033 ^a	0.000	87.0	Significant
Group B	2	0	1	2	2	-11.182 ^a	0.000	88.3	Significant
Group C	2	1	2	2	2	-10.750 ^a	0.000	63.6	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3

Since observations are on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, Group B and Group C. It was observed that P-Values for

all three groups were less than 0.05 hence the effect observed in all three groups were significant. The effect observed in Group A was 87%, Group B was 88.3% and Group C was 63.6%.

Graph No. 64 Effect of therapy on Pain Intensity – Within Group

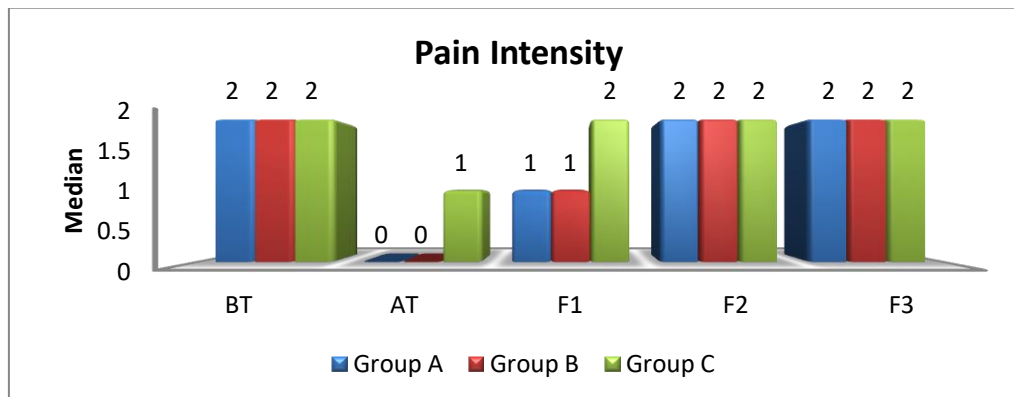


Table No. 91 Effect of therapy on Pain Intensity - Group comparison

Pain Intensity	N	Mean Rank	Kruskal Wallis H	P-Value
Group A	145	265.21	147.557	0.000
Group B	145	258.90		
Group C	145	129.89		
Total	435	-		

Group A – Nadisweda , Group B – Greevabasti, Group C – Control
 For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. It was observed that P-Value was less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group A was highest followed by Group B & Group C showing that Group A was more effective followed by Group B and Group C.

Graph No. 65 Effect of therapy on Pain Intensity - Group comparison

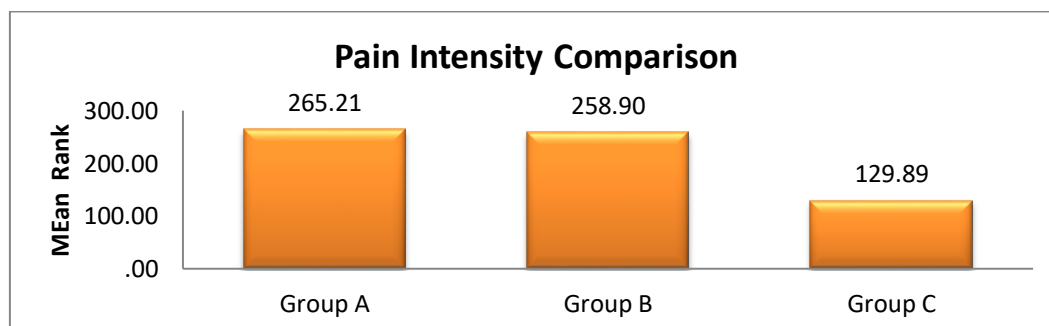


Table No. 92 Effect of therapy on Personal Care – Within Group

Personal Care	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	0	1	2	2	-10.756 ^a	0.000	77.0	Significant
Group B	2	1	2	2	2	-10.681 ^a	0.000	73.2	Significant
Group C	2	1	2	2	2	-9.489 ^a	0.000	35.5	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3
 Since observations were on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, B and C. It was observed that P-Values for all three groups were less than 0.05 hence the effect observed in all three groups were significant. The effect observed in Group A was 77%, while in Group B & C was 73.2% and 35.5% respectively.

Graph No. 66 Effect of therapy on Personal Care – Within Group

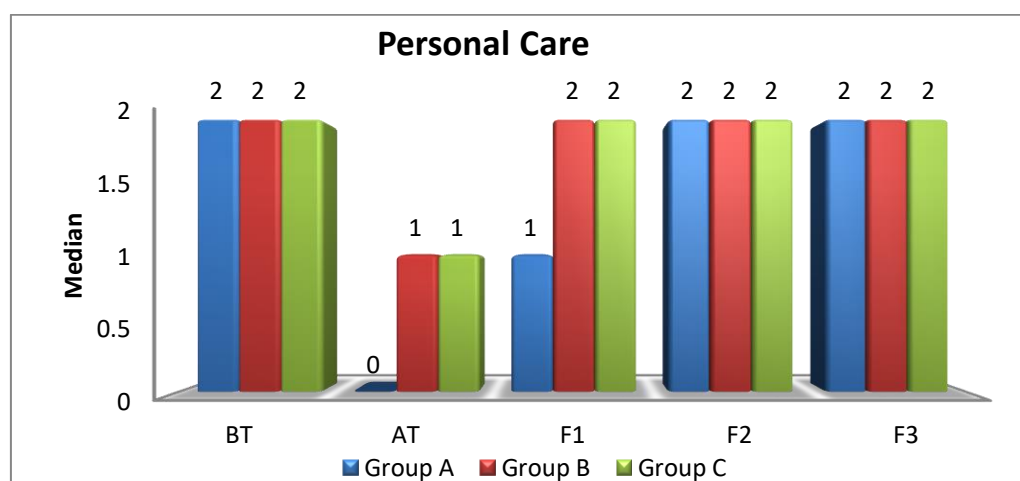


Table No. 93 Effect of therapy on Personal Care - Group comparison

Personal Care	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	275.15	154.467	0.000	Significant
Group B	145	257.23			
Group C	145	121.61			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. It was observed that P-Value was less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group A was

highest followed by Group B & Group C showing that Group A was more effective followed by Group B and Group C.

Graph No. 67 Effect of therapy on Personal Care - Group comparison

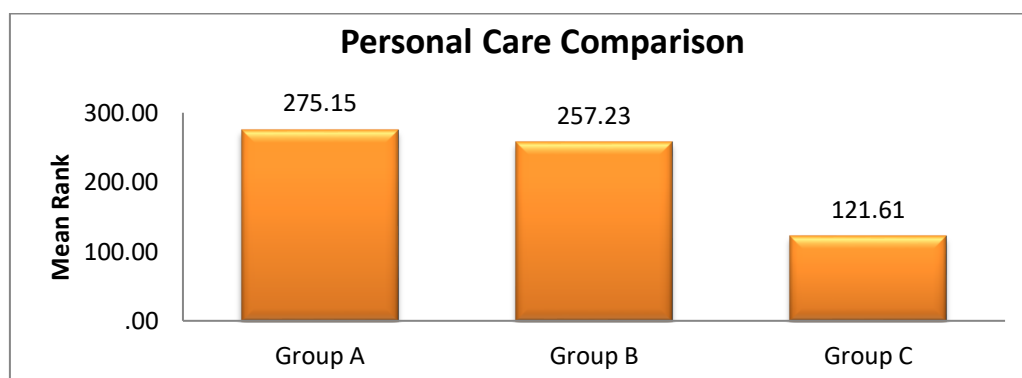


Table No. 94 Effect of therapy on Lifting – Within Group

Lifting	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	1	2	2	2	-10.948 ^a	0.000	63.3	Significant
Group B	2	1	2	2	2	-10.820 ^a	0.000	66.1	Significant
Group C	2	1	2	2	2	-8.170 ^a	0.000	26.8	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3

Since observations were on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, B and C. P-Values for all three groups were less than 0.05 hence the effect observed in all three groups were significant. The effect observed in Group A was 63.3%, while in Group B & C it was 66.1% and 26.8% respectively.

Graph No. 68 Effect of therapy on Lifting – Within Group

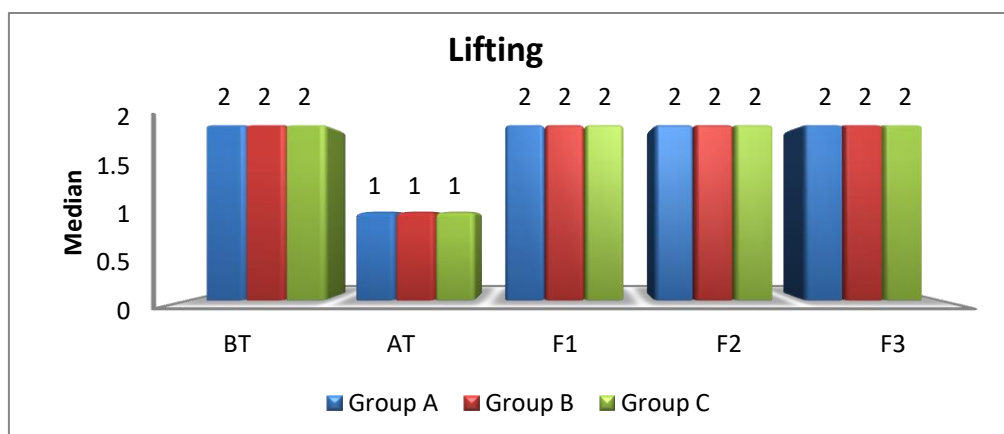


Table No. 95 Effect of therapy on Lifting - Group comparison

Lifting	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	256.37	149.050	0.000	Significant
Group B	145	270.51			
Group C	145	127.13			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. P-Value is less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group B was highest followed by Group A & Group C showing that Group B was more effective followed by Group A and Group C.

Graph No. 69 Effect of therapy on Lifting - Group comparison

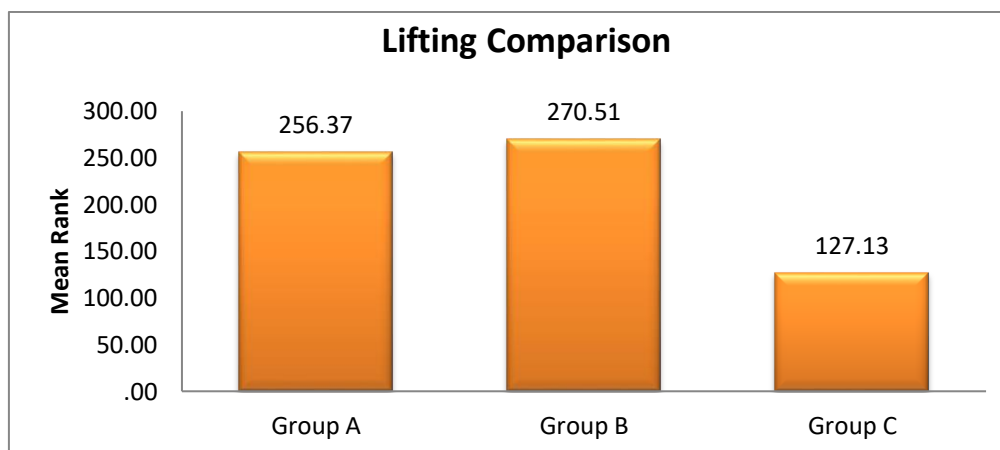


Table No. 96 Effect of therapy on Reading – Within Group

Reading	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	1	2	2	2	-10.909 ^a	0.000	61.4	Significant
Group B	2	1	2	2	2	-10.794 ^a	0.000	63.7	Significant
Group C	2	2	2	2	2	-8.065 ^a	0.000	26.5	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3

Since observations were on ordinal scale, Wilcoxon Signed Rank test was used to test the efficacy in Group A, B and C. It was observed that P-Values for all three groups were less than 0.05 hence the effect observed in all three groups were significant. The effect observed in Group A was 61.4%, in Group B 63.7% and Group C was 26.5%.

Graph No. 70 Effect of therapy on Reading – Within Group

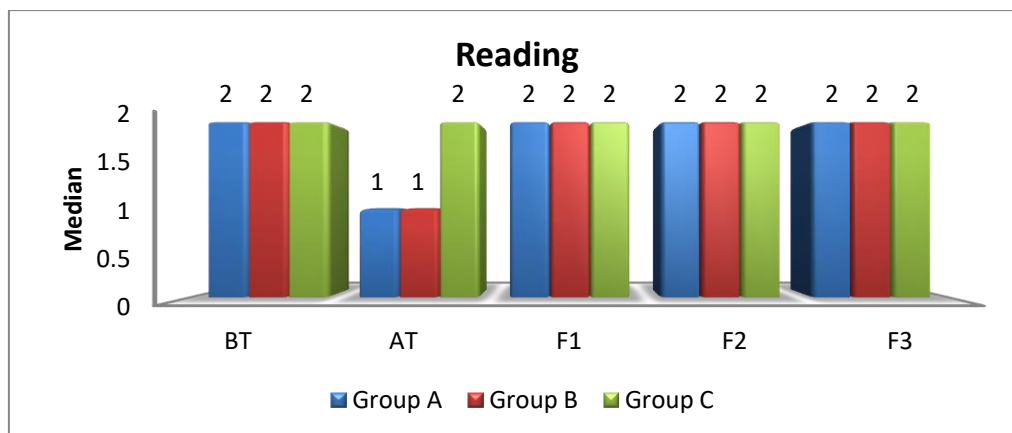


Table No. 97 Effect of therapy on Reading - Group comparison

Reading	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	257.89	132.226	0.000	Significant
Group B	145	263.34			
Group C	145	132.76			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. P-Value was less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group B was highest followed by Group A & Group C showing that Group B was more effective followed by Group A and Group C.

Graph No. 71 Effect of therapy on Reading - Group comparison

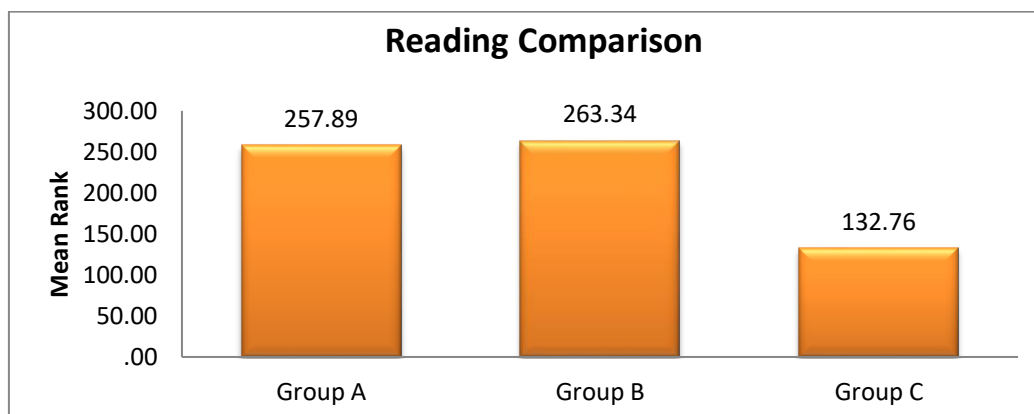


Table No. 98 Effect of therapy on Headache – Within Group

Headache	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	0	0	0	0	0	-1.890 ^a	0.059	62.5	NS
Group B	0	0	0	0	0	-1.732 ^a	0.083	75.0	NS
Group C	0	0	0	0	0	-2.236 ^a	0.053	55.6	NS

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3

NS – Not Significant

Since observations were on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, B and C. It was observed that P-Values for all three groups were greater than 0.05 hence the effect observed in all three groups were not significant.

Graph No. 72 Effect of therapy on Headache – Within Group

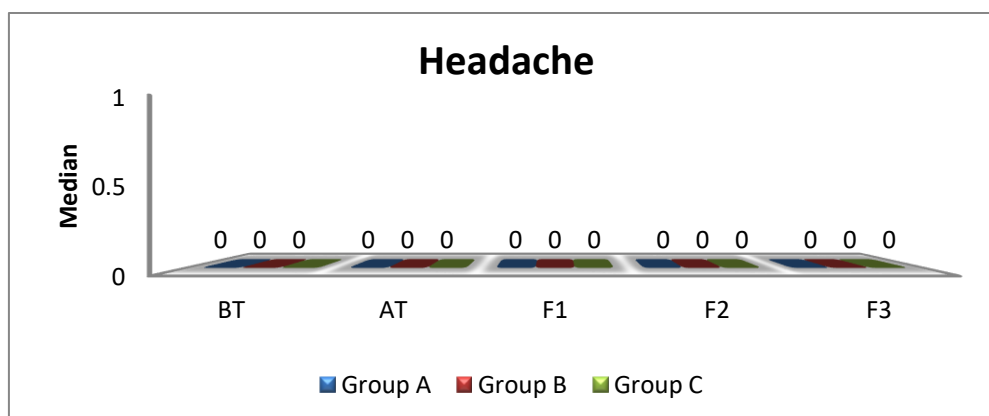


Table No. 99 Effect of therapy on Headache - Group comparison

Headache	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	218.03	0.511	0.775	Not Significant
Group B	145	216.49			
Group C	145	219.48			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data was on ordinal scale) was applied. P-Value was greater than 0.05 hence the P-Values for all three

groups were greater than 0.05 hence the effect observed in all three groups were not significant. Hence these therapies were not effective in variable headache.

