Stimulating Interest in Medicine Assisted Manipulation (MAM)/Manipulation Under Anesthesia (MUA) as a Complementary Treatment Modality for Chronic Pain and Opioid Use

David Abend DO, Alexis Dunn, Guy K Giubilato, J. Scott Lazaro, Bharani Pusukur, Teymur Aliyev, Anthony Ascone, Michael McAree

Rowan University School of Osteopathic Medicine, Department of Osteopathic Manipulative Medicine, Stratford, NJ

Abstract

The objective of this clinical review is to stimulate interest in medicine assisted manipulation (MAM), also known as manipulation under anesthesia (MUA), by providing evidence from published studies regarding the use of MUA, as well as identifying its benefits and limitations. Our group hopes to increase awareness of this technique and to contribute to its implementation to assist in overall pain reduction and reduce opioid medication dosing. A retrospective literature review was undertaken to investigate the extent of published information on the topic in order to compile evidence-based data and provide a reader with a summary of both the benefits and the flaws of the technique. We intend for this manuscript to serve as a starting point to stimulate readers’ interest into further research and discussion on MUA. We see MUA as a means of providing patients with additional treatment options as well as an opportunity to raise awareness of an uncommon, yet-effective, manipulative technique.

Introduction

There has been mention of MUA since the 1920s.1 Manipulation of the spine under anesthesia was fairly common in orthodox practices from 1940-1965, but gradually fell out of favor because of the increased reliance on advanced surgical techniques.2 In 1949, Mensor and his colleagues demonstrated a need for MUA in the treatment of lumbar intervertebral disc pain prior to surgical intervention.3 This study collected data regarding patient pain relief, post-MUA range of motion, and ability to perform straight-leg raises. Results showed that:

- 42% of patients who had MUA fell in the “excellent” category
- 23% of those who had the laminectomy alone were in this category.

In 1964, a group of allopathic orthopedic surgeons studied MUA in 39 patients ranging in age from 19 to 62 years with severe lumber disc symptoms and sciatica found that:

- 50% of patients reported significant improvement of sciatica symptoms within 24 hours,
- including diminished leg pain
- improved straight-leg raising capacity

This study confirmed Mensor’s views that manipulation can play an important role in the conservative therapy of patients with disc syndrome and supported his assertion that rotary MUA with absolute relaxation “offers optimum results and maximum safety.”

Complications from general anesthesia and aggressive HVLA procedures led to decreased use of early MUA procedures in favor of other methods of MUA.4,5 The objective of this clinical review is to stimulate interest in medicine assisted manipulation (MAM), also known as manipulation under anesthesia (MUA), by providing evidence from published studies regarding the use of MUA, as well as identifying its benefits and limitations. Our group hopes to increase awareness of this technique and to contribute to its implementation to assist in overall pain reduction and reduce opioid medication dosing. A retrospective literature review was undertaken to investigate the extent of published information on the topic in order to compile evidence-based data and provide a reader with a summary of both the benefits and the flaws of the technique. We intend for this manuscript to serve as a starting point to stimulate readers’ interest into further research and discussion on MUA. We see MUA as a means of providing patients with additional treatment options as well as an opportunity to raise awareness of an uncommon, yet-effective, manipulative technique.

Results

In 1968, an article published in the osteopathic medical literature highlighted several conditions for which MUA can be beneficial: chronic myositis, chronic fascitis, chronic muscle contracture, and restricted ranges of motion due to trauma. It is pointed out in the article that the success of MUA is directly proportional to the skill of the physician and the amount of anesthesia needed is inversely proportional to the physician’s skill in MUA. Based on his cited research, Rumney believes that there is a definite place for MUA in the medical field; however, a physician’s lack of skill may inhibit its usefulness in a specific situation.6

MUA is a manual therapy identified as successful in treating patients with intracranial or dysfuntions related to refractory, such as, as a result of anesthetic, contrast induced, or muscle spasm accompanied with pain, including a patient with protrusion of a lumbar intervertebral disc.7

Medical assistance via conscious sedation is a modification of manipulative medicine to provide pain relief to patients with unresponsive pain. The use of anesthesia is desirable for patients with these conditions due to the severe pain caused by both the condition and treatment technique.8 Explicit emphasis has also been placed on the efficacy of MUA in response to the opioid crisis could prove fruitful.

Since its revival, MUA has been used to treat for musculoskeletal dysfunctions involving the cervical through lumbar spine as well as knee and shoulder joints.9 Spinal MUA indications include:

- muscle spasm accompanied with pain,
- loss of joint range of motion, and
- chronic pain has been minimally responsive to conservative therapy.9

Early methods of MUA differ from the modern practice in that, currently, it is typically used in conjunction with operative procedures. While progress has been made in revitalizing MUA as a treatment modality, there is a need for additional evidence-based research to support it as a potential standard of care and its efficacy on post operative pain management.

Table 1. Clinical Outcomes of Manipulation Under Anesthesia (MUA)

<table>
<thead>
<tr>
<th>Reference</th>
<th>Outcome measured</th>
<th>No. of MEAs</th>
<th>Outcomes</th>
<th>Length of follow-up (months)</th>
<th>Complication rate</th>
<th>Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azizan et al (2018)</td>
<td>ROM of left MTP</td>
<td>35</td>
<td>&lt;0.0001</td>
<td>overall</td>
<td>3.1</td>
<td>2.5% Joint arthrodesis (1 patient)</td>
</tr>
<tr>
<td>IC Bauen et al (2018)</td>
<td>Knee ROM</td>
<td>78</td>
<td>0.01-10</td>
<td></td>
<td>12</td>
<td>0.0% No complications reported</td>
</tr>
<tr>
<td>S Succara AL et al (2015)</td>
<td>ROM of left MTP</td>
<td>20</td>
<td>0.0001</td>
<td></td>
<td>7</td>
<td>0.0% No complications reported</td>
</tr>
<tr>
<td>Messor (1984)</td>
<td>Median time improved from 60 day</td>
<td>52</td>
<td>0.01-10</td>
<td></td>
<td>12</td>
<td>4.0% All treated via “conservative management”</td>
</tr>
</tbody>
</table>

Conclusions

We seek to stimulate interest among practitioners in exploring the benefits and relevance of MUA as well as establish a place for it in the algorithm of formal pain management for both non-surgical and surgical neuromusculoskeletal conditions. Although MUA is still investigated, we wish to demonstrate that MUA deserves serious consideration by all health practitioners as a non-pharmacologic option as indicated by statistical review. Based on the information presented, we suggest experts in the field should provide education on the necessary skills to successfully perform MUA as a way to improve patient outcomes and quality of life post surgery. Because lack of skill is a major contributor to the double acceptance of MUA, the first step would be to train physicians in the essential techniques and increase the amount of evidence-based research needed to scientifically support this technique.9 These techniques may include, but are not limited to, high-velocity, low-amplitude, myofascial release, and soft tissue manipulation. The hope is that this will raise awareness of MUA and spark further research interest that demonstrates its success, ultimately leading to greater acceptance of MUA in clinical practice.

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