Manipulation Under Anesthesia

Description

Manipulation under anesthesia (MUA) consists of a series of mobilization, stretching, and traction procedures performed while the patient receives anesthesia (usually general anesthesia or moderate sedation).

Background

Manipulation is intended to break up fibrous and scar tissue to relieve pain and improve range of motion. Anesthesia or sedation is used to reduce pain, spasm, and reflex muscle guarding that may interfere with the delivery of therapies and to allow the therapist to break up joint and soft tissue adhesions with less force than would be required to overcome patient resistance or apprehension. Manipulation under anesthesia (MUA) is generally performed with an anesthesiologist in attendance. MUA is an accepted treatment for isolated joint conditions, such as arthrofibrosis of the knee and adhesive capsulitis. It is also used to treat (reduce) fractures (e.g., vertebral, long bones) and dislocations.

MUA has been proposed as a treatment modality for acute and chronic pain conditions, particularly of the spinal region, when standard care, including manipulation, and other conservative measures have been unsuccessful. MUA of the spine has been used in various forms since the 1930s. Complications from general anesthesia and forceful long-lever, high-amplitude nonspecific manipulation procedures resulted in decreased use of the procedure in favor of other therapies. MUA was modified and revived in the 1990s. This revival is attributed to increased interest in spinal manipulative therapy and the advent of safer, shorter-acting anesthesia agents used for conscious sedation.

MUA of the spine is described as follows: after sedation is achieved, a series of mobilization, stretching, and traction procedures to the spine and lower extremities is performed and may include passive stretching of the gluteal and hamstring muscles with straight-leg raise, hip capsule stretching and mobilization, lumbosacral traction, and stretching of the lateral abdominal and paraspinal muscles. After the stretching and traction procedures, spinal manipulative therapy (SMT) is delivered with high-velocity, short-amplitude thrust applied to a spinous process by hand, while the upper torso and lower extremities are stabilized. SMT may also be applied to the thoracolumbar or cervical area if considered necessary to address the low back pain. The MUA takes 15–20 minutes, and after recovery from anesthesia, the patient is discharged with instructions to remain active and use heat or
ice for short-term analgesic control. Some practitioners recommend performing the procedure on 3 or more consecutive days for best results. Care after MUA may include 4–8 weeks of active rehabilitation with manual therapy, including SMT and other modalities. Manipulation has also been performed after injection of local anesthetic into lumbar zygapophyseal and/or sacroiliac joints under fluoroscopic guidance (manipulation under joint anesthesia/analgesia [MUJA]) and after epidural injection of corticosteroid and local anesthetic manipulation postepidural injection [MUESI]). (1) Spinal manipulation under anesthesia has also been combined with other joint manipulation during multiple sessions. Together, these may be referred to as medicine-assisted manipulation (MAM).

Related Policies
None

Policy
*This policy statement applies to clinical review performed for pre-service (Prior Approval, Precertification, Advanced Benefit Determination, etc.) and/or post-service claims.

Spinal manipulation (and manipulation of other joints, e.g., hip joint, performed during the procedure) with the patient under anesthesia, spinal manipulation under joint anesthesia, and spinal manipulation after epidural anesthesia and corticosteroid injection are considered investigational for treatment of chronic spinal (cranial, cervical, thoracic, lumbar) pain and chronic sacroiliac and pelvic pain.

Spinal manipulation and manipulation of other joints under anesthesia involving serial treatment sessions is considered investigational.

Manipulation under anesthesia involving multiple body joints is considered investigational for treatment of chronic pain.

Rationale
Randomized, placebo-controlled trials are considered particularly important when assessing treatment of low back pain, to control not only for the expected placebo effect but to also control for the variable natural history of low back pain, which may resolve with conservative treatment alone. Dagenais et al., in a 2008 comprehensive review of the history of manipulation under anesthesia (MUA) and the published experimental literature noted that there is no research to confirm theories about a mechanism of action for these procedures and that the only randomized, controlled trial identified was published in 1971 when the techniques for spinal manipulation were different from those used at the present time. (1)