Graph No. 73 Effect of therapy on Headache - Group comparison

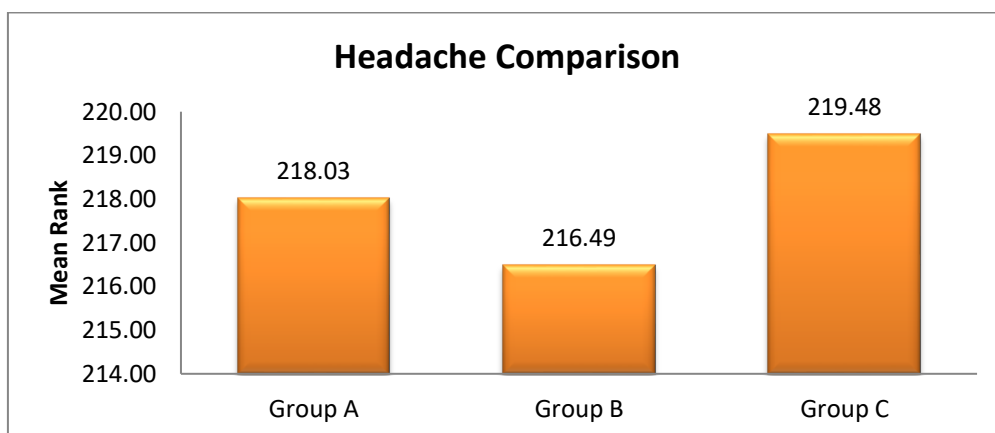


Table No. 100 Effect of therapy on Concentration – Within Group

Concentration	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	1	2	2	2	-11.049 ^a	0.000	58.9	Significant
Group B	2	1	2	2	2	-10.803 ^a	0.000	64.5	Significant
Group C	2	1	2	2	2	-9.252 ^a	0.000	33.1	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3
 Since observations were on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, B and C. It was observed that P-Values for all three groups were less than 0.05 hence the effect observed in all three groups were significant. The effect observed in Group A was 58.9%, in B it was 64.5% and in Group C was 33.1%.

Graph No. 74 Effect of therapy on Concentration – Within Group

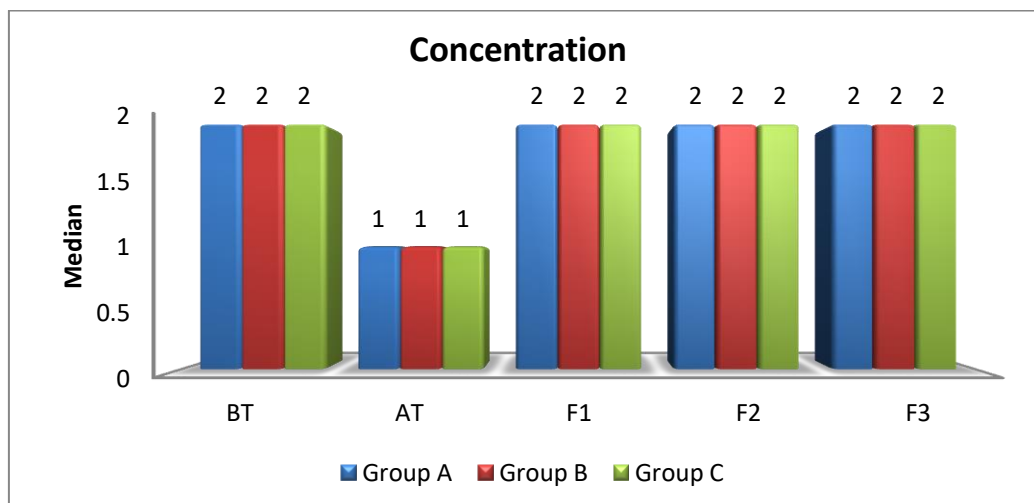


Table No. 101 Effect of therapy on Concentration - Group comparison

Concentration	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	245.34	105.069	0.000	Significant
Group B	145	262.47			
Group C	145	146.19			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. It was observed that P-Value was less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group B was highest followed by Group A & Group C showing that Group B was more effective followed by Group A and Group C.

Graph No. 75 Effect of therapy on Concentration - Group comparison

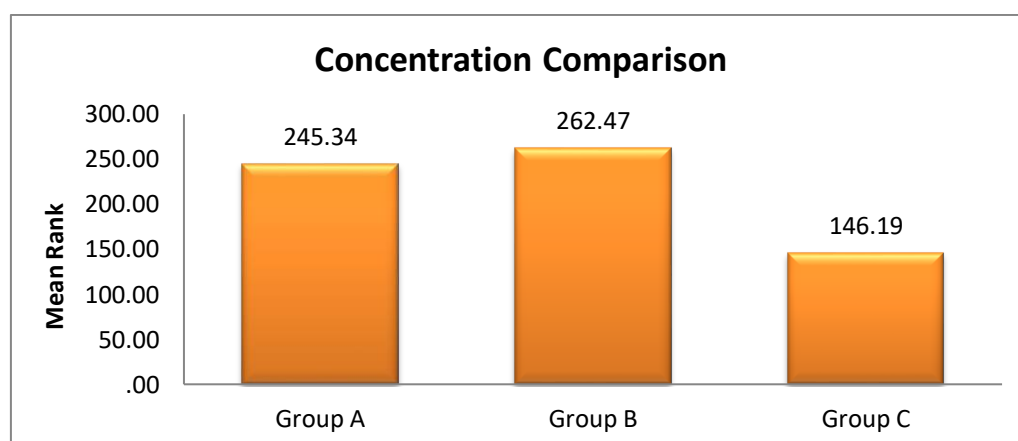


Table No. 102 Effect of therapy on Work – Within Group

Work	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	0	1	2	2	-10.836 ^a	0.000	84.5	Significant
Group B	2	0	1	2	2	-11.006 ^a	0.000	88.1	Significant
Group C	2	1	2	2	2	-10.596 ^a	0.000	61.3	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3
 Since observations were on ordinal scale, Wilcoxon Signed Rank test was used to test the efficacy in Group A, B & C. It was observed that P-Values for all three groups were less than 0.05 hence the effect observed in all three groups were significant. The effect observed in Group A was 84.5%, in Group B was 88.1% and in Group C was 61.3%.

Graph No. 76 Effect of therapy on Work – Within Group

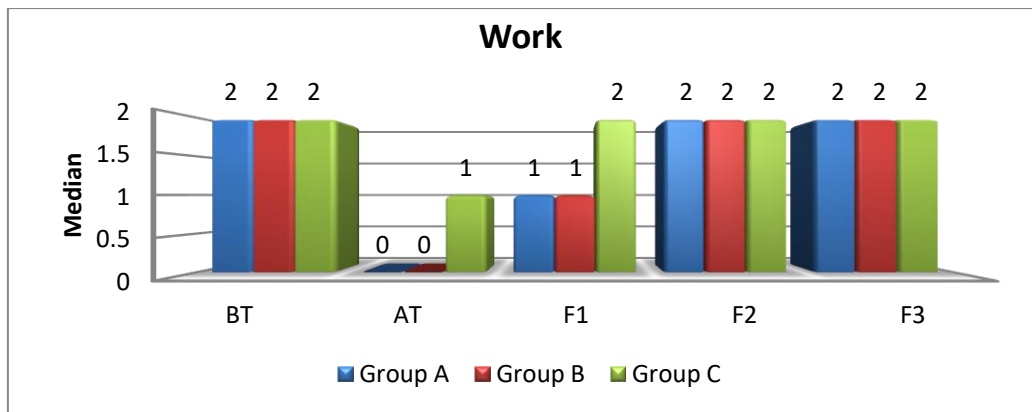


Table No. 103 Effect of therapy on Work - Group comparison

Work	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	251.31	101.475	0.000	Significant
Group B	145	260.32			
Group C	145	142.36			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. It was observed that P-Value is less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group B was highest followed by Group A & Group C showing that Group B was more effective followed by Group A and Group C.

Graph No. 77 Effect of therapy on Work - Group comparison

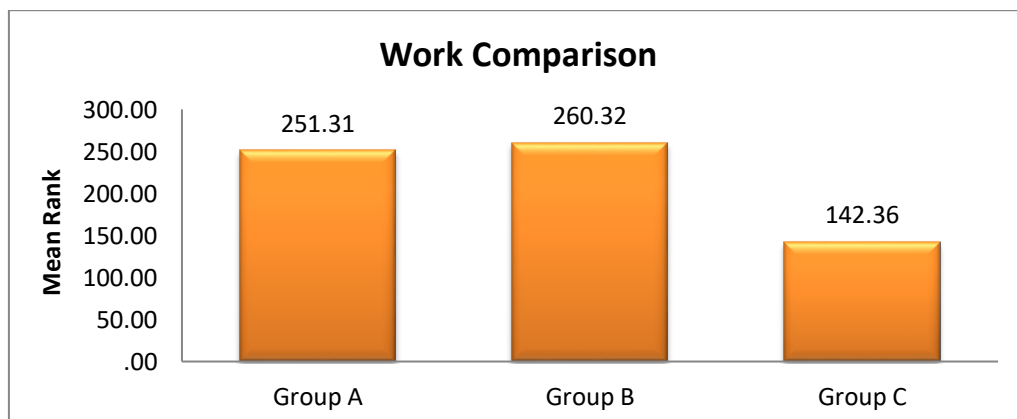


Table No. 104 Effect of therapy on Driving – Within Group

Driving	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	1	2	2	2	-11.042 ^a	0.000	60.3	Significant
Group B	2	1	2	2	2	-11.085 ^a	0.000	61.9	Significant
Group C	2	1	2	2	2	-8.277 ^a	0.000	28.0	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3
 Since observations were on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, B and C. P-Values for all three groups were less than 0.05 hence the effect observed in all three groups were significant. The effect observed in Group A was 60.3%, Group B was 61.9% and in Group C was 28%.

Graph No. 78 Effect of therapy on Driving – Within Group

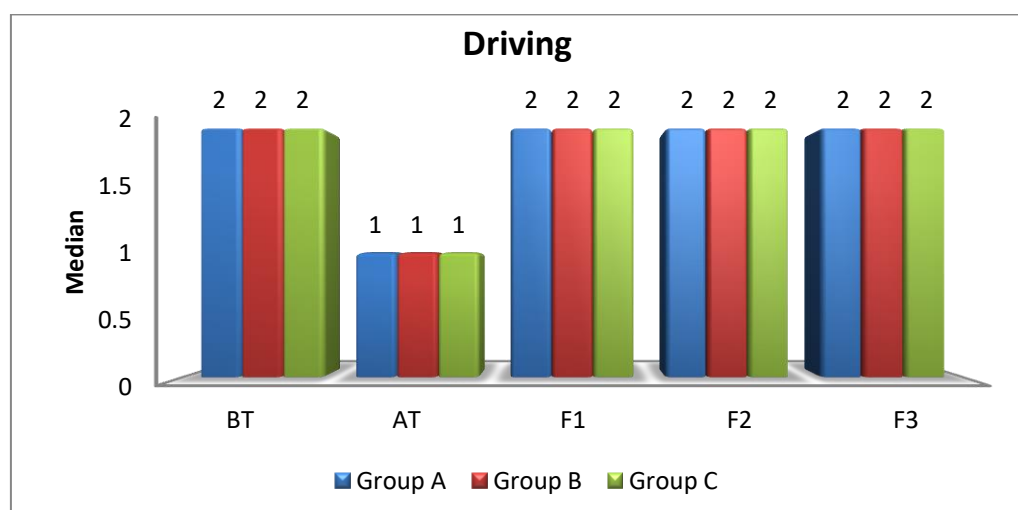


Table No. 105 Effect of therapy on Driving - Group comparison

Driving	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	258.11	133.282	0.000	Significant
Group B	145	259.39			
Group C	145	136.51			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. P-Value is less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group B was highest followed by Group A & Group C showing that Group B was more effective followed by Group A and Group C.

Graph No. 79 Effect of therapy on Driving - Group comparison

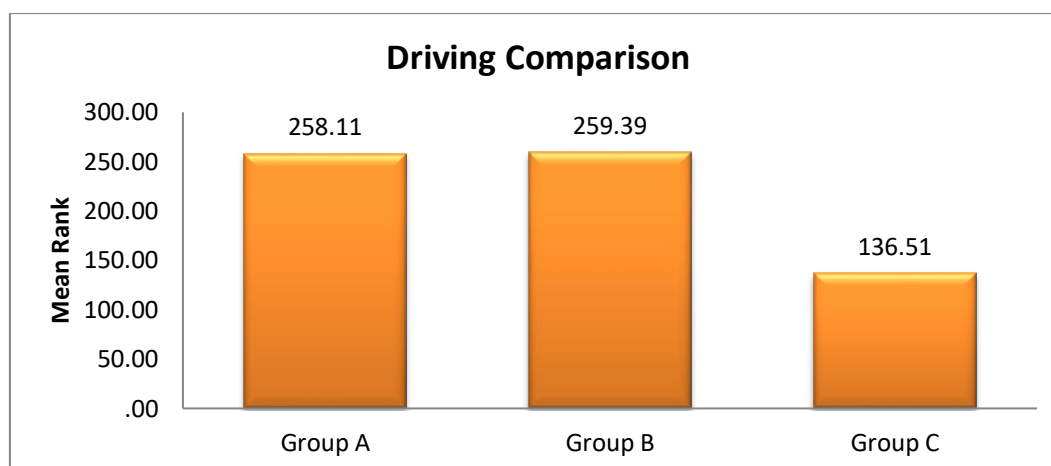


Table No. 106 Effect of therapy on Sleeping – Within Group

Sleeping	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	1	2	2	2	-10.271 ^a	0.000	61.5	Significant
Group B	2	1	2	2	2	-10.095 ^a	0.000	63.0	Significant
Group C	2	1	2	2	2	-6.563 ^a	0.000	23.3	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3

Since observations were on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, B and C. P-Values for all three groups were less than 0.05 hence the effect observed in all three groups were significant. The effect observed in Group A was 61.5%, Group B was 63% and Group C was 23.3%.

Graph No. 80 Effect of therapy on Sleeping – Within Group

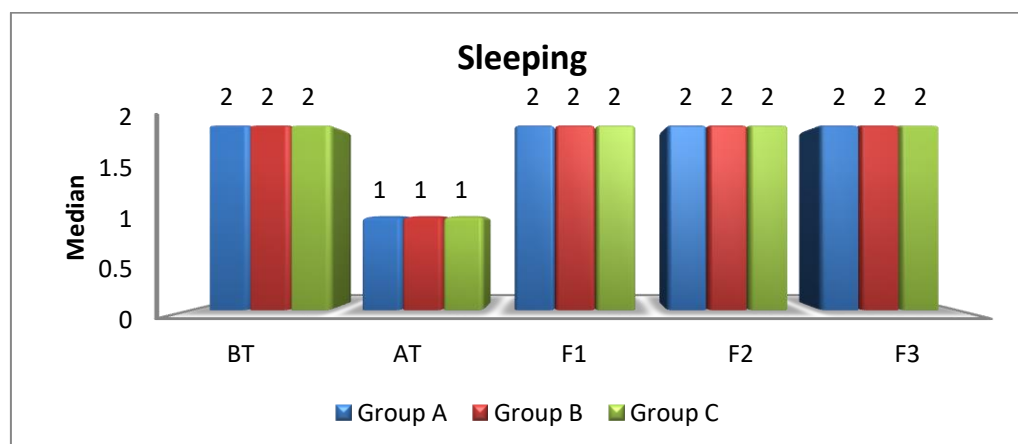


Table No. 107 Effect of therapy on Sleeping - Group comparison

Sleeping	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	260.83	118.626	0.000	Significant
Group B	145	259.90			
Group C	145	133.27			
Total	435				

Group A – Nadisweda , Group B – Greevabasti, Group C – Control
 For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. P-Value was less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group A was highest followed by Group B & Group C showing that Group A was more effective followed by Group B and Group C.

Graph No. 81 Effect of therapy on Sleeping - Group comparison

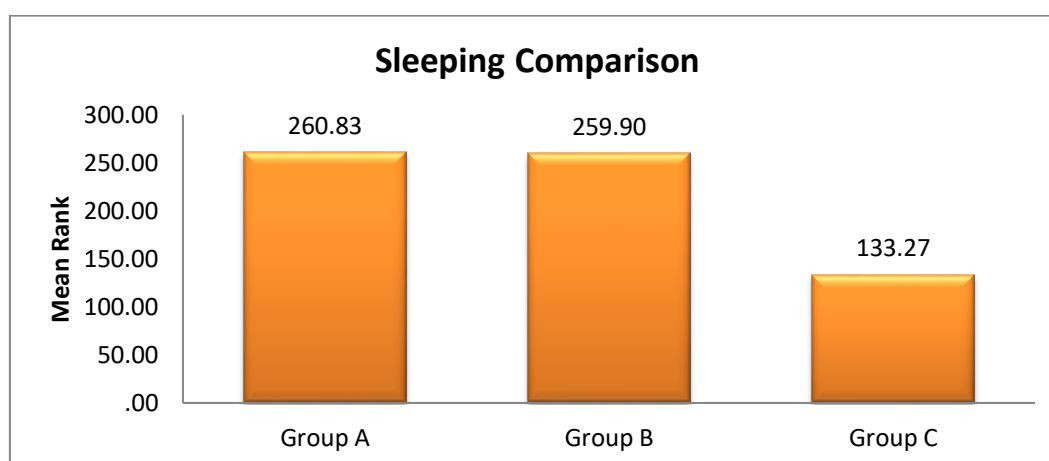


Table No. 108 Effect of therapy on Recreation – Within Group

Recreation	Median					Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT	F1	F2	F3				
Group A	2	1	2	2	2	-11.207 ^a	0.000	51.3	Significant
Group B	2	1	2	2	2	-10.991 ^a	0.000	50.0	Significant
Group C	2	1	2	2	2	-6.083 ^a	0.000	15.8	Significant

Group A – Nadisweda , Group B – Greevabasti, Group C – Control
 BT – Before Treatment, AT – After Treatment, F1– Follow up 1, Follow up 2, Follow up 3
 Since observations were on ordinal scale, Wilcoxon Signed Rank test was applied to test the efficacy in Group A, B and C. It was observed that P-Values for all three groups were less than 0.05 hence the effect observed in all three groups were significant. The effect observed in Group A was 51.3%, Group B was 50% and Group C was 15.8%.

