

To Compare The Outcome Of Lumbar Traction With Infra-Red Ray In Lumbar Disc Herniation

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Abstract: Background: Lumbar disc herniation commonly leads to pain in lower back with neurological symptoms. Physical therapy is often the first treatment; the Lumbar traction is one widely accepted method to overcome the problem of low back pain.

Objective: To find outcomes of prone and supine lumbar traction with Infra-Red Rays in patients presenting with stressful lower back caused by lumbar disc herniation with or without sciatica.

Design: A prospective randomized control trial.

Setting: The study was conducted in Hospital Sultan Abdul Halim (HSAH) in and outpatient Department of Physiotherapy, Sungai Petani, Kedah Darul Aman, and Malaysia.

Patients: Patients diagnosed with prolapsed intervertebral discs (PID) were assigned to two groups: thirty subjects aged between 20 to 60 years assigned into two groups each 15 patients in a group (n=15). Both groups will be receiving additional intervention of standard physical therapy Infra-Red Rays (IRR) along with supine lumbar traction (Group A) and another group with prone lumbar traction (Group B).

Intervention: Patients were treated thrice a week for six weeks.

Measurements: Data were collected at 1st week and 6th week using the Pain Scale (impairment) and Oswestry Questionnaires (function).

Results: A total of thirty subjects were participated. There are significant changes for all post-intervention scores compared with pre-intervention scores including prone traction.

Conclusions: Prone lumbar traction seems to be more effective in terms of reduction in pain compared to function.

Keywords: Prone Lumbar traction, Supine Lumbar traction, Low back pain, Lumbar disc herniation, Physical therapy, Treatment outcomes.

I. INTRODUCTION

There are more number of patient referred to physical therapy department due to Low back pain. 80% of components leads to lumbar pain is related to intervertebral discs. It's a near-universal human experience at some time during their life. [1-4] Risk factors include lack of physical fitness, pregnancies, psychological symptoms and frequent participation in bowling. [5-8] Genetic cause could be a reason for disorders. [9-26] Traction is widely accepted

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physiotherapy treatment for low back pain which is either given manually or in the automated form. [27-29]

II Methodologies

Research design- A prospective randomized control trial study design.

Sampling Technique: Randomized sampling. **Sample Size:**

A total of 30 subjects aged between 18 to 65 years will be randomly assigned into two groups each fifteen patients in a group (n=15) **Duration of Study:** All subjects under the criteria were taken as the population of this study. **Study Setting:** Hospital Sultan Abdul Halim (HSAH) and outpatient Department of Physiotherapy and hospitals around Sungai Petani, Kedah Darul Aman, and Malaysia.

The statistical tool used in the study is paired 't' test

$$\bar{d} = \frac{\sum d}{n}$$
$$sd = \frac{\sqrt{\sum (d - \bar{d})^2}}{n-1}$$
$$t = \frac{|\bar{d}|}{sd / \sqrt{n}}$$

d – Difference between pre-test and post-test values

\bar{d} – Mean difference

n – Total number of subjects

SD – Standard deviation

t – Paired t test

I. III Measurement Tools

1) VAS (Visual Analogue Scale)

2) Modified Oswestry Questioners

Visual Analogue Scale (VAS)

VISUAL ANALOG SCALE



Functional disability by Modified Oswestry Low Back Pain Questioners

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SECTION 1 - PAIN INTENSITY

- I can tolerate the pain I have without having to use painkillers.
- The pain is bad but I manage without taking painkillers.
- Painkillers give complete relief from pain.
- Painkillers give moderate relief from pain.
- Painkillers give very little relief from pain.
- Painkillers have no effect on the pain and I do not use them.

SECTION 2 - PERSONAL CARE (washing, dressing etc.)

- I can look after myself normally, without causing extra pain.
- I can look after myself normally, but it causes extra pain.
- It is painful to look after myself and I am slow and careful.
- I need some help, but manage most of my personal care.
- I need help every day in most aspects of self-care.
- I do not get dressed, wash with difficulty and stay in bed.