No high-quality randomized controlled trials have been identified. A 2013 comprehensive review of the literature describes studies by Kohlbeck et al. and Palmieri and S moyak (described below) as being the best evidence available for MAM/MUA of the spine. (2) Kohlbeck and colleagues carried out a prospective cohort study of 68 patients with chronic low back pain. (3) All patients received an initial 4- to 6-week trial of spinal manipulation therapy (SMT), after which 42 patients received supplemental intervention with MUA and the remaining 26 patients continued with SMT. Low back pain and disability
measures favored the MUA group over the SMT-only group at 3 months (adjusted mean difference of 4.4 points on a 100-point scale, 95% confidence interval [CI]: -2.2 to 11.0). This difference attenuated at 1 year (adjusted mean difference of 0.3 points, 95% CI: -8.6 to 9.2). The relative odds of experiencing a 10- point improvement in pain and disability favored the MUA group at 3 months (odds ratio [OR]: 4.1, 95% CI: 1.3-13.6) and at 1 year (OR: 1.9, 95% CI: 0.6-6.5. (3) Palmieri and Smoyak evaluated the efficacy of using self-reported questionnaires to study MUA using a convenience sample of 87 subjects in 2 ambulatory surgery centers and 2 chiropractic clinics. (4) Thirty-eight patients with low back pain received MUA and 49 received traditional chiropractic treatment. A numeric pain scale and Roland Morris Questionnaire were administered at baseline, after the procedure, and 4 weeks later. Average pain scale scores in the MUA group decreased by 50% versus 26% in the traditional treatment group; Roland Morris Questionnaire scores decreased by 51% and 38%, respectively. The authors concluded that the study supports the need for large-scale studies on MUA and that the assessments are easily administered and dependable.

West et al. reported on a series of 177 patients with pain arising from the cranial, cervical, thoracic, and lumbar spine, as well as the sacroiliac and pelvic regions who had failed conservative and surgical treatment. (5) Patients underwent 3 sequential manipulations with intravenous (IV) sedation followed by 4–6 weeks of spinal manipulation and therapeutic modalities; all had 6 months of follow-up. On average, visual analogue scale (VAS) ratings improved by 62% in patients with cervical pain and 60% in patients with lumbar pain. Dougherty et al. retrospectively reviewed outcomes of 20 cervical and 60 lumbar radiculopathy patients who underwent spinal manipulation postepidural injection (MUESI). After epidural injection of lidocaine (guided fluoroscopically or with computed tomography), methylprednisolone acetate flexion distraction mobilization and then high-velocity, low-amplitude spinal manipulation was delivered to the affected spinal regions. Outcome criteria were empirically defined as significant improvement, temporary improvement, or no change. Among lumbar spine patients, 22 (37%) noted significant improvement, 25 (42%) reported temporary improvement, and 13 (22%) no change. Patients receiving cervical epidural injection reported the following: 10 (50%) significant improvement, 6 (30%) temporary relief, and 4 (20%), no change. The authors noted that this is the first report of the use of spinal manipulation postepidural injection in the cervical spine. (6)

The 1 study of manipulation under joint anesthesia/analgesia (MUJA) found in the literature search had only 4 subjects. (7) Michaelsen noted in a paper published in 2000 that MUJA should be viewed with “guarded optimism because its success is based solely on anecdotal experience”. (8)

Searches of the literature using the MEDLINE® database did not find any additional published studies on spinal manipulation under anesthesia involving serial sessions or on manipulation under anesthesia of multiple joints.

Practice Guidelines and Position Statements

The American Academy of Osteopathy (AAO) published a consensus statement in 2005 on osteopathic manipulation of somatic dysfunction under anesthesia and conscious sedation. (9) The AAO states that manipulation under anesthesia may be appropriate in cases of restrictions and abnormalities of function that include recurrent muscle spasm, range-of-motion restrictions, persistent pain secondary to injury
and/or repetitive motion trauma, and is in general limited to patients who have somatic dysfunction which:
1. has failed to respond to conservative treatment in the office or hospital that has included the use of osteopathic manipulative therapy, physical therapy and medication, and/or
2. is so severe that muscle relaxant medication, anti-inflammatory medication or analgesic medications are of little benefit, and/or
3. results in biomechanical impairment which may be alleviated with use of the procedure.

In 2002, the National Academy of Manipulation Under Anesthesia Physicians published guidelines for protocols and standards for MUA, including determining the necessity and frequency of MUA. (10)

**Summary**

Scientific evidence regarding spinal manipulation under anesthesia, spinal manipulation with joint anesthesia, and spinal manipulation after epidural anesthesia and corticosteroid injection is limited to observational case series and nonrandomized comparative studies. Evidence regarding the efficacy of MUA over several sessions or for multiple joints is also lacking. Evidence is insufficient to determine whether MUA improves net health outcomes; thus, it is considered investigational.

**Medicare National Coverage**

Medicare has not published a national coverage decision related to spinal MUA, MUJA, or MUESI.

**References**


Policy History

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<tr>
<th>Date</th>
<th>Action</th>
<th>Reason</th>
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<tbody>
<tr>
<td>June 2012</td>
<td>New Policy</td>
<td></td>
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<tr>
<td>September 2013</td>
<td>Update Policy</td>
<td>Policy updated with literature search. Policy title changed to “Manipulation under Anesthesia” to include joints other than the spine. Policy statement unchanged.</td>
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Keywords

Spinal Manipulation

This policy was approved by the FEP® Pharmacy and Medical Policy Committee on March 14, 2014 and is effective April 15, 2014.

Signature on File

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