Graph No. 82 Effect of therapy on Recreation – Within Group

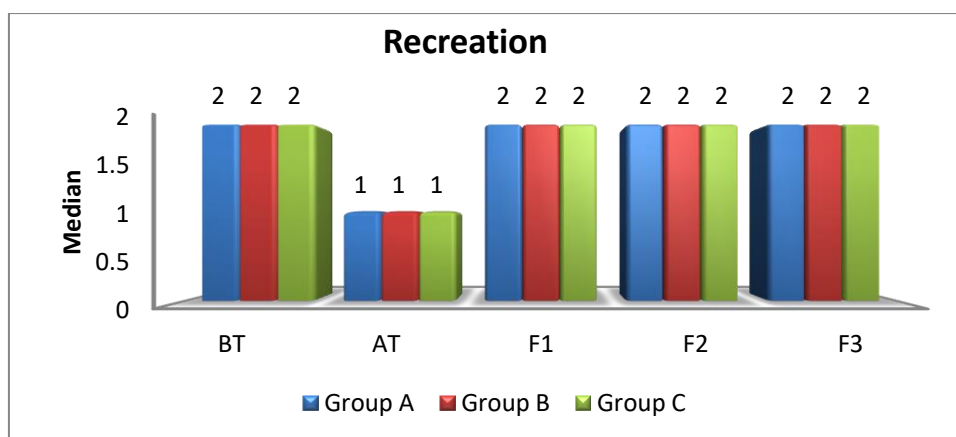


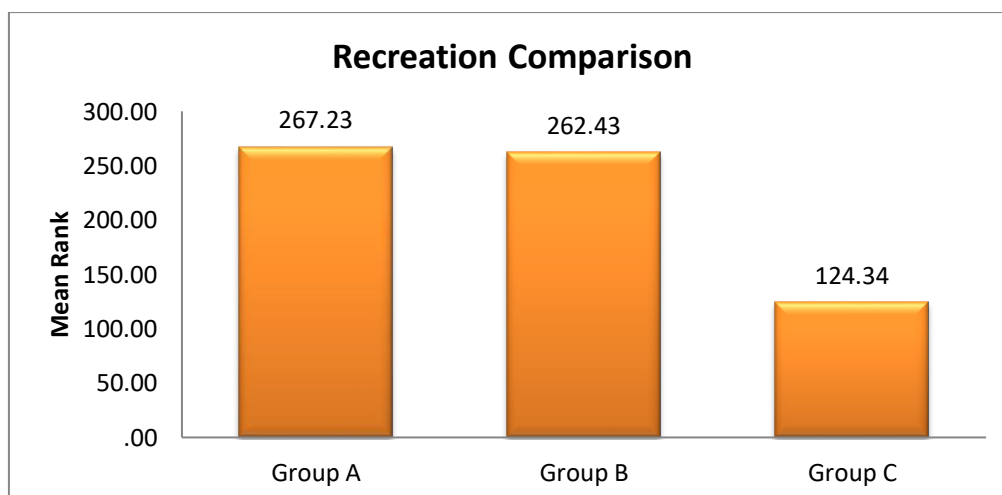
Table No. 109 Effect of therapy on Recreation - Group comparison

Recreation	N	Mean Rank	Kruskal Wallis H	P-Value	Result
Group A	145	267.23	174.044	0.000	Significant
Group B	145	262.43			
Group C	145	124.34			
Total	435	-			

Group A – Nadisweda , Group B – Greevabasti, Group C – Control

For comparison among three groups, Kruskal Wallis test (Since data is on ordinal scale) was applied. P-Value was less than 0.05 hence there was significant difference in effect of three groups. The mean rank of Group A was highest followed by Group B & Group C showing that Group A was more effective followed by Group B and Group C.

Graph No. 83 Effect of therapy on Recreation - Group comparison



After the analysis of data Using Wilcoxon Signed Rank test and Kruskal Wallis test. We rejected the null hypothesis at 5 % level of significance (since P-Value <0.05) for all parameters except vertigo and headache.

Hence there was significant difference in the effect of Nadisweda, Greevabasti and NSAID in the management of Cervical Spondylosis.

Table No. 110 Percentage wise relief in subjective parameter

Parameters	Group A	Group B	Group C
Neck Pain	86.4	89.6	67.4
Radiation of Pain	63.9	67.7	14.6
Stiffness	74.6	80.9	42.9
Tingling Sensation	71.1	70.5	7.4
Vertigo	33.3	33.3	0.0
Movements of Neck	74.7	75.9	14.7

In Neck pain maximum relief was seen in Greevabasti i.e. 89.6 %, Nadisweda group showed 86.4 % while Control group showed less relief i.e. 67.4%. In radiation of pain greevabasti showed maximum relief i.e. 67.7%, Nadisweda showed 63.9% relief while Control group showed only 14.6% relief. Greevabasti showed maximum relief i.e. 80.9% in stiffness, Nadisweda showed 74.6% while control group showed 42.9% relief. Nadisweda showed best result in tingling sensation i.e. 71.1%, Greevabasti showed 70.5% while control group showed only 7.4% relief. In vertigo both Nadisweda and Greevabasti showed same relief i.e. 33.3% while control group showed 0 % relief. 75.9% relief showed by Greevabasti in movements of neck, Nadisweda revealed 74.7% while control group revealed only 14.7% relief.

Graph No. 84 Percentage wise relief in subjective parameter

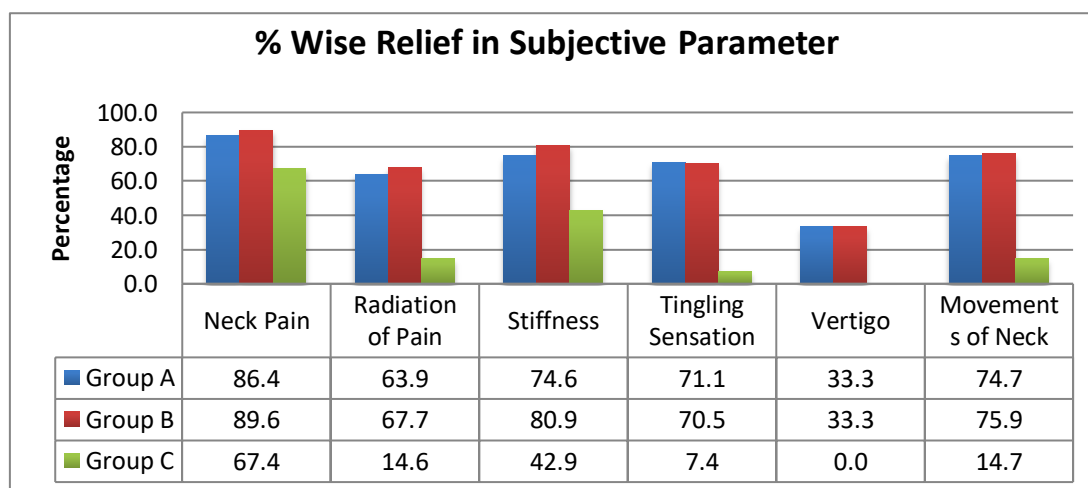


Table No. 111 Percentage wise relief in Neck Disability Index

Neck Disability Index	Group A	Group B	Group C
Pain Intensity	87.0	88.3	63.6
Personal Care	77.0	73.2	35.5
Lifting	63.3	66.1	26.8
Reading	61.4	63.7	26.5
Headache	62.5	75.0	55.6
Concentration	58.9	64.5	33.1
Work	84.5	88.1	61.3
Driving	60.3	61.9	28.0
Sleeping	61.5	63.0	23.3
Recreation	51.3	50.0	15.8

In pain intensity Nadisweda showed maximum relief i.e. 87%, Greevabasti showed 88.3% while control group showed 63.6% relief. Nadisweda showed 77% relief in personal care, 73.2% showed by Greevabasti while control group showed 35.5 %. Greevabasti showed maximum relief in lifting i.e. 66.1%, Nadisweda showed 63.3% while 26.8% relief showed by control group. In reading Greevabasti showed 63.7% relief, Nadisweda showed 61.4% while control group showed 26.5 % relief. Greevabasti showed 75% relief in headache, Nadisweda showed 62.5% while control group showed 55.6% relief. In concentration Greevabasti showed 64.5% relief, Nadisweda showed 58.9% while control group showed 33.1% relief. 88.1% relief showed by Greevabasti in work, Nadisweda showed 84.5% while 61.3 % showed by control group. In driving Greevabasti showed 61.9% relief, Nadisweda showed 60.3% while 28% relief showed by control group. Greevabasti showed 63% relief in sleeping, Nadisweda showed 61.5% relief while control group showed 23.3% relief. In recreation Nadisweda showed 51.3% relief, Greevabasti showed 50% relief while control group showed only 15.8% relief.

Graph No. 85 Percentage wise relief in Neck Disability Index

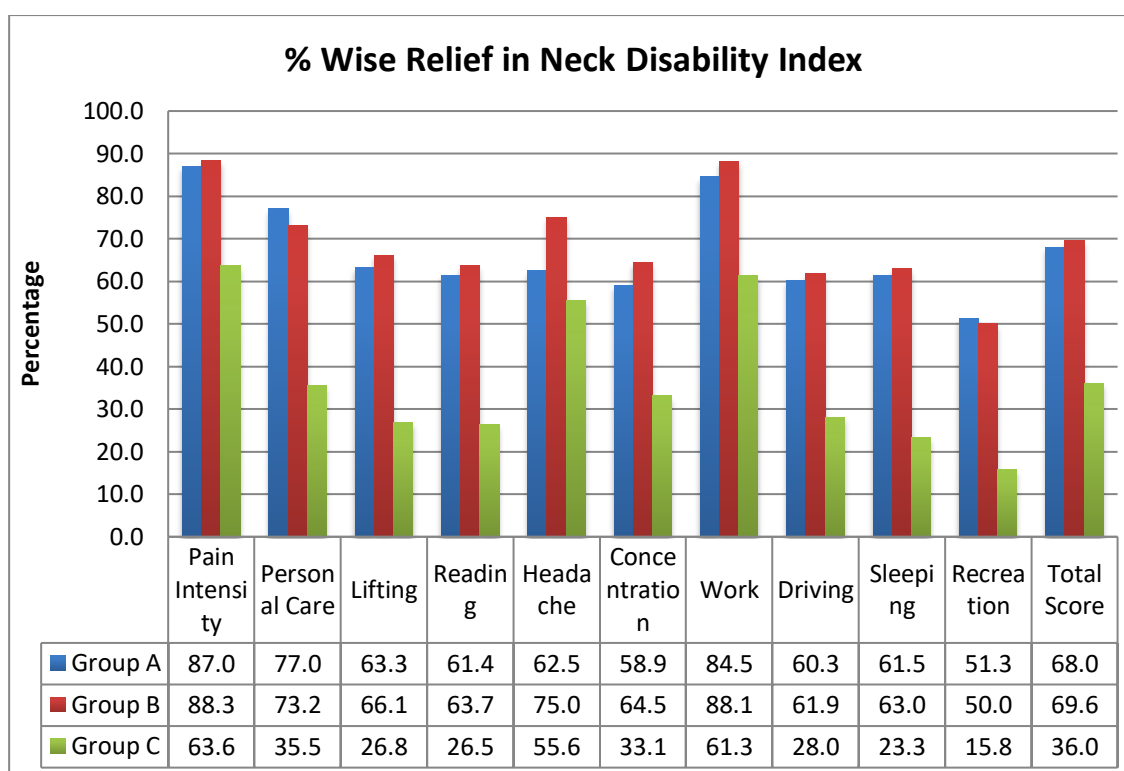


Table No. 112 Total score of Level of Disability - Group A

Score	Level of Disability	BT		AT		F1		F2		F3	
		N	%	N	%	N	%	N	%	N	%
0--4	No Disability	0	0	38	26.2	0	0	0	0	0	0
5--14	Mild Disability	5	3.44	107	73.8	63	43.4	5	3.44	5	3.44
15-24	Moderate Disability	140	96.5	0	0	82	56.5	140	96.5	140	96.5
25-34	Severe Disability	0	0	0	0	0	0	0	0	0	0
35-50	Complete Disability	0	0	0	0	0	0	0	0	0	0

In Group A, before treatment No disability was not observed in any of the patients, mild disability was observed in 5(3.44%) patients, moderate disability was observed in 140 (96.56%) patients, severe disability was observed in 0 (0%) patients and complete disability was observed in 0 (0%) patients.

After treatment, No disability was observed in 38 (26.2%) patients, mild disability was observed in 107(73.8%) patients, moderate disability was observed in 0 (0%) patients, severe disability was observed in 0 (0%) patients and complete disability was observed in 0 (0%) patients.

At First Follow Up, No disability was observed in 0 (0%) patients, mild disability was observed in 63 (43.44%) patients, moderate disability was observed in 82 (56.56%) patients, severe disability was observed in 0 (0%) patients and complete disability was observed in 0 (0%) patients.

At Second Follow Up, No disability was observed in 0 (0%) patients, mild disability was observed in 5 (3.44%) patients, moderate disability was observed in 82 (96.56%) patients, severe disability was observed in 0 (0%) patients and complete disability was observed in 0 (0%) patients.

At Third Follow Up, No disability was observed in 0 (0%) patients, mild disability was observed in 5 (3.44%) patients, moderate disability was observed in 82 (96.56%) patients, severe disability was observed in 0 (0%) patients and complete disability was observed in 0 (0%) patients

Graph No. 86 Total score of Level of Disability - Group A

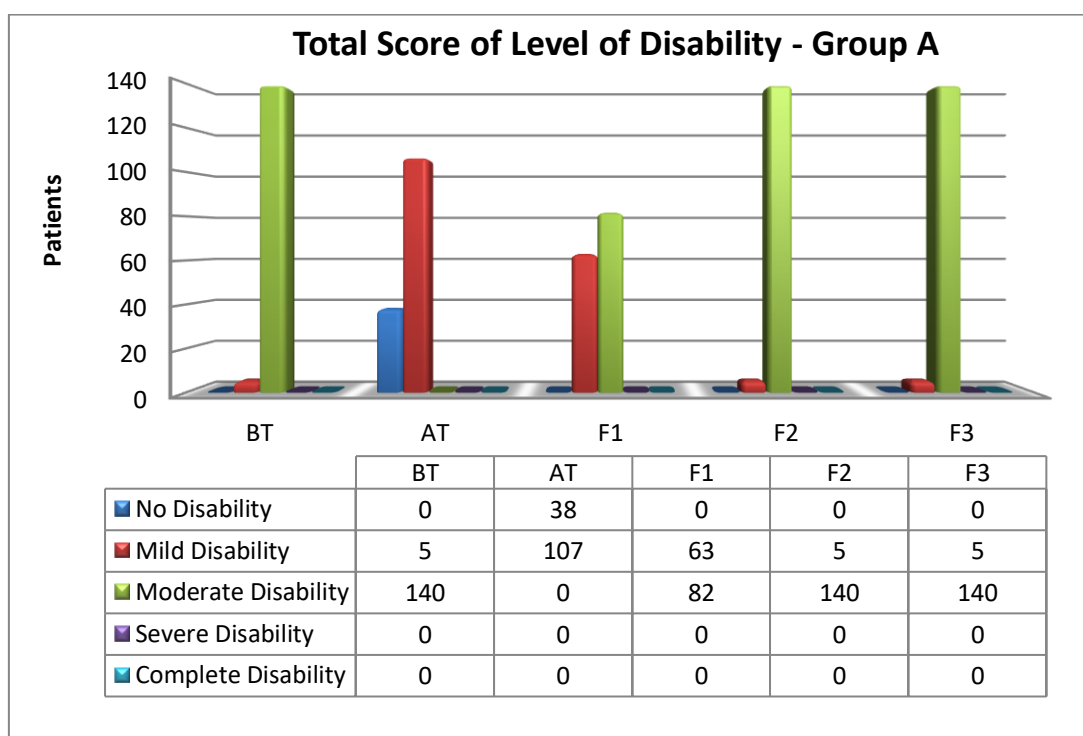


Table No. 113 Total score of Level of Disability - Group B

Score	Level of Disability	BT		AT		F1		F2		F3	
		N	%	N	%	N	%	N	%	N	%
0--4	No Disability	0	0	50	34.4	0	0	0	0	0	0
5--14	Mild Disability	3	2.06	95	65.6	77	53.1	3	2.06	3	2.06
15-24	Moderate Disability	141	97.2	0	0	68	46.8	141	97.2	141	97.2
25-34	Severe Disability	1	0.68	0	0	0	0	1	0.68	1	0.68
35-50	Complete Disability	0	0	0	0	0	0	0	0	0	0

In Group B, before treatment No disability was not observed in any of the patients, mild disability was observed in 3(2.06%) patients, moderate disability was observed in 141 (97.2%) patients, severe disability was observed in 1 (0.68%) patient and complete disability was observed in 0 (0%) patients.

After treatment, No disability was observed in 50 (34.4%) patients, mild disability was observed in 95 (65.6%) patients, moderate disability was observed in 0 (0%) patients, severe disability was observed in 0 (0%) patients and complete disability was observed in 0 (0%) patients.

At First Follow Up, No disability was observed in 0 (0%) patients, mild disability was observed in 77 (53.1%) patients, moderate disability was observed in 68 (46.9%) patients, severe disability was observed in 0 (0%) patients and complete disability was observed in 0 (0%) patients.

At Second Follow Up, No disability was observed in 0 (0%) patients, mild disability was observed in 3 (2.06%) patients, moderate disability was observed in 141 (97.2%) patients, severe disability was observed in 1 (0.68%) patients and complete disability was observed in 0 (0%) patients.

