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

Rishikesavan, Yokeshwery A/P Muniandy, Elanchezian Chinnavan, Yu Chye Wah
Susmitha Govind, Kshtrashal Singh

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

I. III Measurement Tools

1) VAS (Visual Analogue Scale)
2) Modified Oswestry Questioners

Visual Analogue Scale (VAS)

Functional disability by Modified Oswestry Low Back Pain Questioners

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Rishikesavan, School of Physiotherapy, Faculty of Allied Health Professions, AIMST University, Malaysia
Yokeshwery A/P Muniandy, School of Physiotherapy, Faculty of Allied Health Professions, AIMST University, Malaysia
Elanchezian Chinnavan, School of Physiotherapy, Faculty of Allied Health Professions, AIMST University, Malaysia
Yu Chye Wah, School of Physiotherapy, Faculty of Allied Health Professions, AIMST University, Malaysia
Susmitha Govind, School of Physiotherapy, Faculty of Allied Health Professions, AIMST University, Malaysia
Kshtrashal Singh, School of Physiotherapy, Faculty of Allied Health Professions, AIMST University, Malaysia
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Table 1: Mean and Standard Deviation for VAS

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Intervention</td>
<td>5.83</td>
<td>1.72</td>
</tr>
<tr>
<td>Post Intervention</td>
<td>3.47</td>
<td>1.63</td>
</tr>
</tbody>
</table>

Table 2: Mean and Standard Deviation for Oswestry Score

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Intervention</td>
<td>24.6</td>
<td>5.53</td>
</tr>
<tr>
<td>Post Intervention</td>
<td>15.8</td>
<td>4.65</td>
</tr>
</tbody>
</table>

Table 3: VAS for Pre and Post Intervention - Paired T-test for Control Group

<table>
<thead>
<tr>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t</th>
<th>p-value</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.000</td>
<td>0.654</td>
<td>**</td>
<td>0.000</td>
<td>1.637</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t</th>
<th>p-value</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.933</td>
<td>2.576</td>
<td>**</td>
<td>0.000</td>
<td>6.506</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t</th>
<th>p-value</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.733</td>
<td>0.883</td>
<td>**</td>
<td>0.000</td>
<td>2.243</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t</th>
<th>p-value</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.666</td>
<td>3.394</td>
<td>**</td>
<td>0.000</td>
<td>7.786</td>
</tr>
</tbody>
</table>

There is a significance difference in pre and post intervention on Oswestry scale  
(t=11.979, p<0.05)  
* p<0.05 ** p<0.001
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 VAS Pre and Post Intervention of Test and Control Group. Mean difference (VAS) of 0.733 with standard error difference of 0.284 where it shows a significance difference \( t=1.197, \ p<0.05 \) 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

<table>
<thead>
<tr>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t</th>
<th>p-value</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.733</td>
<td>0.284</td>
<td>2.582</td>
<td>0.015</td>
<td>1.315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.546</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t</th>
<th>p-value</th>
<th>Confidence Interval</th>
<th>Degr ee of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.733</td>
<td>1.100</td>
<td>1.575</td>
<td>0.12</td>
<td>-0.5</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.987</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>

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.

REFERENCES


AUTHORS PROFILE

1. AUTHOR

Name: Kshtrashal Singh
Date of Birth: 09/03/1980
Department/Division: School of Physiotherapy
Name of Faculty: FAHP
Name of University: AIMST UNIVERSITY
Telephone: +60112780211
Email: kshtrashal@aimst.edu.my
Qualification-Master of physiotherapy in orthopedics-2008
Memberships
1. Indian association of physiotherapist-2010 onwards
2. Ethiopian physiotherapy association-2015 onwards

Research Activities

I. Need Assessment for Opening a Special School for Differently Abled Children in Mekele City, Ethiopia.
Kshtrashal Singh*, Hailey Gebremichael Gebrekidan.


2. AUTHOR

Susmitha Govind
Lecture School of Physiotherapy, Faculty of Allied Health Professions (AIMST University), Semeling, Bedong, Kedah, Malaysia, Mobile no: (Malaysia +601127888026), (India +919567074632) E-mail-susmitha@aimst.edu.my,

Qualification-Master Of Physiotherapy In Cardio -Respiratory System From Rvs College Of Physiotherapy (Dr.M.G.R Medical University, Chennai), Coimbatore, Tamilnadu, India. 2013,

Bachelor Degree In Physiotherapy (4 Years +6 Months Internship) From R.V.S College Of Physiotherapy.
Physiotherapy (Dr. M.G.R Medical University, Chennai), Coimbatore, Tamil Nadu, India. 2005

Membership: Indian Association of Physiotherapists. 2016 Onwards

Research Activities


3. Author

Associate Professor Dr. Yu Chye Wah
Dean, Faculty of Allied Health Professions
PhD, MBA(UUM), BSc (Hons) Health Science (Lancaster University, UK), Diploma in Higher Education (UK), Diploma in MA (Malaysia), Post Graduate Cert. in Education (UK), Cert. in ICT (AIT), Cert. in Networking (AIT), Post Basic Cert. in Accident & Emergency Medicine (Malaysia)

Research Interests:
• Organizational Culture
• Job Design
• Withdrawal Behaviors
• Pelvic Floor Disorder
• Ano-rectal Disorder

4. AUTHOR

Yokeshwery A/P Muniandy
School of Physiotherapy, Faculty of Allied Health Professions, AIMST University, Semeling, Bedong, Kedah, Malaysia.
E-mail: cpyoyoypokesh@gmail.com

5. AUTHOR

Rishikesavan
Senior Lecturer
School of Physiotherapy, Faculty of Allied Health Professions, AIMST University, Semeling, Bedong, Kedah, Malaysia.
E-mail- prtrishi@aimst.edu.my

Qualifications-Masters in Physiotherapy (Sports)

Professional Membership-Indian Association of Physiotherapy – L6784

Research Activities


3. Jency Sudha Deva Arul, Rishikesavan Ragupathy, Sundaresan A.N., Yu Chye
To Compare The Outcome Of Lumbar Traction With Infra-Red Ray In Lumbar Disc Herniation


5. AUTHOR

Elanchezian Chinnavan
Senior Lecturer
School of Physiotherapy, Faculty of Allied Health Professions, AIMST University, Semeling, Bedong, Kedah, Malaysia.
E-mail- hinnavelanchezhan@gmail.com
Qualifications-Masters in Physiotherapy (Neurology)
Professional Membership-Indian Association of Physiotherapy – L5327

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15. M.S. Ajimsha, Nisar A Majeed, Elanchezian Chinnavan, on “ Effectiveness of Autogenic Training in Improving Motor Performances in Parkinson’s Disease “,