INTRODUCTION

Spondylosis refers to degenerative changes in the spine such as bone spurs and degenerating intervertebral discs. Lumbar spondylosis is a common condition described as a degenerative process affecting the discs, vertebral bodies and associated joints of the lumbar vertebrae. The joints most commonly affected are weight-bearing joints, such as feet, knees, hips, and spine [1].

Symptoms are often first reported between the age of 20 and 60 years. Over 80% of people over the age of 40 years have evidence of spondylosis on X-ray studies [2]. Spondylosis causes pain in the back. Pain is an unpleasant sensory and emotional experience often associated with actual or potential tissue damage (ligaments, disc) [3]. Research was conducted by Verma and Goyal who associated with actual or potential tissue damage (ligaments, disc) [3].

METHODS

Ethical clearance was obtained from KIMS DU institutional review board. 60 Subjects clinically and radiologically diagnosed with lumbar spondylosis willing to participate were recruited for this study. Informed consent was taken from the subjects. Inclusion criteria were (1) gender-both, (2) age - 40-60 years. Exclusion criteria were low back pain due to tumor, acute ligament injury, fractures, lumbar spine surgery, osteoporosis, recent spine injuries, and radiculopathy. Outcome measures for assessment of pain was visual analog scale (VAS) [6,7] and for the spinal movement was modified Schober’s test (MST) [8]. Two groups were formed.

Group A (study group) - Facetal joint mobilization, TENS and MILT.

Group B (control group) - TENS and MILT. Both groups were treated with low TENS 50-100 Hz (sweep mode) for 10 minutes intensity according to tolerance of individual and MILT with traction weight: 1/3rd body weight, hold-relax time - 20/5 seconds for 15 minutes[9,10]. Group A was treated with baseline treatment along with facetal joint mobilization was therapist uses their body weight to apply a posteroanterior force to the selected spinous process by leaning their body over their arms and performing rocking movements to provide oscillatory movements of the vertebrae. The direction of applied force was downward and oscillations for 30 seconds were given for each lumbar vertebrae mobilization [11].

Subjects in both groups were evaluated pre- and post-treatment using VAS for pain and MST for a range of motion of the spine.

Statistical analysis

Statistical analysis was performed manually as well as using the statistics software INSTAT so as to verify the results derived. p≤0.01 was considered statistically significant and ≤0.0001 was considered extremely significant. The statistical analysis of non-parametric data (VAS and MOLBPDI scores) was done by Wilcoxon matched pairs test and Mann–Whitney test. Wilcoxon matched pairs test was used for...
A total of 60 subjects were taken for study. The gender ratio of Group A was 15:15 (15 males and 15 females) and Group B was 14:13 (14 males and 16 females) and was statistically not significant. Therefore, both groups are matched with respect to gender.

1. Age of the participants in the study was between 40 and 60 years. The mean age of the participants in Group A was 53.1±5.237, and the mean age of participants in Group B was 53.1±4.678. The difference in the mean age of two groups was statistically not significant (p=0.94) (Table 1).

2. In this study, pre-interventional mean of VAS score was 7.61±1.135 in Group A and 7.74±0.9936 in Group B whereas post-interventional mean of VAS score was 2.47±0.770 in Group A and 6.41±0.9443 in Group B. Intragroup analysis of VAS score revealed statistically significant reduction in pain post-interventionally for both groups Group A (p<0.0001) and Group B (p<0.0001). Pre-intervention analysis showed no significant difference between Groups A and B (p=0.6881). Post-intervention analysis showed the extremely significant difference between Groups A and B (p≤0.0001) (Table 2).

3. In this study, pre-interventional mean of the MST was 2.826±0.628 in Group A and 2.893±0.6518 in Group B whereas post-interventional mean of the MST was 4.33±0.5622 in Group A and 3.20±0.6214 in Group B, respectively. Intragroup analysis of the MST revealed statistically improvement in flexion range of motion post-interventionally for both groups Group A (p<0.0001) and Group B (p<0.0001). Pre-intervention analysis showed no significant difference between Groups A and B (p=0.6881). Post-intervention analysis showed the extremely significant difference between Groups A and B (p≤0.0001) (Table 3).

DISCUSSION

A total of 60 subjects clinically diagnosed with lumbar spondylosis and fulfilling inclusion and exclusion criteria with age between 40 and 60 years were included in this study. Convenient sampling with random allocation was used to divide the subjects into two groups with 30 subjects in each group (Groups A and B). Baseline treatment of TENS and MILT was same for both groups whereas Group A was given facetal joint mobilization along with baseline treatment. The outcome was measured using a VAS for pain and modified Schobers scale for a range of motion.

Our study states that lumbar spondylosis is more prevalent in the age group of 50-55 years which supports the previous study which states that over 80% of people over the age of 40 years have evidence of spondylosis on X-ray studies.

The mean age of the participants in Group A was 53.1±5.237 and in Group B was 53.1±4.678. There was no significant difference between the mean ages of the participants in both groups. Out of the total number of subjects Group A included 15 males and 15 females, and Group B included 14 males and 16 females. Pre-interventional mean of VAS score of Group A was 7.61±1.135 and Group B was 7.74±0.9936. Post-interventional mean of Group A was 2.47±0.770 and in Group B was 6.41±0.9443. Intragroup analysis of VAS score was performed using Mann–Whitney test. Pre-intervention analysis showed no significant difference between Groups A and B (p=0.6951). Post-intervention analysis showed the extremely significant difference between Groups A and B (p<0.0001). Pre-interventional mean of MST score was 2.826±0.6280 in Group A and 2.826±0.6280 in Group B whereas post-interventional mean was 4.33±0.5622 in Group A and 3.20±0.6214 in Group B, respectively. Intragroup analysis of MST score was performed using Mann–Whitney test. Pre-intervention analysis showed no significant difference between Groups A and B (p=0.6951). Post-intervention analysis showed the extremely significant difference between Groups A and B (p<0.0001).

**RESULTS**

**TABLE 1: Baseline characteristics of participants**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>M=15 and F=15</td>
<td>M=14 and F=16</td>
</tr>
<tr>
<td>Age (years)</td>
<td>53.1±5.237</td>
<td>53.1±4.678</td>
</tr>
</tbody>
</table>

**Table 2: Comparison of VAS score**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean±SD</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>7.61±1.135</td>
<td>2.47±0.7700</td>
</tr>
<tr>
<td>B</td>
<td>7.74±0.9936</td>
<td>6.41±0.9443</td>
</tr>
<tr>
<td>p value</td>
<td>0.6951</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

**Table 3: Modified Schobers test**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean±SD</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>2.826±0.6280</td>
<td>4.33±0.5622</td>
</tr>
<tr>
<td>B</td>
<td>2.893±0.6518</td>
<td>3.20±0.6214</td>
</tr>
<tr>
<td>p value</td>
<td>0.6881</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

**SD: Standard deviation.**

ACKNOWLEDGMENT

We acknowledge the guidance and constant support of Dr. G Varadharajulu, Dean, Faculty of Physiotherapy, Karad. Dr. Vaishali Jagtap and Dr. S V Kazedale for help in statistical analysis.
REFERENCES

5. Fritz JM, Lindsay W. Results of a randomized clinical trial and subgrouping analysis. Is there a subgroup of patients with low back pain likely to benefit from mechanical traction? Spine 2007;32(26):E793-800.