At Third Follow Up, No disability was observed in 0 (0%) patients, mild disability was observed in 3 (2.06%) patients, moderate disability was observed in 141 (97.2%) patients, severe disability was observed in 1 (0.68%) patients and complete disability was observed in 0 (0%) patients.

Graph No. 87 Total score of Level of Disability - Group B

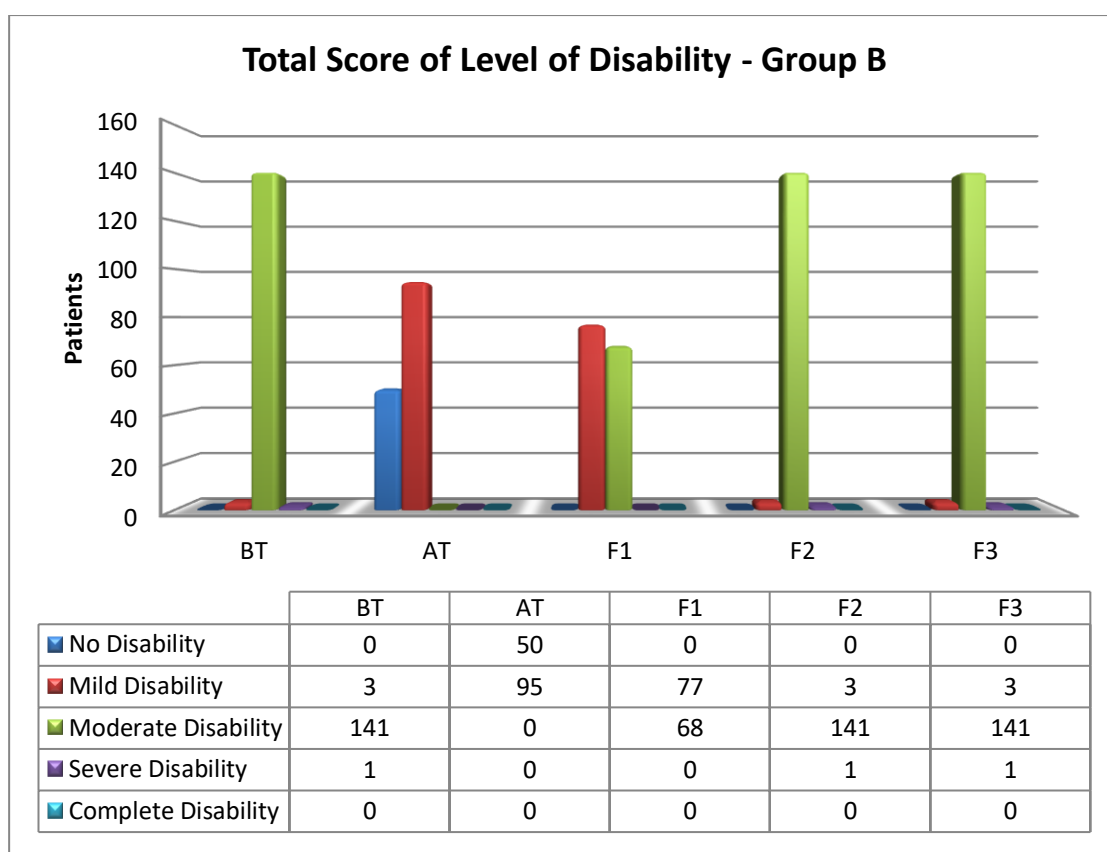


Table No. 114 Total score of Level of Disability - Group C

Score	Level of Disability	BT		AT		F1		F2		F3	
		N	%	N	%	N	%	N	%	N	%
0--4	No Disability	0	0	3	2.06	1	0.68	0	0	0	0
5--14	Mild Disability	9	6.2	142	93.9	20	13.7	10	6.89	9	6.2
15-24	Moderate Disability	136	93.8	0	0	124	85.5	135	93.1	136	93.8
25-34	Severe Disability	0	0	0	0	0	0	0	0	0	0
35-50	Complete Disability	0	0	0	0	0	0	0	0	0	0

Before treatment mild disability was observed in 9 (6.2%) patients, moderate disability was observed in 136 (93.8%) patients, severe disability was observed in 0 (0%) patients and complete disability was observed in 0 (0%) patients.

After treatment, No disability was observed in 3 (2.06%) patients, mild disability was observed in 142 (93.94%) patients, moderate disability was observed in 0 (0%)

patients, severe disability was observed in 0 (0%) patients and complete disability was observed in 0 (0%) patients.

At First Follow Up, No disability was observed in 1 (0.68%) patients, mild disability was observed in 20 (13.79%) patients, moderate disability was observed in 124 (85.51%) patients, severe disability was observed in 0 (0%) patients and complete disability was observed in 0 (0%) patients.

At Second Follow Up, No disability was observed in 0 (0%) patients, mild disability was observed in 10 (6.89%) patients, moderate disability was observed in 135 (93.1%) patients, severe disability was observed in 0(0%) patients and complete disability was observed in 0 (0%) patients.

At Third Follow Up, No disability was observed in 0 (0%) patients, mild disability was observed in 9 (6.2%) patients, moderate disability was observed in 136 (93.8%) patients, severe disability was observed in 0 (0%) patients and complete disability was observed in 0 (0%) patients.

Graph No. 88 Total score of Level of Disability - Group C

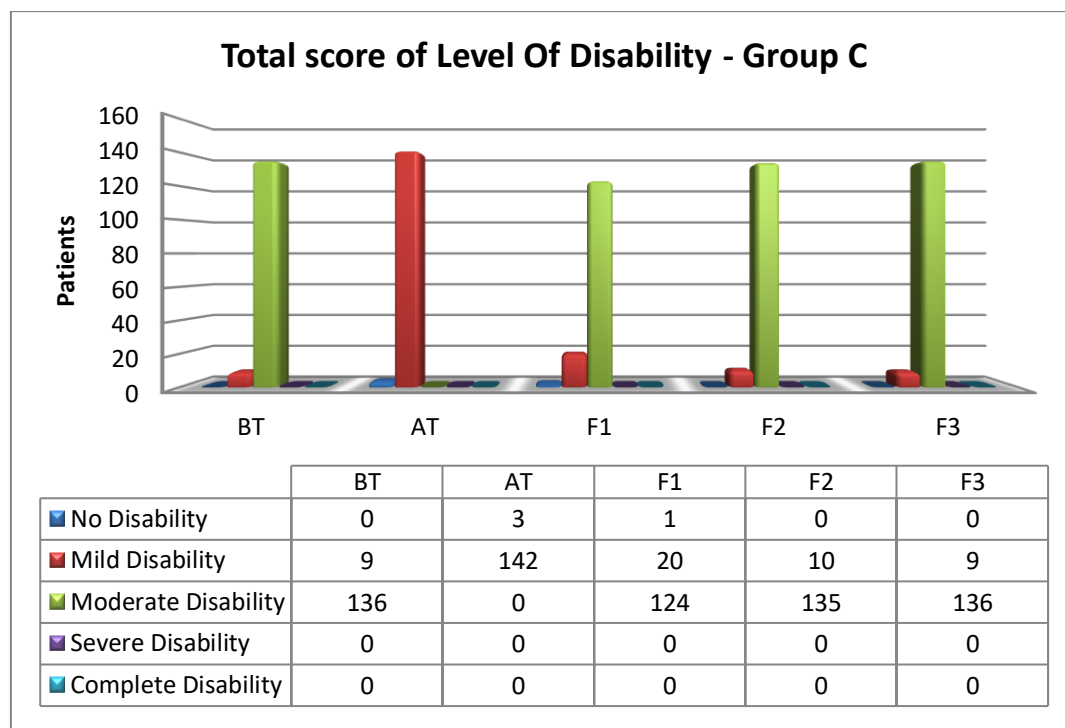


Table No. 115 Total Effect of Therapy

Improvement in %	Group A		Group B		Group C	
	N	%	N	%	N	%
No Improvement (<25%)	00	00	00	00	23	15.9
Mild Improvement (25-50%)	41	28.3	44	30.3	75	51.7
Moderate Improvement (50-75%)	98	67.6	96	66.2	46	31.7
Marked Improvement (>75%)	06	4.1	05	3.4	01	0.7
Complete Improvement (100%)	00	00	00	00	00	00

From above table it was observed that, In Group A, 0 patients got complete relief, marked improvement was observed in 6 (4.1%) patients, moderate improvement was observed in 98 (67.6%) patients, mild improvement was observed in 41 (28.3%) patients and no improvement was observed in 0 (0%) patients. In Group B, 0 patients got complete relief, marked improvement was observed in 5 (3.4%) patients, moderate improvement was observed in 96 (66.2%) patients, mild improvement was observed in 44 (30.3%) patients and no improvement was observed in 0 (0%) patients. In Group C, 0 patients got complete relief, marked improvement was observed in only 1 (0.7%) patient, moderate improvement was observed in 46 (31.7%) patients, mild improvement was observed in 75 (51.7) patients and no improvement was observed in 23 (15.9%) patients.

Graph No. 89 Total Effect of Therapy

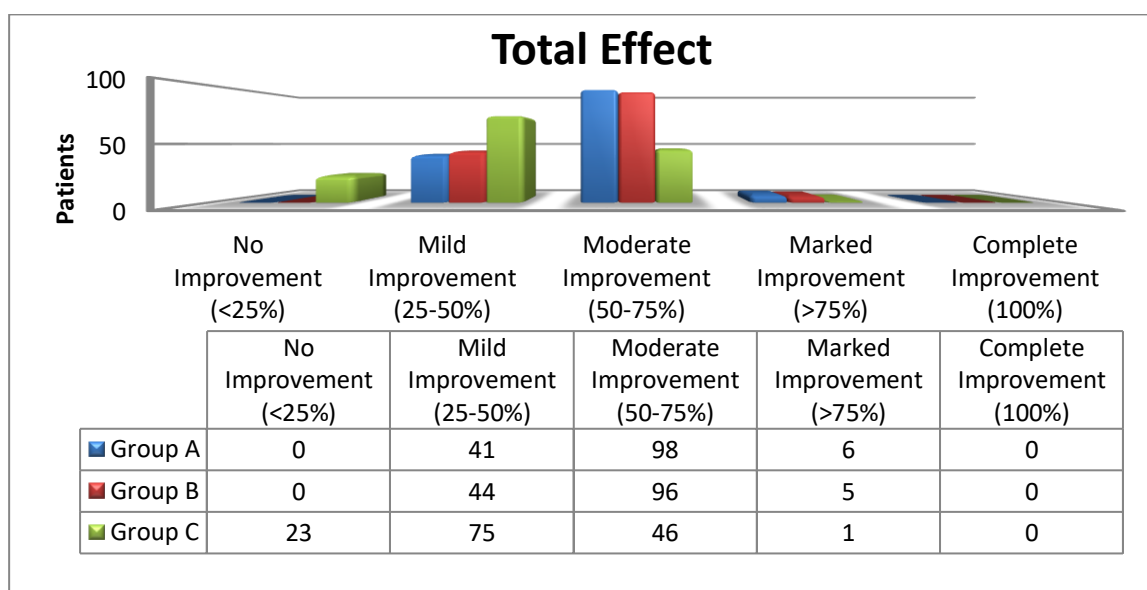


Table No. 116 Radiological Findings

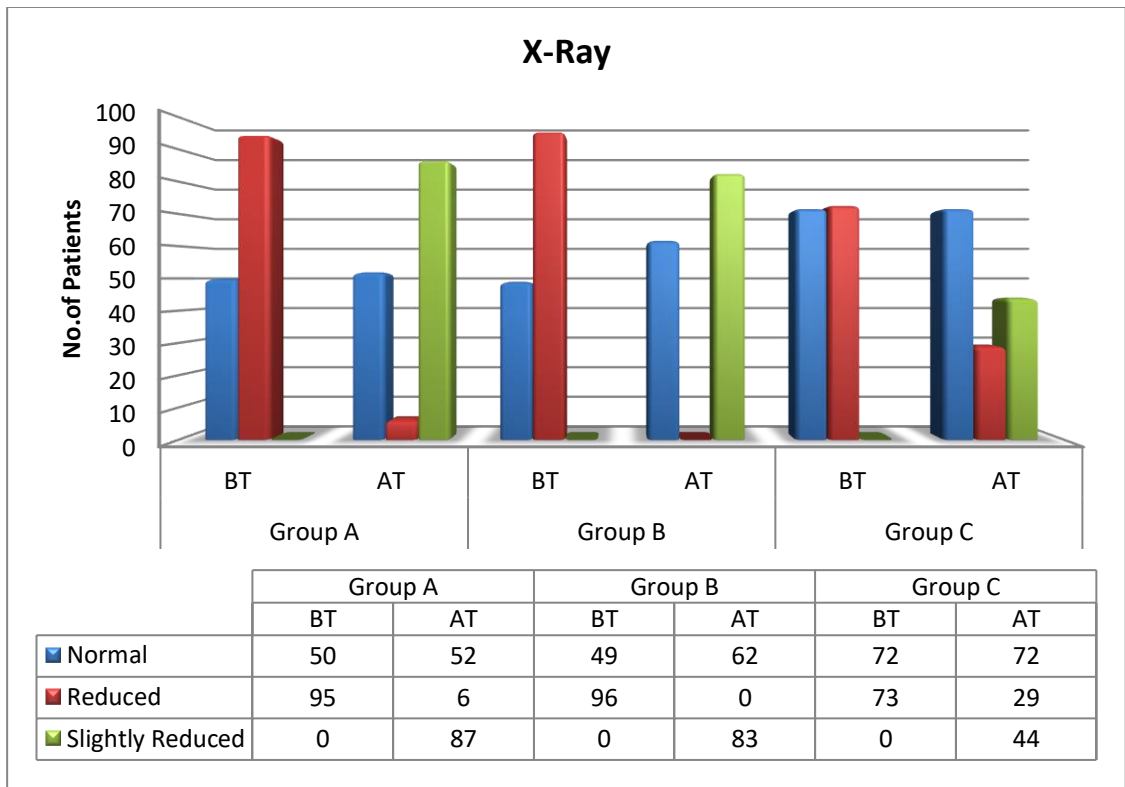
X – Ray findings of Lordotic Curvature	Group A				Group B				Group C			
	BT		AT		BT		AT		BT		AT	
	N	%	N	%	N	%	N	%	N	%	N	%
Normal lordotic curvature	50	34.4	52	35.8	49	33.7	62	42.7	72	49.6	72	49.6
Reduced lordotic curvature	95	65.6	06	4.1	96	66.2	00	00	73	50.3	29	20
Slightly Reduced lordotic curvature	00	00	87	60	00	00	83	57.2	00	00	44	30.3

In Group A, before treatment X-ray revealed lordotic curvature was normal in 50 (34.4%) patients, lordotic curvature was reduced in 95 (65.5%) patients and slightly reduced in 0 (0%) patients. After treatment X-ray revealed normal lordotic curvature in 52 (35.8%) patients, reduced lordotic curvature in 6 (4.1%) patients and slightly reduced in 87 (60%) patients.

In Group B, before treatment X-ray revealed normal lordotic curvature in 49 (33.7%) patients, reduced lordotic curvature in 96 (66.2%) patients and slightly reduced in 0 (0%) patients. After treatment X-ray revealed normal lordotic curvature in 62 (42.7%) patients, reduced lordotic curvature in 0 (0%) patients and slightly reduced in 83 (57.2%) patients.

In Group C, before treatment X-ray revealed normal lordotic curvature in 72 (49.6%) patients, reduced lordotic curvature in 73 (50.3%) patients and slightly reduced in 0 (0%) patients. After treatment X-ray revealed normal lordotic curvature in 72 (49.6%) patients, reduced lordotic curvature in 29 (20%) patients and slightly reduced in 44 (30.3%) patients.

Graph No. 89 Radiological Findings – X Ray



DISCUSSION

Discussion on Cervical Spondylosis

The approach of diagnosis of disease in Ayurveda and Modern medicine is entirely different. One to one correlation of disease is not possible. Diabetes Mellitus in modern medicine is not exactly Prameha. In cervical spondylosis, degenerative changes start in the intervertebral discs with osteophyte formation and involvement of adjacent soft tissue structures. Also there is degeneration, ankylosis, painful movements, sensory impairments, wasting of muscles, radicular features, motor weakness are all mixed together because of the involvement of different nerve roots. One or two exclusive ayurvedic conditions like greevahundanam or vishwachi, may not be possible to correlate with cervical spondylosis. Degenerative diseases can be included under the heading of Vatavyadhi. Hence, the word 'Cervical Spondylosis' & its treatment should be viewed from the point of VataVyadhi only. Hence, one can understand cervical spondylosis by comparing almost all disorders above the neck. (Table No - 21) So here an attempt was made to observe the effect of Nadisweda and Greevabasti, in pain and stiffness of cervical spondylosis.

Discussion on Nidana

In this study mixed kind of hetus have been identified like santarpana, apatarpana and aaghataja. Santarpana means kaphaprakopaka aahara and vihara. Ex – Madhur pradhan rasa sevana, ajirna, viruddha aahara, adhyashan and Avyayam. Apatarpan means vataprakopaka aahara dravya sevana, excessive vehicle riding, abnormal posture, excess workouts, excessive travelling etc. Aaghataja here means not by trauma or accident, but due to jerky movements while travelling or riding the vehicles on rough or uneven road surface. Bad posture leads to improper positioning of Cervical Vertebrae for longer duration; this puts uneven pressure over the spinal roots producing different signs and symptoms. Charak clearly mentioned in siddhisthatna regarding aaghata that if shiro marmabhighata takes place then there will be occurrence of manyasthambha¹²⁶ symptom. In this research study, it was observed that, post treatment no single symptom was worsened which reveals the nirama avastha of disease.