SECTION 3 - LIFTING

- I can lift heavy weights without extra pain.
- I can lift heavy weights, but it gives extra pain.
- Pain prevents me from lifting heavy weights off the floor, but I can manage if they are conveniently positioned (e.g., on a table).
- Pain prevents me from lifting heavy weights but I can manage light to medium weights if they are conveniently positioned.
- I can lift only very light weights.
- I cannot lift or carry anything at all.

SECTION 4 - WALKING

- Pain does not prevent my walking any distance.
- Pain prevents me walking more than 1 mile.
- Pain prevents me walking more than ½ of mile.
- Pain prevents me walking more than ¼ mile.
- I can only walk using a stick or crutches.
- I am in bed most of the time and have to crawl to the toilet.

SECTION 5 - SITTING

- I can sit in any chair as long as I like.
- I can sit in my favourite chair as long as I like.
- Pain prevents me sitting more than 1 hour.
- Pain prevents me from sitting more than ½ an hour.
- Pain prevents me from sitting more than 10 minutes.
- Pain prevents me from sitting at all.

SECTION 6 - STANDING

- I can stand as long as I want without extra pain.
- I can stand as long as I want but it gives me extra pain.
- Pain prevents me from standing for more than 1 hour.
- Pain prevents me from standing for more than 30 minutes.
- Pain prevents me from standing for more than 10 minutes.
- Pain prevents me from standing at all.

SECTION 7 - SLEEPING

- Pain does not prevent me from sleeping well.
- I can sleep well only by using tablets.
- Even when I take tablets, I have less than 6 hours sleep.
- Even when I take tablets, I have less than 4 hours sleep.
- Even when I take tablets, I have less than 2 hours sleep.
- Pain prevents me from sleeping at all.

SECTION 8 - SEX LIFE (if applicable)

- My sex life is normal and causes no extra pain.
- My sex life is normal but causes some extra pain.
- My sex life is nearly normal but is very painful.
- My sex life is severely restricted by pain.
- My sex life is nearly absent because of pain.
- Pain prevents any sex life at all.

SECTION 9 - SOCIAL LIFE

- My social life is normal and gives me no extra pain.
- My social life is normal, but increases the degree of pain.
- Pain has no significant effect on my social life apart from limiting my more energetic interests, e.g., dancing, etc.
- Pain has restricted my social life and I do not go out as often.
- Pain has restricted my social life to my home.
- I have no social life because of pain.

SECTION 10 - TRAVELLING

- I can travel anywhere without extra pain.
- I can travel anywhere but it gives extra pain.
- Pain is bad but I manage journeys over 2 hours.
- Pain restricts me to journeys of less than 1 hour.
- Pain restricts me to short necessary journeys under 30 minutes.
- Pain prevents travel except to the doctor or hospital.

		**		lower	upper
2.000	0.654	11.832	0.000	1.637	2.362

There is a significance difference in pre and post intervention on VAS scale

(t=11.832, p<0.05)

* p<0.05 ** p<0.001

Table 4: Oswestry Score for Pre and Post Intervention - Paired T-test for Control Group

Mean	Standard Deviation	t	p-value	Confidence Interval	
		**		lower	upper
7.933	2.576	11.926	0.000	6.506	9.360

There is a significance difference in pre and post intervention on Oswestry scale

(t=11.926, p<0.05)

* p<0.05 ** p<0.001

Table 3 and Table 4 shows VAS and ODQ for pre and post intervention Paired T-test for conventional group (IRR + Supine lumbar traction) respectively. Mean value (VAS) of 2.000 with standard deviation (SD) of 0.654 where it shows a significance difference t=11.832, p<0.05 and mean value (ODQ) of 7.933 with SD of 2.576, shows a significance difference t=11.926, p<0.05

