The Effect of Preoperative Chronic Marijuana Use on Pain Outcomes Following Lumbar Fusion

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Introduction

- Marijuana legalization is a controversial topic in the United States.
- At the federal level it is still classified as a Schedule I drug.
- Many states have shifted their stance based on research studies and public opinion.
- Per the National Survey on Drug Use and Health 2020, it was the most used federally illegal drug.
- A national survey published in JAMA Network Open showed that 35.1% of current marijuana users overall reported using marijuana for medical reasons, 45.6% for nonmedical reasons, and 19.3% for both reasons.
- In the opioid epidemic setting, marijuana may be a viable alternative analgesic agent.
- Although there is strong preclinical evidence supporting the promise of cannabinoids in the treatment of back pain, there is a paucity of clinical data supporting their use in clinical practice.
- The long-term physiologic effects of chronic cannabis consumption are not well-understood, including in the surgical setting.

Methods

- The retrospective cohort analysis comprised of 179 patients who underwent a one- or two-level lumbar fusion between January 1, 2016, and December 1, 2019.
- Patients of all genders age 18 to 89 years were included.
- Total patient cohort was 179 patients, 72 females (40.2%), age 26 to 73 years.
- Patient BMI ranged from 18.1 to 48.8 kg/m2.
- Tobacco use (n, %) 16 (25.8%) 28 (23.9%) 0.782
- Female (n, %) 26 (41.9%) 46 (39.3%) 0.751
- Age (mean, SD) 52.3 (13.3) 52.7 (12.5) 0.847
- BMI (mean, SD) 30.0 (6.0) 29.4 (4.9) 0.459
- Tobacco use (n, %) 16 (25.8%) 28 (23.9%) 0.782

Table 1: Patient Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Marijuana</th>
<th>Non-user</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>User (n = 62)</td>
<td>7.5</td>
<td>5.7</td>
<td>0.709</td>
</tr>
<tr>
<td>Female (n, %)</td>
<td>26 (41.9%)</td>
<td>46 (39.3%)</td>
<td>0.751</td>
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</tr>
</tbody>
</table>

Table 2: Summarized Results of Endpoints

<table>
<thead>
<tr>
<th></th>
<th>MEDD (immediate)</th>
<th>MEDD (3 month)</th>
<th>MEDD (12 month)</th>
<th>ODI (3 month)</th>
<th>ODI (12 month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-user</td>
<td>5.1</td>
<td>5.5</td>
<td>29.0</td>
<td>0.763</td>
<td>23.2</td>
</tr>
<tr>
<td>User</td>
<td>7.5</td>
<td>5.7</td>
<td>0.709</td>
<td>37.5</td>
<td>0.815</td>
</tr>
<tr>
<td>p</td>
<td>0.002</td>
<td>0.007</td>
<td>0.886</td>
<td>0.140</td>
<td>0.059</td>
</tr>
</tbody>
</table>

Results

- There was a significant difference between groups on MEDD. The mean MEDD was 7.5 (SD=4.4) for users compared to 5.1 (SD=4.0) for nonusers.
- Nonusers tended to have higher EQ-5D scores, there was no significant difference at pre, 3-month, or 12-month, nor in the change from pre to 3-month or change from 3-month to 12-month.
- There was no significant difference in ODI scores at pre, 3-month, but a difference at post 12-month with higher index scores for users compared to non-users.
- After adjustment for pre levels the difference at post 12-month ODI score was no longer significant.

Conclusions

- The goal of this study was to determine short-term and long-term effects of chronic marijuana use on post-operative outcomes following lumbar fusions.
- Outcomes included pain experienced in the immediate post-op period, functional outcomes at 90- and 365-days post-op.
- Our findings revealed that chronic users experienced more pain immediately post-op but did not have any significant functional differences at 3 months and 1 year.
- These results are consistent with other relevant literature. Subsequent studies may include a prospective study to minimize limitations.

References