Clinical Study

In this study, the patients who fulfil the inclusion and exclusion criteria of Cervical Spondylosis were registered and randomly allocated under three groups viz. Nadisweda group (A), Greevabasti group (B) and Control group (C). The details are as follows

Table No. 117 Details of Patients

Details of Patients	Number of Patients
Total Registered	488
For Nadisweda Group	145
For Greevabasti Group	145
For Control Group	145
Total Completed	435
Dropped out	53

Discussion on Demographic Data

The maximum numbers of patients were in the age group of >50 years in all the three Groups A, B & C i.e. 57.24 % , 55.17 % and 43.44 % respectively. As advanced age there could be chances of vata prakopa leading to degeneration.

Maximum numbers of patients in Group A, B and C were Male i.e. 75.8 % , 64.8% and 68.2 % respectively. In all the three groups maximum numbers of patients were belonging to Hindu community i.e. 91.7 % , 95.1% & 97.9 in Group A,B and C respectively. In all the three groups maximum numbers of patients were educated i.e. 82% , 72.4% & 80% in Group A, B and C respectively. In all the three groups maximum numbers of patients were doing service i.e. 61.3% , 55.1% & 66.2% in Group A, B and C respectively. More travelling on uneven roads, strenuous work, irregular postures these are the main causes. In all the three groups maximum numbers of patients were from middle class i.e. 58.6% , 57.2% & 62% in Group A, B and C respectively. All patients were married in all the groups i.e. 100 % in Group A, B and C respectively.

In all the three groups maximum numbers of patients had diffuse neck pain i.e. 78.6% , 72.4% & 80.6% in Group A, B and C respectively. In all the three groups maximum numbers of patients had neck pain radiation i.e. 77.9% , 71.7% & 80.6% in

Group A, B and C respectively. Maximum numbers of patients had both side neck pain in group A i.e.35.17% while in group B and C maximum patients had left side neck pain radiation i.e. 38.62% and 40% respectively. In all the three groups maximum numbers of patients had painful neck movements i.e. 91%, 92.41% & 81.3% in Group A, B and C respectively. In all the three groups maximum numbers of patients had stiffness. Group A and B both had 100% while Group C had 85% of stiffness. In all the three groups maximum numbers of patients had Tingling Sensation. Group A had 69.65% while Group B and C had 63.44% & 67.58 % of Tingling Sensation respectively. Maximum numbers of patients in all groups were not having vertigo symptom, i.e. 97.2% in group A and B while 97.9% in group C. Maximum numbers of patients in all groups had gradual mode of onset, i.e. 82.06% in group A, 81.37% in group B and 84.13% in group C. Group A and B were having maximum number of patients of deep aching, i.e.50.34% & 42% respectively. Group C had maximum patients of dragging type of pain, i.e. 43.44%.

In all the three groups maximum numbers of patients had continuous course of pain i.e. 87.58%, 77.24% & 75.86% in A, B and C Group respectively. Maximum numbers of patients were taken allopathic treatment i.e. 100% in A, B and C group respectively. Most of the patients in all the three groups were free from addiction i.e. 40%, 42% and 49.6% respectively in group A, B and C. In group A, B and C respectively 32.41%, 37.24% and 22% patients were tobacco addicted. 15.17% were addicted to smoking in group A.13.79% and 17.93% were alcohol and smoking addicted in group B and C respectively.

Majority of the patients i.e. 78.62%, 77.24% and 66.89% were following mixed diet in the A, B and C group respectively. Majority of the patient in Group A were madhur and katu rasa satmya i.e. 23.44%. In group B were madhur and amla rasa satmya i.e.22.75%. In group C were madhur, amla and katu satmya i.e.16.55%. Maximum numbers of patients were not doing vyayam i.e. 84.82%, 90.34% & 84.82% in A, B and C group respectively.

Maximum numbers of patients had disturbed nidra (sleep) i.e. 81.37% in group A and B respectively while 70.34% in group C. Maximum numbers of patients had irregular bowel habit i.e. 16.55% in group A and B respectively while 13.10% in group C. All patients had normal mutra pravrutti (bladder habit) i.e. 100% in group A, B and C. respectively.

Majority of the patients were of Vata-Kaphaj prakruti i.e. 70.34% in Group A, while Pitta-Kaphaj in Group B and C i.e. 42% and 48.27% respectively. Majority of the patients were of Twak saratah i.e. 24.8% and 35.8% in Group A and B respectively, while Twak-rakta in Group C i.e. 20.69% and 48.27%. Maximum numbers of patients had Madhyam samhanan i.e. 95.86% in group A and B respectively while 93.79% in group C. Maximum numbers of patients had height above 5 feet i.e. 93.79% in group A, 92.41% in group B and 86.89% in group C. Majority patients in group A, B and C were in 50 -59 range of weight i.e. 43.44%, 48.96% and 46.20% respectively. Maximum numbers of patients had Madhyam satmya in all the three groups i.e. 96.55%, 97.93% and 95.86% in group A, B and C respectively.

Majority patients had Madhyam satva i.e.96.55% in Group A and B respectively, while group C had 95.17%. Majority of the patients in Group A had Madhyam and Pravar abhyawaranshakti i.e. 51% and 48.96%. In group B and C maximum patients had Madhya i.e. 65.51% & 57.93% respectively. Maximum numbers of patients had Madhyam Jaranshakti in group A, B and C i.e. 54.41%, 68.27% and 57.93% respectively. Maximum numbers of patients had Madhyam Jaranshakti in group A, B and C i.e. 97.93%, 97.93% and 84.82% respectively. All the patients in group A, B and C are of Madhyam Vaya i.e. 100%

Discussion on observation of subjective parameters

1. Neck Pain

It was observed that (Table no - 62) Before Treatment majority of patents in all the three groups had a grade 2 i.e. 60.6% 62% and 84.8% in group A,B and C respectively., which became grade 0 After Treatment for group A and B i.e. 69.6% and 76.5%, while it was grade 1 for group C i.e. 47.5%. It shows that Nadisweda (group A) and Greevabasti (Group B) treatment had better improvement compared to Control group (C). In First follow up period i.e. F1, group A and C had grade 2 i.e. 52.41% and 79.31%, while group B had grade 1 i.e.51%, in majority of patients, which shows Greevabasti (Group B) treatment is better than Nadisweda (group A) and Control group (C). In second and third follow up i.e. F2 and F3, all the 3 groups showed same grade i.e.2. i.e. in F2 64.13%, 62.75% and 85.51% for Group A,B and C respectively. In F3 62.75%, 62% and 85.5% for Group A, B and C respectively.

2. Neck Pain Radiation

It was observed that (Table No - 63) majority of patients had a grade 2 at Before Treatment in all the 3 groups i.e. 44.14%, 48.97 and 48.97% for group A,B and C respectively, which became grade 0 at After Treatment for group A (Nadisweda) 50.34% and B (Greevabasti) 57.24%, while group C (Control) had same grade 2 i.e. 44.83%. This shows that Nadisweda and Greevabasti had better improvement compared to Control group on pain radiation. In first, second and third follow up i.e.F1, F2 and F3, all the 3 groups showed same grade i.e.2.

3. Stiffness

It was observed that (Table No - 64) group A and B patients had majority of a grade 2 at Before Treatment i.e. 56.5% and 53.7% respectively, which became grade 0 at After Treatment.i.e. 67.5% and 74.4% for group A and B. It shows that Nadisweda and Greevabasti had good improvement after the treatment. In follow up 1, 2 and 3 period group A and B had same grade 2 for majority of patients. In group C all majority patients were grade 0 at BT, AT, F1, F2 & F3 i.e. 49.6%, 56.55%, 49.66%, 49.66% and 49.66% respectively.

4. Tingling Sensation

It was observed that (Table No - 65) all the three groups patients had majority of a grade 2 at Before Treatment i.e. 48.9%,41.3% and 46.2% respectively, which became grade 0 at After Treatment in group A i.e. 63.4% and B i.e. 64.8%, while remained same grade 2 in group C i.e.44.1%. It shows that Nadisweda and Greevabasti were more effective compared to Control group. In follow up 1, 2 and 3 group A, B and C had same grade 2 for majority of patients.

5. Vertigo

Majority of the patients in all the three groups had grade 0 at BT, AT, F1, F2 and F3. It means there no effect of all the three groups treatment on Vertigo. (Table No - 66)

6. Neck Movements

It was observed that (Table No - 67) majority of patients had a grade 2 at Before Treatment i.e. 60.6%, 62.7% and 48.2% in group A, B and C respectively, which became grade 0 at After Treatment in group A and B i.e.75.8% and 77.9%, while in group C majority patients had grade 2 i.e. 38.6%. It shows that Nadisweda and Greevabasti treatment were effective compared to Control group. In follow up periods 1, 2 and 3, the group A, B and C had same grade 2 for majority of patients.

Discussion on observation of Neck Disability Index

1. Pain intensity

It was observed that (Table No - 68) majority of patients had a grade 2 at Before Treatment i.e.58.6%, 69.6% and 86.9% in group A, B and C respectively, which became grade 0 at After Treatment for a majority in group A and B i.e. 71% and 73.7%, while majority had grade 1 in group C i.e. 55.8%, which shows Nadisweda and Greevabasti were effective than Control group. Majority of patients had a grade 1 at F1 i.e. follow up period 1 in group A and B (57.9% & 62%), while in group C majority had grade 2(71%) , which shows group A and B were effective than C in follow up period F1. In follow up period F2 and F3 majority of patients in all the three groups had grade 2.

2. Personal Care

It was observed that(Table No - 69) majority of patients had a grade 2 at Before Treatment i.e. 80% in group A & B, while 93.1% in group C, which became grade 0 at After Treatment in group A and B i.e. 54.4% & 47.5%, while majority had grade 1 in group C, which shows group A (Nadisweda) and B (Greevabasti) were effective than C. Majority of patients had a grade 2 at F1 i.e. follow up period 1 in group B and C, while in group A majority had grade 1 i.e. 50.3% , which shows group A was effective than group B and C in follow up period F1. In follow up period F2 and F3 majority of patients in all the three groups had grade 2.

3. Lifting

It was observed that (Table No - 70) majority of patients had a grade 2 at Before Treatment i.e.90.3%, 86.9% and 94.4% in group A, B and C respectively, which became grade 1 at After Treatment in all the three groups i.e. 66.2%, 63.4% and 47.5% in group A,B and C respectively. which shows group A,B and C had similar effect. In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

4. Reading

It was observed that (Table No - 71) majority of patients had a grade 2 at Before Treatment i.e., 91.03% for group A and B while 95.1% for group C, which became grade 1 at After Treatment in all the three groups i.e. 71%, 66.21% & 44.1% in group A,B and C respectively, which shows Nadisweda, Greevabasti and Control group had similar results. In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

5. Headache

Majority of the patients in all the three groups had grade 0 at BT, AT, F1, F2, and F3. In group A 2.7% had grade 2 at before treatment, which became grade 1 in 2.07% patients at after treatment. In follow up 1, 2 and 3 again it became grade 2 i.e. 2.07%, 2.76% and 2.76% respectively. We can't predict the effect on headache for all the three groups. (Table No -72)

6. Concentration

It was observed that (Table No -73) majority of patients had a grade 2 at Before Treatment i.e. 92.4%, 93.7%, and 92.4% in group A, B and C respectively., which became grade 1 at After Treatment in all the three groups i.e. 73.19%, 64.83% and 57.24% in group A, B and C respectively, which shows group A, B and C had similar effects. In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

7. Work

It was observed that (Table No - 74) majority of patients had a grade 2 at Before Treatment i.e. 80.6%, 89.6% and 94.4% in group A, B and C respectively, which became grade 0 at After Treatment in group A and B i.e. 69.6% and 75.17%, while it became grade 1 in group C i.e. 60.6%, which shows Nadisweda and Greevabasti group were effective than that of Control group. In follow up period i.e. F1, majority of patients in group A and B had grade 1 i.e. 60% and 62%, while in group C it had grade 2 i.e. 77.2%, which shows better results of treatment in group A and B than that of C. In follow up period F2 and F3 majority of patients in all the three groups had grade 2

8. Driving

It was observed that (Table No -75) majority of patients had a grade 2 at Before Treatment i.e. 89.6% in group A and B while 87.5% in C, which became grade 1 at After Treatment in all the three groups i.e. 73.1%, 71% and 50.3% respectively in group A, B and C. which shows group A, B and C had similar effect. In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

9. Sleeping

It was observed that (Table No - 76) majority of patients had a grade 2 at Before Treatment i.e. 78.6%, 79.3% and 71.7% in group A, B and C respectively, which became grade 1 at After Treatment in all the three groups i.e. 65.5%, 63.4% and 28.2 in group A, B and C respectively, which shows group A, B and C had similar effects.

In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

10. Recreation

It was observed that (Table No - 77) majority of patients had a grade 2 at Before Treatment i.e. 84.4% in group A and B while 61.3% in group C, which became grade 1 at After Treatment in all the three groups I.E. 84.1% in group A and B while 58.6% in group C, which shows group A, B and C had similar effects. In follow up period F1, F2 and F3 majority of patients in all the three groups had grade 2.

Specific observations of relief – before and after treatment, follow up 1, 2 and 3 period.

The symptoms relief was seen well after the completion of 14 days of treatment. During 1st follow up period up to 2 weeks there were no symptoms for both the groups i.e. Nadisweda and Greevabasti. From 2nd week to 3rd week the symptoms started to reoccurred in both the groups. In control group, after completion of treatment, from 8th day onwards patients started the reoccurrence of symptoms.

Discussion on Samyak Swedana Lakshana:

Swedana Samyak Yoga, Ayoga, Atiyoga Laxanas observed in Patients were as follows. In nadisweda and greevabasti group all the patients were observed the samyak swedana lakshanas like shoola haran, sthmbha, gaurav nigraha, mardavta etc. No single patient of Nadisweda and greevabasti group was observed the ayoga and atiyoga lakshana.

Additional Observation during the procedure

Nadisweda Procedure

During the nadisweda procedure, sitting posture was easy and comfortable. Seasonal variation was observed in terms of temperature. In summer season oil which was heated for abhyanga, maintained its heat for longer duration. While in rainy and winter season the heated oil got cold easily. Hence in rainy and winter season, oil was heated repeatedly to maintain its heat. Sweating was started earlier in summer, while in rainy and winter season it took much time for sweating. During the procedure, appropriate distance between the nozzle and neck region should be maintained in order to prevent the burn injury due to hot water droplets.

Greevabasti Procedure

Compared to Nadisweda procedure the Greevabasti procedure was quite complicated. The posture in the Greevabasti was either sitting or lying down in prone

position. Sitting posture was comfortable to patient compared to prone position. The application of dough was main part in the procedure due to oil leakage. Oil's temperature variation was seen in different seasons. In summer the heat of oil was maintained, while in rainy and winter season it was not maintained hence needed to heat repeatedly. While pouring the oil in dough burn injury should be avoided. To maintain the heat of oil uniformly, therapist has to move his thumb in clock wise or anti clockwise direction in dough.

Discussion on Result

Effect on subjective parameters within group

1. Effect of therapy on Neck Pain – Within Group

The statistical analysis of Neck Pain was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for Neck pain was statistically significant. Effect observed in Group A i.e. Nadisweda was 86.4%, Group B i.e. Greevabasti was 89.6% and Group C i.e. control was 67.4%. (Table No - 78)

2. Effect of therapy on Radiation of Pain – Within Group

The statistical analysis of radiation of pain was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for radiation of pain was statistically significant. Effect observed in Group A i.e. Nadisweda was 63.9 %, Group B i.e. Greevabasti was 67.7 % and Group C i.e. control was 14.6 %. (Table No - 80)

3. Effect of therapy on Stiffness – Within Group

The statistical analysis done by Wilcoxon Signed Rank test for stiffness revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for stiffness was statistically significant. Effect observed in Group A i.e. Nadisweda was 74.6 %, Group B i.e. Greevabasti was 80.9 % and Group C i.e. control was 42.9 %. (Table No - 82)

4. Effect of therapy on Tingling sensation – Within Group

The statistical analysis of tingling sensation was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for tingling sensation was statistically significant. Effect observed in Group A i.e. Nadisweda was 71.1 %, Group B i.e. Greevabasti was 70.5 % and Group C i.e. control was 07.4 %. (Table No - 84)

5. Effect of therapy on Vertigo – Within Group

The statistical analysis of vertigo was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for vertigo was statistically significant. Effect observed in Group A i.e. Nadisweda was 33.3 %, Group B i.e. Greevabasti was 33.3 % and Group C i.e. control was 0.0 %. (Table No - 86)

6. Effect of therapy on Movements of Neck – Within Group

The statistical analysis of movements of neck was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for movements of neck was statistically significant. Effect observed in Group A i.e. Nadisweda was 74.7 %, Group B i.e. Greevabasti was 75.9 % and Group C i.e. control was 14.9 %. (Table No - 88)

Effect of therapy on Neck Disability Index within group

1. Effect of therapy on Pain Intensity – Within Group

The statistical analysis of pain intensity was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for pain intensity was statistically significant. Effect observed in Group A i.e. Nadisweda was 87.0 %, Group B i.e. Greevabasti was 88.3 % and Group C i.e. control was 63.6 %. (Table No - 90)

2. Effect of therapy on Personal care – Within Group

The statistical analysis of personal care was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for personal care was statistically significant. Effect observed in Group A i.e. Nadisweda was 77.0 %, Group B i.e. Greevabasti was 73.2 % and Group C i.e. control was 35.5 %. (Table No - 92)

3. Effect of therapy on Lifting – Within Group

The statistical analysis of Lifting was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for lifting was statistically significant. Effect observed in Group A i.e. Nadisweda was 63.3 %, Group B i.e. Greevabasti was 66.1 % and Group C i.e. control was 26.8 %. (Table No - 94)

4. Effect of therapy on Reading – Within Group

The statistical analysis of Reading was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for reading was statistically significant. Effect observed in Group A i.e. Nadisweda was 61.4 %, Group B i.e. Greevabasti was 63.7 % and Group C i.e. control was 26.5 %. (Table No - 96)