II. RESULTS

Table1: Mean and Standard Deviation for VAS

VAS	Mean	Standard Deviation
Pre Intervention	5.83	1.72
Post Intervention	3.47	1.63

Table2: Mean and Standard Deviation for Oswestry Score

VAS	Mean	Standard Deviation
Pre Intervention	24.6	5.53
Post Intervention	15.8	4.65

Table 1 and Table 2 shows mean value for Visual Analogue Scale (VAS) and Oswestry Disability Questionnaire (ODQ).The mean measures of pre (1st week) and post intervention (6th week) respectively. Mean value for VAS is 5.83. The equality of variances between two groups, VAS decrement has meaningful difference (P-value<0.0001). ODQ decrement has meaningful difference (p<0.05).

Table3: VAS for Pre and Post Intervention - Paired T-test for Control Group

Mean	Standard Deviation	t	p-value	Confidence Interval

Table 5: VAS for Pre and Post Intervention - Paired T-test for Test Group

Mean	Standard Deviation	t	p-value	Confidence Interval	
		**		lower	upper
2.733	0.883	11.979	0.000	2.243	3.222

There is a significance difference in pre and post intervention on VAS scale

(t=11.979, p<0.05)

* p<0.05 ** p<0.001

Table 6: Oswestry Score for Pre and Post Intervention - Paired T-test for Test Group

Mean	Standard Deviation	t	p-value	Confidence Interval	
		**		lower	upper
9.666	3.394	11.029	0.000	7.786	11.546



There is a significance difference in pre and post intervention on Oswestry scale

($t=11.029, p<0.05$)

* $p<0.05$ ** $p<0.001$ Table 5 and Table 6 shows VAS and ODQ for pre and post intervention Paired T-test for experimental group (IRR + Prone lumbar traction) respectively. Mean value (VAS) of 2.733 with standard deviation (SD) of 0.883 where it shows a significance difference $t=11.979, p<0.05$ and Mean value (ODQ) of 9.666 with SD of 3.394, shows a significance difference $t=11.029, p<0.05$.

Table 7: Independent Sample T-test for VAS Pre and Post Intervention of Test and Control Group

Mean	Standard Deviation	t	p-value	Confidence Interval	
				lower	upper
0.733	0.284	2.582	0.015	1.315	11.546

There is significance difference in pre and post intervention on VAS scale

($t=2.582, p<0.05$)

* $p<0.05$ ** $p<0.001$

Table 8: Independent Sample T-test for Oswestry Score Pre and Post Intervention of Test and Control Group

Mean	Standard Deviation	t	p-value	Confidence Interval		Degree of Freedom
				lower	upper	
1.733	1.100	1.575	0.126	-0.521	3.987	28

There is no significance difference in pre and post intervention on Oswestry scale

($t=1.575, p>0.05$)

* $p<0.05$ ** $p<0.001$

Table 7 and Table 8 show Independent Sample T-test for VAS and Oswestry Score Pre and Post Intervention for both Test and Control Group. Mean difference (VAS) of 0.733 with standard error difference of 0.284 where it shows significance difference $t=2.582, p<0.05$ and mean difference (ODQ) of 1.733 with standard error difference 1.100, shows no significance difference $t=1.575, p>0.05$.

III. Conclusions

There is well improvement in pain and ODQ scores after three sessions continuously for 6 weeks of lumbar traction at discharge.

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- Job Design
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- Pelvic Floor Disorder
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Research Activities

1. Shirana Asmi Farook, Kshtrashal Singh, Susmita Govind, Yu Chye Wah, Rishikesavan, Elanchezian Chinnavan. "Impact of Virtual Reality Training in Rehabilitation of Stroke Patients: A Cross Sectional Review". Research and Reviews: Journal of Neuroscience: 2018; 8 (1), 16-20.

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3. Jency Sudha Deva Arul, Rishikesavan Raghupathy, Sundaresan A.N., Yu Chye

To Compare The Outcome Of Lumbar Traction With Infra-Red Ray In Lumbar Disc Herniation

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