5. Effect of therapy on Headache – Within Group

The statistical analysis of Headache was done by Wilcoxon Signed Rank test revealed P-Values for all three groups are greater than 0.05 i.e. 0.059, 0.083 and 0.053 in group A, B and C respectively. Effect observed in all three groups was not significant. Effect observed in Group A i.e. Nadisweda was 63.3 %, Group B i.e. Greevabasti was 66.1 % and Group C i.e. control was 26.8 %. (Table No - 98)

6. Effect of therapy on Concentration – Within Group

The statistical analysis of concentration was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for concentration was statistically significant. Effect observed in Group A i.e. Nadisweda was 58.9 %, Group B i.e. Greevabasti was 64.5 % and Group C i.e. control was 33.1 %. (Table No - 100)

7. Effect of therapy on Work – Within Group

The statistical analysis of work was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for work was statistically significant. Effect observed in Group A i.e. Nadisweda was 84.5 %, Group B i.e. Greevabasti was 88.1 % and Group C i.e. control was 61.3 %. (Table No - 102)

8. Effect of therapy on Driving – Within Group

The statistical analysis of Driving was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for driving was statistically significant. Effect observed in Group A i.e. Nadisweda was 60.3 %, Group B i.e. Greevabasti was 61.9 % and Group C i.e. control was 28 %. (Table No - 104)

9. Effect of therapy on Sleeping – Within Group

The statistical analysis of Sleeping was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for sleeping was statistically significant. Effect observed

in Group A i.e. Nadisweda was 61.5 %, Group B i.e. Greevabasti was 63 % and Group C i.e. control was 23.3 %. (Table No - 106)

10. Effect of therapy on Recreation – Within Group

The statistical analysis of recreation was done by Wilcoxon Signed Rank test revealed P-Values for all three groups were 0.000 which was less than 0.05 hence the effect observed in all three groups for recreation was statistically significant. Effect observed in Group A i.e. Nadisweda was 51.3 %, Group B i.e. Greevabasti was 50 % and Group C i.e. control was 15.8 %. (Table No - 108)

Effect on subjective parameters Inter group – Comparative

1. Effect of therapy on Neck Pain – Inter Group

The intergroup comparative statistical analysis of Neck Pain was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e. 0.000 hence there was significant difference in effect of three groups for neck pain. Effect observed in mean rank of Group B was highest i.e.265.64 followed by Group A was 252.38 and Group C was 135.98 showing that Greevabasti was more effective followed by Nadisweda and Control group. (Table No - 70)

2. Effect of therapy on Radiation of Pain – Inter Group

The intergroup comparative statistical analysis of Radiation of Pain was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e.0.000 hence there was significant difference in effect of three groups for radiation of pain. Effect observed in mean rank of Group A was highest i.e.274.05 followed by Group B was 247.63 and Group C was 132.32 showing that Nadisweda was more effective followed by Greevabasti and Control group. (Table No - 81)

3. Effect of therapy on Stiffness – Inter Group

The intergroup comparative statistical analysis of stiffness was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e.0.000 hence there was significant difference in effect of three groups for stiffness. Effect observed in mean rank of Group B was highest i.e.253.54 followed by Group A was 239.61 and Group C was 160.85 showing that Greevabasti was more effective followed by Nadisweda and Control group. (Table No - 83)

4. Effect of therapy on Tingling sensation– Inter Group

The intergroup comparative statistical analysis of tingling sensation was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e. 0.000 hence there was significant difference in effect of three groups for tingling sensation. Effect observed in mean rank of Group A was highest i.e.270.16 followed by Group B was 251.32 and Group C was 132.52 showing that Nadisweda was more effective followed by Greevabasti and Control group. (Table No - 85)

5. Effect of therapy on Vertigo – Inter Group

The intergroup comparative statistical analysis of vertigo was done by Kruskal Wallis test revealed P-Value is more than 0.05 i.e. 0.606 hence there was no significant difference in effect of three groups for vertigo. Effect observe in mean rank of Group A ,B and Group C was 218.50 , 218.50 and 217 respectively, showing same mean rank which shows that effect observed in all three groups are not significant. (Table No - 87)

6. Effect of therapy on Movements of Neck – Inter Group

The intergroup comparative statistical analysis of movements of neck was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e.0.000 hence there was significant difference in effect of three groups for movements of neck. Effect observed in mean rank of Group A was highest i.e.268.02 followed by Group B was 266.82 and Group C was 119.16 showing that Nadisweda was more effective followed by Greevabasti and Control group. (Table No - 89)

Table No – 118 Summary of Comparison of Subjective parameters of all three groups

Parameters	Group A Mean rank	Group B Mean rank	Group C Mean rank	Group comparisons	Interpretation	Remark
Neck pain	252.38	265.64	135.98	A vs B	Significant	B group has shown better effect as mean rank of A group is less than B group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
Pain Radiation	274.05	247.63	132.32	A vs B	Significant	A group has shown better effect as mean rank of B group is less than A group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
Stiffness	239.61	253.54	160.85	A vs B	Significant	B group has shown better effect as mean rank of A group is less than B group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
Tingling	270.16	251.32	132.52	A vs B	Significant	A group has shown better effect as mean rank of B group is less than A group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
Vertigo	218.50	218.50	217.00	A vs B	Not Sig.	A group is as effective as group B with no significant difference between mean ranks
				A vs C	Not Sig.	A group is as effective as group C with no significant difference between mean ranks
				B vs C	Not Sig.	B group is as effective as group C with no significant difference between mean ranks
Neck Movements	268.02	266.82	119.16	A vs B	Significant	A group has shown better effect as mean rank of B group is less than A group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group

Effect on Neck Disability Index Inter group – Comparative

1. Effect of therapy on Pain intensity – Inter Group

The intergroup comparative statistical analysis of pain intensity was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e.0.000 hence there was significant difference in effect of three groups for pain intensity. Effect observed in mean rank of Group A was highest i.e.265.21 followed by Group B was 258.90 and Group C was 129.89 showing that Nadisweda was more effective followed by Greevabasti and Control group. (Table No - 91)

2. Effect of therapy on Personal care – Inter Group

The intergroup comparative statistical analysis of personal care was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e.0.000 hence there was significant difference in effect of three groups for personal care. Effect observed in mean rank of Group A was highest i.e.275.15 followed by Group B was 257.23 and Group C was 121.61 showing that Nadisweda was more effective followed by Greevabasti and Control group. (Table No - 93)

3. Effect of therapy on Lifting – Inter Group

The intergroup comparative statistical analysis of lifting was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e. 0.000 hence there was significant difference in effect of three groups for lifting. Effect observed in mean rank of Group B was highest i.e.270.51 followed by Group A i.e. 256.37 and Group C i.e. 127.13 showing that Greevabasti was more effective followed by Nadisweda and Control group. (Table No - 95)

4. Effect of therapy on reading – Inter Group

The intergroup comparative statistical analysis of reading was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e. 0.000 hence there was significant difference in effect of three groups for reading. Effect observed in mean rank of Group B was highest i.e.263.34 followed by Group A i.e. 257.89 and Group C i.e. 132.76 showing that Greevabasti was more effective followed by Nadisweda and Control group. (Table No – 97)

5. Effect of therapy on Headache – Inter Group

The intergroup comparative statistical analysis of headache was done by Kruskal Wallis test revealed P-Value is more than 0.05 i.e. 0.775 hence there was no significant difference in effect of three groups for headache. Effect observe in mean

rank of Group A ,B and Group C was 218.03, 216.49 and 219.48 respectively, showing same mean rank which shows that effect observed in all three groups are not significant. (Table No - 99)

6. Effect of therapy on concentration – Inter Group

The intergroup comparative statistical analysis of concentration was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e. 0.000 hence there was significant difference in effect of three groups for concentration. Effect observed in mean rank of Group B was highest i.e.262.47 followed by Group A i.e. 245.34 and Group C i.e. 146.19 showing that Greevabasti was more effective followed by Nadisweda and Control group. (Table No - 101)

7. Effect of therapy on Work – Inter Group

The intergroup comparative statistical analysis of work was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e. 0.000 hence there was significant difference in effect of three groups for work. Effect observed in mean rank of Group B was highest i.e.260.32 followed by Group A i.e. 251.31 and Group C i.e. 142.36 showing that Greevabasti was more effective followed by Nadisweda and Control group. (Table No - 103)

8. Effect of therapy on Driving – Inter Group

The intergroup comparative statistical analysis of driving was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e. 0.000 hence there was significant difference in effect of three groups for driving. Effect observed in mean rank of Group B was highest i.e.259.39 followed by Group A i.e. 258.11 and Group C i.e. 136.51 showing that Greevabasti was more effective followed by Nadisweda and Control group. (Table No - 105)

9. Effect of therapy on Sleeping – Inter Group

The intergroup comparative statistical analysis of sleeping was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e.0.000 hence there was significant difference in effect of three groups for sleeping. Effect observed in mean rank of Group A was highest i.e.260.83 followed by Group B was 259.90 and Group C was 133.27 showing that Nadisweda was more effective followed by Greevabasti and Control group. (Table No - 107)

10. Effect of therapy on Recreation – Inter Group

The intergroup comparative statistical analysis of recreation was done by Kruskal Wallis test revealed P-Value was less than 0.05 i.e.0.000 hence there was significant

difference in effect of three groups for recreation. Effect observed in mean rank of Group A was highest i.e.267.23 followed by Group B was 262.43 and Group C was 124.34 showing that Nadisweda was more effective followed by Greevabasti and Control group. (Table No - 109)

Table No. 119 Summary of Comparison of Neck disability index of all three groups

Parameters	Group A Mean rank	Group B Mean rank	Group C Mean rank	Group comparison	Interpretation	Remark
Pain Intensity	265.21	258.90	129.89	A vs B	Significant	A group has shown better effect as mean rank of B group is less than A group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
Personal Care	275.15	257.23	121.61	A vs B	Significant	A group has shown better effect as mean rank of B group is less than A group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
Lifting	256.37	270.51	127.13	A vs B	Significant	B group has shown better effect as mean rank of A group is less than B group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
Reading	257.89	263.34	132.76	A vs B	Significant	B group has shown better effect as mean rank of A group is less than B group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
Headache	218.03	216.49	219.48	A vs B	Not Sig.	A group is as effective as group B with no significant difference between mean ranks
				A vs C	Not Sig.	A group is as effective as group C with no significant difference between mean ranks
				B vs C	Not Sig.	B group is as effective as group C with no significant difference between mean ranks
Concentration	245.34	262.47	146.19	A vs B	Significant	B group has shown better effect as mean rank of A group is less than B group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group

				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
--	--	--	--	--------	-------------	--

Work	251.31	260.32	142.36	A vs B	Significant	B group has shown better effect as mean rank of A group is less than B group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
Driving	258.11	259.39	136.51	A vs B	Significant	B group has shown better effect as mean rank of A group is less than B group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
Sleeping	260.83	259.90	133.27	A vs B	Significant	A group has shown better effect as mean rank of B group is less than A group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group
Recreation	267.23	262.43	124.34	A vs B	Significant	A group has shown better effect as mean rank of B group is less than A group
				A vs C	Significant	A group has shown better effect as mean rank of C group is less than A group
				B vs C	Significant	B group has shown better effect as mean rank of C group is less than B group

Percentage relief in subjective parameters (Table No - 110)

Group A Nadisweda showed maximum relief in only one variable i.e. tingling sensation 71.1% while Group B Greevabasti showed maximum relief in Neck pain i.e. 89.6%, Radiation of pain i.e.67.7%, stiffness i.e. 80.9% and movements of neck i.e. 75.9%.

Group A Nadisweda showed relief in other parameters were – Neck pain 86.4%, Radiation of pain 63.9%, Stiffness 74.6%, Vertigo 33.3% and neck movements 74.7%. Group B Greevabasti showed relief in other parameters were – Tingling sensation 70.5%, Vertigo 33.3%.

The relief percentage of Control group were – Neck pain 67.4%, Radiation of Pain 14.6%, Stiffness 42.9%, Tingling sensation 07.4%, Vertigo 0.0% and Movements of Neck 14.7%.

Group B showed maximum improvement in subjective parameters compared to group A. Group A and B were showed better result compared to Group C.

Percentage relief in Neck Disability Index (Table No - 111)

Group A Nadisweda showed maximum relief in Personal care 77 % and Recreation 51.3 % while Group B Greevabasti showed maximum relief in Pain intensity 88.3%, Lifting 66.1%, Reading 63.7 %, Headache 75 %, Concentration 64.5 %, Work 88.1 %, Driving 61.9 % and Sleeping 63 %.

Group A Nadisweda showed relief in other parameters were – Pain intensity 87 %, Lifting 63.3 %, Reading 61.4 %, Headache 62.5 %, Concentration 58.9 %. Group B Greevabasti showed relief in other parameters was - Personal care 73.2 % and Recreation 50 %.

The relief percentage of Control group were – Pain intensity 63.6 %, Personal Care 35.5 %, Lifting 26.8 %, Reading 26.5%, Headache 55.6%, Concentration 33.1%, Work 61.3%, Driving 28%, Sleeping 23.3% and Recreation 15.8%.

Group B showed maximum improvement in Neck Disability Index compared to group A. Group A and B were showed better results compared to Group C.

Total score of Level of Disability (Table No – 112,113 & 114)

In Group A Nadisweda, before treatment maximum patients were of moderate disability i.e. 96.5%, after treatment maximum patients were of 73.8%

Before treatment, maximum patients were of moderate disability i.e. 96.5% in Nadisweda group (A), 97,2% were in Greevabasti group (B) and 93.8% were in Control group (C). After treatment maximum patients were of mild disability i.e. 73.8% in Nadisweda group (A), 65.6% in Greevabasti group (B) and 93.9% in Control group (C).

After treatment maximum number of patients were of no disability in Nadisweda group (A) i.e. 26.2%, while 34.4% in Greevabasti group (B) and in Control group (C) it was 2.06%.

In follow up 1 period maximum patients were of moderate disability in Nadisweda group (A) i.e. 56.5%, and in Control group (C) it was 85.5%. In Greevabasti group (B) it was in mild disability i.e. 53.1%.

In second Follow up period maximum patients were of moderate disability in all the groups i.e. 96.5%, 97.2% and 93.1% in group A, B and C respectively. In third

follow up also maximum patients were of moderate disability in all the groups i.e. 96.5%, 97.2% and 93.8% in group A, B and C respectively

Group A and B have shown better results than group C.

Compared to Nadisweda, Greevabasti has shown better results in after treatment and first follow up period. After treatment in Greevabasti group 34.4% patients were seen in no disability level, while 26.2% patients were seen in Nadisweda group. Mild disability level patients were of 73.8% in Nadisweda group while 65.6% patients were in Greevabasti group. In first follow up period in Greevabasti group 53.1% patients were seen in mild disability level, while 43.44% patients were seen in Nadisweda group. Moderate disability level patients were of 56.5% in Nadisweda group while 46.8% patients were in Greevabasti group.

Total Effect of the Therapy (Table No - 115)

In Group A, there was no complete improvement i.e. not 100 %, marked improvement i.e. below 75 % was seen in 4.1 % patients. Moderate improvement i.e. 50 to 75 % was seen in 67.6 % patients. Mild improvement i.e. 25 to 50 % was seen in 28.3 % patients. No improvement i.e. below 25 % was seen in 0 % patients.

In Group B, there was no complete improvement i.e. not 100 %, marked improvement i.e. below 75 % was seen in 3.4 % patients. Moderate improvement i.e. 50 to 75 % was seen in 66.2 % patients. Mild improvement i.e. 25 to 50 % was seen in 30.3 % patients. No improvement i.e. below 25 % was seen in 0 % patients.

In Group C, there was no complete improvement i.e. not 100 %, marked improvement i.e. below 75 % was seen in 0.7 % patients. Moderate improvement i.e. 50 to 75 % was seen in 31.7 % patients. Mild improvement i.e. 25 to 50 % was seen in 51.7 % patients. No improvement i.e. below 25 % was seen in 15.9 % patients.

Nadisweda and Greevabasti treatment had almost similar result in total effect of therapy. Compared to control group Nadisweda and Greevabasti both showed better results in cervical spondylosis symptoms.

Radiological Findings (Table No - 116)

The stiffness was mainly assessed in X-ray. Lordotic curvature was compared in both the X-Rays i.e. before and after treatment.

In Nadisweda (A) Group 95 patients X-ray revealed reduced lordotic curvature before treatment, which became slightly reduced in 87 patients, remains reduced in 06 patients while 02 patients X-ray revealed normal lordotic curvature after treatment.

In Greevabasti (B) Group 96 patients X-ray revealed reduced lordotic curvature before treatment, which became slightly reduced in 83 patients and 13 patients X-ray revealed normal lordotic curvature after treatment.

In Control (C) Group 73 patients X-ray revealed reduced lordotic curvature before treatment, which became slightly reduced in 44 patients and 29 patients X-ray revealed reduced lordotic curvature after treatment. Hence in radiological findings, Greevabasti (B) group showed more patients got normal lordotic curvature from reduced lordotic curvature compared to the Nadisweda (A) group and Control (C) group.

Evaluation of Nadisweda

In classics main three types of chikitsa have been mentioned - hetuviparita, vyadhi viparita and hetu-vyadhi viparita. As discussed above cervical spondylosis is vatavyadhi having combined causes like aavaranajanya, apatarpanjanya and aaghataja. It leads to sthanik vikruti as per yatrasangha khavaigunya tatra vyadhi upajayte¹²⁷ creating sthanik doshaprakopa i.e. vata or vatakapha. Nadisweda treatment modality comes under snehapurvak swedana. Sahacharadi taila was used for snehana before nadisweda. Contents of sahacharadi oil possess ushana, tikshna and laghu quality along with katu rasa which helps to work on shleshma. Also it does snehana yukta pooran of asthyashrit vikara. Likewise it improves the functional qualities of sthanik rasa, rakta and mamsa dhatu. Snehana reduces rauksha, nadisweda reduces sthambha, gaurava and shaitya quality. As mentioned by charak snehana does the body mridu, reduces anila (vata) and removes the malasanga, Snehana followed by swedana liquifies the lean dosha.¹²⁸

Evaluation of Greevabasti

Greevabasti is a bahirparimarjan treatment modality where both the properties of snehana and swedana are incorporated. This procedure has more retention time as well as it is a target oriented treatment. Sneha dravya are predominant of Drava, Sara,

Snighda, Picchila, Guru, Sheeta, Mridhu, and Manda guna. The qualities of Sneha are opposite to vata guna. Thus the sahacharadi oil neutralises the vata dosha and on the other hand with the help of other vata-kapha shamak dravya and of mridu guna of taila it removes the sthanika kapha aavarana.

Swedana has the properties of neutralising Sthambha and Sheetata. The stiffness is mainly due to sheeta guna of Vata. This sheeta guna is neutralised by ushna guna of the retained medicine. Dalhana explained that 900 matrakala required to reach majja dhatu. As the time duration of Greevabasti is about 25 to 30 minutes, the retention time of oil would be more, causes better action of specific area.

In this study Greevabasti showed better result in all the parameters like neck pain, radiation of pain, stiffness, tingling sensation and movements of neck. Also it showed better result in Neck disability index. Among all the three groups Greevabasti (B) has shown better results compared to Nadisweda (A) and Control Group.

Cervical spondylosis needs proper management of vyadhi. Though sthanik treatment modalities giving significant result in this study, it should be treated internally with the proper management of dosha. For the complete cure of cervical spondylosis it is advised to avoid hetus causing diseases. It means this sthanik modalities of treatment i.e. nadisweda and greevabasti cannot be considered as complete treatment.¹²⁹

CONCLUSION

- Individually Nadisweda and Greevabasti both are effective treatment in all the subjective parameters as well as in Neck disability index.
- Compared to Control group, both Nadisweda and Greevabasti have shown better results (statistically significant <0.05) in subjective and neck disability index parameters.
- Compared to Nadisweda, Greevabasti has shown better results by considering following things –
In subjective parameters like Neck pain, Radiation of pain, Stiffness, Movement of Neck and in Neck disability index parameters like Pain intensity, Lifting, Reading, Headache, Concentration, Work, Driving and Sleeping Greevabasti has shown better results compared to Nadisweda. Total score of level of disability has shown Greevabasti has better effect than Nadisweda and Control group. X-ray findings also revealed that Greevabasti has shown better relief of stiffness, compared to Nadisweda.

Limitation and scope for further study

- ❖ Being bahiparimarjan chikitsa, Nadisweda and Greevabasti reduces the Symptoms of cervical spondylosis only.
- ❖ Complete cure of disease needs internal treatment as well as external treatment along with hetu parivarjana followed by satmya aahar and vihar according to prakruti, rutu and vaya is foremost thing.

SUMMARY

The present clinical study entitled ‘A clinical study of Nadisweda and Greevabasti in the management of Cervical Spondylosis.’ comprises of 6 chapters viz – Preface, Aim and objectives, Literary review, Clinical study, Discussion and Conclusions.

1. Preface

This chapter concisely describes the need for study, rationality and significance of study, relevance of Nadisweda and Greevabasti in Cervical Spondylosis etc.

2. Aim and Objectives

This chapter specifies the aim and objectives. That is to compare the efficacy of Nadisweda and Greevabasti with Control Group (Aceclofenac 100 mg + Thiocolchicoside 08 mg).

3. Literary Review

This chapter is sub classified in 9 chapters namely Abhaynga, Swedana, Swedana Classification, Nadisweda, Greevabasti, Cervical Spondylosis Modern view, Cervical Spondylosis Ayurvedic View, Drug Review and Previous workdone.

Abhyanga – In this chapter definition, tailapaka, abhyanga kala, qualities, contraindications and snehayukta swedana importance are mentioned in detail.

Swedana – Definition, application, indications, contraindications, qualities of swedana dravya, samyak, ati and manda swinna lakshanas along with treatment of ati and manda swinna lakshanas are explained.

Swedana Classification – Different classification of swedana like sagni, niragni along with different variants of swedana are mentioned.

Nadisweda – Definition, different nadisweda dravyas, classical nadisweda procedure and the procedure which was used in this study are explained in detail.

Greevabasti - Etymology, definition, classification and detail procedure of Greevabasti explained.

Cervical Spondylosis Modern View – It explains etymology, pathogenesis, symptomatology and treatment in detail.

Cervical Spondylosis Ayurvedic view – It explains feasible & probable concepts of cervical spondylosis ayurvedic view.

Drug Review – It describes the details of sahacharadi taila, its uses. Aceclofenac and Thiocolchicoside drug details.

Previous Work Done – Detailed description of previous work done separately on cervical spondylosis, Nadisweda and Greevabasti are mentioned

4. Clinical Study

This chapter is explained under three headings.

i. Methodology

This chapter commences with detail protocol of the study which includes source of data, method of collection of data, study design, grouping and random allocation, interventions of different groups i.e. standard operative procedures (SOP), assessment of subjective parameters and neck disability index.

ii. Observations

This chapter deals with all demographic data of all three groups. All parameters observations like neck pain , stiffness etc which reveals group A and B are better than group C. Regarding Samyak swedana lakshanas in both the group A & B attained all samyak lakshanas. No single patient was found with ati or manda swinna lakshanas.

iii. Results

There is statistically significant difference seen within all three groups in all parameters except vertigo and headache which are not significant. In comparison of groups, A and B group shows better results compared to Group C in all the parameters. Group B shows better results compared to Group A in most of the parameters.

5. Discussion

This chapter deals with discussion of disease cervical spondylosis, nadisweda and greevabasti treatment, observations, clinical study and results acquired are discussed with appropriate views.

6. Conclusion

Individually Nadisweda and Greevabasti both are effective treatment in all the subjective parameters as well as in Neck disability index. Compared to Control group, both Nadisweda and Greevabasti have shown better results (statistically significant <0.05) in subjective and neck disability index parameters.

Compared to Nadisweda, Greevabasti has shown better results by considering following things – In subjective parameters like Neck pain, Radiation of pain, Stiffness, Movement of Neck and in Neck disability index parameters like Pain intensity, Lifting, Reading, Headache, Concentration, Work, Driving and Sleeping Greevabasti has shown better results compared to Nadisweda. Total score of level of disability has shown Greevabasti has better effect than Nadisweda and Control group. X-ray findings also revealed that Greevabasti has shown better relief of stiffness, compared to Nadisweda.

BIBLIOGRAPHY

1. http://www.ijcim.th.org/SpecialEditions/v23nSP2/02_55A_Epidemic.pdf accessed on 10/05/2017 at 06 pm.
2. https://brage.bibsys.no/xmlui/bitstream/handle/11250/300727/Masteroppga ve_Katrine_Tranaas_Vannebo.pdf?sequence=1 accessed on 11/05/2017 at 09 pm
3. <http://onlinelibrary.wiley.com/doi/10.1002/acr.20270/pdf> accessed on 15/05/2017 at 5.00 pm
4. <http://www.apeddor.org/images/factSheets/dorMusculoEsqueletica/en/Neck Pain.pdf> accessed on 19/05/2017 at 12 pm.
5. <http://bestpractice.bmj.com/bestpractice/monograph/577/basics/epidemiology.html> accessed on 29/04/2017 at 4pm
6. Savill's Text book of Medicine, 14th Edition by Dr. E.C.Warner, pp 1498, page 898
7. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 108
8. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 113
9. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 617
10. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 40
11. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 114
12. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 114
13. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 617
14. Sushruta, Sushruta samhitha, Acharya Jadavji Trikamji, Chaukhambha Surbharti Prakashan, Varanasi, 2003, pp. 824, page 514
15. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 120

16. .Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 89
17. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 90
18. Vagbhata, Astangahrdaya, Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007, pp. 956, page number 301
19. Vagbhata, Astangahrdaya, Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007, pp. 956, page 726
20. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 89
21. Agnivesha: Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan,Varanasi, 2004 pp.738; page120
22. Sushrutha Sushruth samhita: Acharya Jadavji Trikamji,Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824; page 507
23. Vagbhata Astanga samgraha: Kaviraj Atrideva Gupta, Chowkhamba Krishnadas Academy, Varanasi, 2005: pp.408; vol.1, page 29
24. Vagbhata: Astanga samgraha: Kaviraj Atrideva Gupta, Chowkhamba Krishnadas Academy, Varanasi, 2005: pp.408; vol.1, page 121
25. Agnivesha: Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan,Varanasi, 2004 pp.738; page 676
26. Sushrutha Sushruth samhita: Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824; page 509
27. Vagbhata Astangahrdaya: Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007: pp. 956, page 775
28. Sharanghadhara Samhita: Tripathi Brahmanand: Chaukamha surabharati prakashan; Varanasi.2007: pp.488. page 221
29. Sushrutha: Sushruth samhita: Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824; page 488
30. Agnivesha: Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan,Varanasi, 2004 pp.738; page 42
31. Sushrutha Sushruth samhita: Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824; page 488
32. Vagbhata: Astanga samgraha: Kaviraj Atrideva Gupta, Chowkhamba Krishnadas Academy, Varanasi, 2005: pp.408; vol.1, page 29

33. Sushruta: Sushruth samhita: Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824; page 488
34. Vagbhata: Astangahrdaya: Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007: pp. 956, page 26
35. Yogratnakar: Shri Laxmipati shastri, Chaukhamba Prakashan Varanasi, reprint 2008 pp.504, page 61
36. Agnivesha: Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738; page 87
37. Agnivesha: Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738; page 620
38. Agnivesha: Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738; page 620
39. Agnivesha: Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738; page 620
40. Sushruta Sushruth samhita: Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824; page 514
41. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738; page 120.
42. Ayurvediya Shabdakosha: Venimadhavashastri Joshi, Maharashtra rajya sahitya ani sanskruti mandal, Mumbai, 1968 pp.975; page 956
43. Williams M.Monier, Sanskrit English Dictionary, Motilal Banarsidas publications, Delhi 2005, pp.1333.
44. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738; page 87
45. Sushruta, Sushruth samhita, Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003, pp.824, page 514
46. Sushruta, Sushruth samhita, Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003, pp.824, page 514
47. Sushruta, Sushruth samhita, Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003, pp.824, page 514
48. Sushruta, Sushruth samhita, Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003, pp.824, page 514
49. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738, page 89

50. Sushrutha, Sushruth samhita, Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824; page 399 and 514
51. Vagbhata, Astanga samgraha, Kaviraj Atrideva Gupta, Chowkhamba Krishnadas Academy, Varanasi, 2005, pp.408; vol.1, page 196
52. Vagbhata, Astangahrdaya, Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007, pp. 956, page 259
53. Vridhajivaka: Kasyapa Samhita: Sri Satyapala Bhisagacharya, Choukambha Sanskrit Sansthan, Varanasi, 2000: pp. 364, page 26
54. Agnivesha: Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738; page 88
55. Sushrutha Sushruth samhita: Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824; page 515
56. Vagbhata Astanga samgraha: Kaviraj Atrideva Gupta, Chowkhamba Krishnadas Academy, Varanasi, 2005: pp.408; vol.1, page 196
57. Vagbhata Astangahrdaya: Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007: pp. 956, page 258
58. Vridhajivaka Kasyapa Samhita: Sri Satyapala Bhisagacharya, Choukambha Sanskrit Sansthan, Varanasi, 2000: pp. 364, page 26
59. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738; page 120
60. Vagbhata Astanga samgraha: Kaviraj Atrideva Gupta, Chowkhamba Krishnadas Academy, Varanasi, 2005: pp.408; vol.1, page 196
61. Vagbhata Astangahrdaya: Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007: pp. 956, page 258
62. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738; page 88
63. Sushrutha Sushruth samhita: Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824; page 514
64. Vagbhata Astanga samgraha: Kaviraj Atrideva Gupta, Chowkhamba Krishnadas Academy, Varanasi, 2005: pp.408; vol.1, page 196
65. Vagbhata Astangahrdaya: Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007: pp. 956, page 257
66. Vridhajivaka Kasyapa Samhita: Sri Satyapala Bhisagacharya, Choukambha Sanskrit Sansthan, Varanasi, 2000: pp. 364, page 25

67. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738; page 88
68. Sushruta Sushruth samhita: Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824; page 514
69. Vagbhata Astanga samgraha: Kaviraj Atrideva Gupta, Chowkhamba Krishnadas Academy, Varanasi, 2005: pp.408; vol.1, page 196
70. Vagbhata Astangahrdaya: Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007: pp. 956, page 258
71. Vridhajivaka Kasyapa Samhita: Sri Satyapala Bhisagacharya, Choukambha Sanskrit Sansthan, Varanasi, 2000: pp. 364, page 25
72. Sushruta Sushruth samhita: Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824; page 514
73. Vridhajivaka Kasyapa Samhita: Sri Satyapala Bhisagacharya, Choukambha Sanskrit Sansthan, Varanasi, 2000: pp. 364, page 25
74. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738; page 47, 88
75. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 90
76. Sushruta Sushruth samhita, Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003, pp.824, page 513
77. Vagbhata Astanga samgraha, Kaviraj Atrideva Gupta, Chowkhamba Krishnadas Academy, Varanasi, 2005: pp.408; vol.1, page 193
78. Vagbhata Astangahrdaya, Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007, pp. 956, page 253
79. Vridhajivaka Kasyapa Samhita, Sri Satyapala Bhisagacharya, Choukambha Sanskrit Sansthan, Varanasi, 2000, pp. 364, page 26
80. Harita samhita Ramavalamba shastri, Prachya prakashan, Varanasi, 1985. pp.456 page 431
81. Bhela Samhita Girijadayalu Sukla, Chaukhambha Bharati Academy, Varanasi, 1999 pp. 285, Page. 38
82. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 92
83. Sushruta Sushruth samhita, Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003, pp.824; page 514

84. Vagbhata Astanga samgraha: Kaviraj Atrideva Gupta, Chowkhamba Krishnadas Academy, Varanasi, 2005: pp.408; vol.1, page 195
85. Vagbhata Astangahrdaya, Hari Sadasiva sastri paradakara, Chaukhamb Surbharati Prakashan, Varanasi, 2007, pp. 956, page 259
86. Sharanghadhara Samhita, Tripathi Brahmanan, Chaukamha surabharat prakashan; Varanasi.2007: pp.488. page 329
87. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan,Varanasi, 2004, pp.738, page 92
88. Sushrutha Sushruth samhitha, Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003, pp.824; page 514
89. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan,Varanasi, 2004 pp.738, page 88
90. Vridhajivaka Kasyapa Samhita, Sri Satyapala Bhisagacharya,Choukambha Sanskrit Sansthan, Varanasi, 2000, pp. 364, page 27
91. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan,Varanasi, 2004 pp.738; page 88
92. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan,Varanasi, 2004 pp.738; page 89
93. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan,Varanasi, 2004 pp.738; page 90
94. Vagbhata Astangahrdaya, Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007, pp. 956, page 301
95. Agnivesha Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan,Varanasi, 2004 pp.738; page 736
96. M.Moner willams, A dictionary english and sanskrit, Motilal banarasidass publishers pvt ltd ,Delhi,1976, Pp859, page 528
97. Sanskrit English dictionary, Prof.Horacehayman, Nag publishers, New Delhi, pp 839 page 252
98. Vachaspatyam sanskrit dictionary, Sri Taranath Tarkavachaspati, Choukambha Sanskrit series office ,Varanasi 1962 Pp 5442, Page no.4862,4864
99. The Cervical Spine, Charles R Clark, Lippincott Williams & Wilkins, 4th Edition, Philadelphia, USA, 2005, pp. 1250, page 957

100. The Cervical Spine, Charles R Clark, Lippincott Williams & Wilkins, 4th Edition, Philadelphia, USA, 2005, pp. 1250, page 957
101. www.gov.uk/government/uploads/system/uploads/attachment_data/file/384555/spondylosis.pdf accessed on 27/05/17 at 2.45pm
102. Kalyan B. Bhattacharyya, API Text of Medicine, 7th Edition, 2003, Edited by Siddharth N.Shah, Published by the Association of Physicians of India, Mumbai; PP 1511. Page 886.
103. The Cervical Spine, Charles R Clark, Lippincott Williams & Wilkins, 4th Edition, Philadelphia, USA, 2005, pp. 1250, page 149,150,151
104. Common Vertebral Joint Problems, Gregory P. Grieve, Churchill Livingstone, 2nd Edition, Edinburgh, London, Melbourne and New York, 1988, Page 357
105. John Ebnezar, Textbook of Orthopaedics, Third Edition, 2006, Published by Jaypee Brothers Medical Publishers(P) Ltd, New Delhi, pp 636. Page 09.
106. Shyamal Sen, API Text of Medicine, 6th Edition, 1999, Edited by Sainani G.S., Published by Association of Physicians of India, Mumbai; pp 1444. Page 829.
107. Kalyan B. Bhattacharyya, API Text of Medicine, 7th Edition, 2003, Edited by Siddharth N.Shah, Published by the Association of Physicians of India, Mumbai; pp 1511. Page 886.
108. Kumar & Clarke, Clinical Medicine, 6th Edition, 2005, Reprinted 2006, Edited by Prof. Parveen Kumar & Dr.Michael Clarke, Published by Elsevier. pp 1508. Page 536.
109. <https://www.hindawi.com/journals/aorth/2012/294857/> accessed on 31/05/17 at 7 pm
110. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3644750/> accessed on 31/05/17 at 6 pm
111. Agnivesha, Charaka Samhita, Edited by Vaidya Jadavaji Trikamji Acharya, Published By Chaukhambha Orientalia, Varanasi; Reprint-2007. pp738. Page 617, 113, 40,619,621.
112. Sushruta, Sushruta Samhita, Edited by Vaidya Jadavaji Trikamji Acharya & NarayanRam Acharya, 9th Edition, 2007, Published by Chaukhambha Orientalia, Varanasi; pp 824. Page 267, 268.

113. Vagbhata, Astangahrdaya, Hari Sadasiva sastri paradakara, Chaukhamba Surbharati Prakashan, Varanasi, 2007, pp. 956, page 726
114. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004, pp.738, page 89
115. Bhavprakash Nighantu, Dr K C Chunekar, Chaukhambha Bharti Academy, Varanasi, Reprint 2002. Page 502
116. Bhavprakash Nighantu, Dr K C Chunekar, Chaukhambha Bharti Academy, Varanasi, Reprint 2002. Page 196
117. Bhavprakash Nighantu, Dr K C Chunekar, Chaukhambha Bharti Academy, Varanasi, Reprint 2002. Page 12
118. Bhavprakash Nighantu, Dr K C Chunekar, Chaukhambha Bharti Academy, Varanasi, Reprint 2002. Page 779
119. Bhavprakash Nighantu, Dr K C Chunekar, Chaukhambha Bharti Academy, Varanasi, Reprint 2002. Page 299
120. <http://dergi.fabad.org.tr/pdf/volum35/issue2/105-118.pdf> accessed on 02/06/17 at 7 am
121. https://www.researchgate.net/publication/236646093_Aceclofenac_A_New_Effective_and_Safe_NSAID accessed on 05/06/17 at 9 pm.
122. Conceptual Pharmacology, P Jagadish Prasad, Universities Press India Private Ltd 2010, Hyderabad. ISBN – 978-81-7371-674-4, PP – 692, Page 264
123. <http://www.ijpbsonline.com/uploads/1/2/1/8/12183777/364-371.pdf> accessed on 05/06/17 at 9.45 pm.
124. <https://benthamopen.com/contents/pdf/PHARMSCI/PHARMSCI-2-43.pdf> accessed on 07/06/17 at 8 am.
125. Martindale – The complete drug reference, by sean sweetman, Pharmaceutical press 37th edition, 2011, UK and USA. pp- 2656, Page – 15
126. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738, page 717
127. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738, page 88
128. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 pp.738, page 678

129. Agnivesha, Charaka samhitha, Acharya Jadavji Trikamji, Chaukhambha
Sanskrit Sansthan, Varanasi, 2004 pp.738, page 98

CONSENT FORM

Date:

I,.....hereby
willingly agree to participate in the following PhD research project

A CLINICAL STUDY OF NADISWEDA & GREEVABASTI IN THE MANAGEMENT OF CERVICAL SPONDYLOSIS

I confirm that there has been no compulsion or monetary inducement in my agreeing to be a volunteer for this project – treatment which I do on my free will. I have been explained the general purpose and complications of the treatment. I am convinced that it is for the benefit of science and mankind. I have been told that I have to undergo one of the following treatments.

1. Bahya (Local) Snehana and Nadisweda
2. Greevabasti
3. A Tablet of Analgesic & Muscle Relaxant (Aceclofenac 100 mg + Thiocolchicoside 08 mg) combination, in a dose of 1BD, that is after lunch and dinner with water.

Signature of the PhD Scholar

Signature of the patient

PROFORMA

A clinical study of Nadisweda and Greevabasti in the management of Cervical Spondylosis.

PhD Scholar – Dr. Paresh Chougule

Supervisor – Dr A. B. Dharmadhikari

Name:

Serial No.:

Age: Years

Group: N / G / C

Sex: M / F

OPD No.:

Religion: H / M / C / S / J / O

IPD No.:

Education: UE / P / M / H / PU / G / PG

Bed No.:

Occupation: Labour/Housewife/Business/Service/Agriculture

DOA:

Socio-Economic Status: VP / P / LM / M / UM / R

DOD:

Marital Status: M / UM / W / D

Diagnosis:

Postal Address:

Chief Complaints:

Duration

Neck Pain

- Localized / Diffuse

Pain or Radiating to

- Occipital - Rt / Lt
Frontal - Rt / Lt
Scapular - Rt / Lt - Medial / Lateral
InterScapular
Shoulder - Rt / Lt - Anterior / Posterior / Lateral
Arm - Rt / Lt - Posterior / Lateral / Medial
Elbow - Rt / Lt - Posterior / Lateral / Medial
Forearm - Rt / Lt - Posterior / Lateral / Medial
Wrist - Rt / Lt - Posterior / Lateral / Medial
Hand - Rt / Lt - Finger - Thumb / Index / 3rd / 4th / 5th

Neck Movements

- Painful / Painful Restricted / Restricted

Stiffness

-

Associated Complaints:

Duration

Numbness / Tingling sensation

Vertigo

History of Present Illness:

Mode of Onset: Sudden / Gradual / Transient

Nature of Pain: Dragging / Shooting / Stabbing / Pricking / Dull / Deep aching / Superficial aching / Sharp / Throbbing / Burning / Stretching

Course: Intermittent / Continuous

Aggravating Factors: Diurnal - M / A / E / N
Seasonal - Ushna / Sheeta / Varsha / Constant
Movements - FB / BB / Lateral Rotation / Lateral Flexion
Others - Weight lifting / Laughing / Coughing / Sneezing / Straining / Pulling / keeping up any thing / Bathing

Relieving Factors: Diurnal - M / A / E / N
Seasonal - Ushna / Sheeta / Varsha / Constant
Movements - FB / BB / Lateral Rotation / Lateral Flexion
Supporting / Rest / Others –

Past History: H/O Trauma - Y / N
H/O Osteomyelitis - Y / N
H/O Tumours - Y / N
H/O TB Spine - Y / N
H/O IVDP - Y / N
H/O Fracture - Y / N
H/O Similar complaints - Y / N
Others -

Treatment History:
Taken Allopathic Treatment - Y / N
Taken Ayurvedic Treatment - Y / N
Taken Physiotherapy - Y / N
Taken any other treatment - Y / N
Relief with Previous Treatment - Complete / Partial / No Relief

Family History:

Personal History:

Ahara: Veg / Mixed

Dominant Rasa: M / A / L / K / T / Ka

Vihara:

Nature of Work: Manual/Sedentary/Labour/Travelling/Walking/Standing/Sitting; Day / Night

Duration of the Job:

Vyayama: No / Proper / Less / Excessive / Irregular

Vishrama: ___ hrs; Proper / Less / Excessive / Irregular

Nidra: _____ hrs/day; Sound / Disturbed / Delayed
 Divaswapna _____ hrs/day; BM / AM; Daily / Occasional
 Ratrijagarana _____ hrs/day; Daily / Occasional

MalaVisarjana: Regular / Irregular / Constipation / Loose Stools
 Frequency: _____ /day
 Colour:
 Other:

MutraVisarjana: Normal / Polyuria / Dysuria / Oliguria / Anuria
 Frequency: Day _____ times; Night _____ times
 Colour:
 Other:

Urges: Normal / Suppression of _____ urge/s; Regular / Occasional

Habit	Duration	Occasional	Regular	Stopped	Reduced	Continued	Quantity
Smoking							
Alcohol							
Tobacco							
Snuff							
Others							

Obstetric History:

G P A L D Normal: _____ / Surgical

Intervention: _____

Gynecological History:

Menstrual Cycle _____ days; Regular / Irregular

Bleeding phase _____ days Menarche: _____ Menopause: _____

General Examination:

Built: Well / Moderate / Poor

Nourishment: Well / Moderate / Poor

Pallor: Present / Absent

Lymphadenopathy: Present / Absent

Gait: Normal / Abnormal

Vital Data	BT	AT
Pulse Rate		
Blood Pressure		
Respiration Rate		
Body Temperature		

Dasha Vidha Pareeksha:

Prakrutitah: V / P / K / VP / VK / PK / VPK

Vikrutitah: P / M / A ;

Saratah: Twak / Rakta / Mamsa / Meda / Asthi / Majja / Sukra / Satwa

Samhananatah: P / M / A

Pramanatah: Ht - _____ Cms/Ft Wt - _____ Kgs

Satmyatah: P / M / A

Satvatah: P / M / A

AharaShakti: AbhyavaharanaShakti - VyadhiPoorva: P/ M/ A; VyadhiPashchat: P/ M/ A
JaranaShakti - VyadhiPoorva: P/ M / A; VyadhiPashchat: P/ M / A

VyayamaShakti: P / M / A

Vayatah: Bala / Madhyama / Vruddha

Srotas Pareeksha:

Prana: Prakruta / Vaikruta

Udaka: Prakruta / Vaikruta

Anna: Prakruta / Vaikruta

Rasa: Prakruta / Vaikruta

Rakta: Prakruta / Vaikruta

Mamsa: Prakruta / Vaikruta

Medho: Prakruta / Vaikruta

Asthi: Prakruta / Vaikruta

Majja: Prakruta / Vaikruta

Shruka: Prakruta / Vaikruta

Mutra: Prakruta / Vaikruta

Purisha: Prakruta / Vaikruta

Sveda: Prakruta / Vaikruta

Artava: Prakruta / Vaikruta

Systemic Examination:

Respiratory:

CVS:

Per Abdomen:

CNS:

Examination of Cervical Spine:

Inspection: Deformity / Swelling / Discoloration / Scar / Bruise / No External Deformity

Position of the Head: Tilted / Rotated / Midline

Palpation: Tenderness - Present / Absent ; if present, at _____ region

Swelling - Present / Absent ; if present, at _____ region

Movements: Flexion - Fully Possible / Partial / Not Possible
 Extension - Fully Possible / Partial / Not Possible
 Right Lateral Flexion - Fully Possible / Partial / Not Possible
 Left Lateral Flexion - Fully Possible / Partial / Not Possible
 Right Lateral Rotation - Fully Possible / Partial / Not Possible
 Left Lateral Rotation - Fully Possible / Partial / Not Possible

Tests: Lhermitte’s sign –
 Spurling’s sign (Foraminal Compression Test) –
 Bakody’s sign (Shoulder Abduction or Relief Test) –

Investigations:

1. Blood for: Hb% - _____ gm%
 TC - _____ cells/cu.mm
 DC - N _____%, L _____%, B _____%, E _____%, M _____%
 ESR - _____ mm/hr
 RBS / FBS / PPBS - _____ mg/dl
2. X-ray of Cervical Spine:

X – Ray View	BT	AT
Antero- Posterior View		
Lateral View		

3. Any other investigations:

Assessment Criteria:

Parameters	BT	AT	F 1	F 2	F3
Neck Pain					
Radiation Of Pain					
Stiffness					
Tingling sensation					
Vertigo					

Movements of Neck	BT	AT	F 1	F 2	F3
Flexion					
Extension					
Right Lateral Flexion					
Left Lateral Flexion					
Right Lateral Rotation					
Left Lateral Rotation					

Neck Disability index

Parameter	BT	AT	F1	F2	F3
<p>1. Pain Intensity</p> <p>A. I have no pain at the moment. (0) B. The pain is very mild at the moment. (1) C. The pain is moderate at the moment. (2) D. The pain is fairly severe at the moment. (3) E. The pain is very severe at the moment. (4) F. The pain is the worst imaginable at the moment. (5)</p>					
<p>2. Personal care</p> <p>A. I can look after myself normally without causing extra pain B. I can look after myself normally but it causes extra pain. (1) C. It is painful to look after myself and I am slow & careful. (2) D. I need some help but manage most of my personal care. (3) E. I need help every day in most aspects of self-care. (4) F. I do not get dressed; I wash with difficulty and stay in bed.(5)</p>					
<p>3. Lifting</p> <p>A. I can lift heavy weights without extra pain. (0) B. I can lift heavy weights but it gives extra pain. (1) C. Pain prevents me from lifting heavy weights off the floor, but I can manage I they are conveniently positioned, for example on a table. (2) D. Pain prevents me from lifting heavy weights, but I can manage light to medium weights if they are conveniently positioned. (3) E. I can only lift very light weights. (4) F. I cannot lift or carry anything at all. (5)</p>					
<p>4. Reading</p> <p>A. I can read as much as I want to with no pain in my neck. (0) B. I can read as much as I want to with slight pain in my neck. (1) C. I can read as much as I want with moderate pain in my neck. (2) D. I cannot read as much as I want because of moderate pain in my neck. (3) E. I can hardly read at all because of severe pain in my neck. (4) F. I cannot read at all. (5)</p>					
<p>5.Headches</p> <p>A. I have no headaches at all. (0) B. I have slight headaches that come infrequently. (1) C. I have moderate headaches which come infrequently. (2) D. I have moderate headaches which come frequently. (3)</p>					

E. I have severe headaches which come frequently. (4) F. I have headaches almost all the time. (5)					
6. Concentration A. I can concentrate fully when I want to with no difficulty. (0) B. I can concentrate fully when I want to with slight difficulty. (1) C. I have a fair degree of difficulty in concentrating when I want to. (2) D. I have a lot of difficulty in concentrating when I want to (3) E. I have a great deal of difficulty in concentrating when I want to. (4) F. I cannot concentrate at all. (5)					
7. Work A. I can do as much work as I want to. (0) B. I can do my usual work, but no more. (1) C. I can do most of my usual work, but no more. (2) D. I cannot do my usual work. (3) E. I can hardly do any work at all. (4) F. I cannot do any work at all. (5)					
8. Driving A. I can drive my car without any neck pain. (0) B. I can drive my car as long as I want with slight pain in my neck. (1) C. I can drive my car as long as I want with moderate pain in my neck. (2) D. I cannot drive my car as long as I want because of moderate pain in neck. (3) E. I can hardly drive at all because of severe pain in my neck. 4 F. I cannot drive my car at all. (5)					
9. Sleeping A. I have no trouble sleeping. (0) B. My sleep is slightly disturbed (less than 1 hour sleepless). (1) C. My sleep is mildly disturbed (1-2 hours sleepless). (2) D. My sleep is moderately disturbed (2-3 hours sleepless). (3) E. My sleep is greatly disturbed (3-5 hours sleepless). (4) F. My sleep is completely disturbed (5-7 hours sleepless). (5)					

10. Recreation A. I am able to engage in all my recreation activities with no neck pain at all (0) B. I am able to engage in all my recreation activities with some pain in neck. (1) C. I am able to engage in most, but not all, of my usual recreation activities because of pain in my neck. (2) D. I am able to engage in a few of my usual recreation activities because of pain in my neck. (3) E. I can hardly do any recreation activities because of pain in my neck. (4) F. I cannot do any recreation activities at all. (5)					

Total score

Scores (out of 50)	Level of Disability
0 – 4	No Disability
5 – 14	Mild Disability
15 – 24	Moderate Disability
25 – 34	Severe Disability
35 – 50	Complete Disability

Assessment Of Nadisweda / Greevabasti :

Samyak Swinna Laxanas	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sweda srava														
Shoola Vyuparama														
Sthambha Nigraha														
Gaurava Nigraha														
Twak Mardawata														
Laghuta														

Signature of Supervisor

Signature of Scholar

Gradings:

Parameters:

Neck Pain:

Grade 0 – No Pain

Grade 1 – Mild Pain occasional / intermittent Relieved on its own / rest

Grade 2 – Moderate Pain, frequent pain Relieved after taking painkillers

Grade 3 – Severe Pain, not tolerable, not relieved fully even after taking painkillers

Radiation of Pain:

Grade 0 – No radiation

Grade 1 – Radiation of pain from neck to arm or neck to anyone extremity, occasionally present

Grade 2 – Radiation of pain from neck to arm or neck to anyone extremity, continuously present

Grade 3 – Radiation of pain from neck to both arms and both upper extremities, occasionally present

Grade 4 – Radiation of pain from neck to both arms or both upper extremities, continuously present

Stiffness:

Grade 0 – No Stiffness

Grade 1 – Mild Stiffness

Grade 2 – Moderate Stiffness

Grade 3 – Severe Stiffness

Tingling Sensation:

Grade 0 – Absent

Grade 1 – Occasionally

Grade 2 – Up to 1hr

Grade 3 – Up to 2hr

Grade 4 – More than 3hr

Vertigo:

Grade 0 – Absent

Grade 1 – Present on neck movements or occasionally present

Grade 2 – Present constantly

Movements of Neck Painful or Restricted:

Grade 0 – All 6 movements are painless or not restricted

Grade 1 – Any 1 movement is painful or restricted

Grade 2 – Any 2 movements are painful or restricted

Grade 3 – Any 3 movements are painful or restricted

Grade 4 – Any 4 movements are painful or restricted

Grade 5 – Any 5 movements are painful or restricted

Grade 6 – All 6 movements are painful or restricted

Reference: Orthopedic Physical Assessment by David J. Magee



SG Phyto Pharma Pvt. Ltd.



Factory :
B-53/D-21, M.I.D.C.
Gokul Shirgaon,
Kolhapur 416237
Maharashtra, India

Fact. B-53 : (Tele fax)
0231 2672528
Fact. D-21 : 0231 2671454

Email
Info@sgphyto
Website
www.sgphyto.com

S.G.PHYTO PHARMA PVT.LTD.
B53 / D21 , M.I.D.C., GOKUL SHIRGAON , KOLHAPUR


25/10/2013

ANALYSIS REPORT

PRODUCT NAME : SAHACHARADI TAILA
B.No. : 1
Receiving Date : 25/10/2013 Passing Date : 25/10/2013
Manufacturer : Self Sampled Qty. : 100 ml.

TEST	RESULT
Description	Yellowish brown coloured clear oil having characteristic pleasant odour.
Specific Gravity at R.T	0.9196
Refractive Index at R.T	1.477
LOD at 105° C	Nil

Remark : Above sample passes all parameters as per our In House Specification.


QAD Manager
Mrs.P.P.Deshpande