

which can be found at: <https://spine.massgeneral.org/drupal/Mortality-MetastaticSpineTumor>

**CONCLUSIONS:** Machine learning algorithms show promising results for predicting 30-day mortality following surgery for metastatic spine tumors. These algorithms can be useful aids for counseling patients, assessing pre-operative medical risks, and predicting survival after surgery.

**FDA DEVICE/DRUG STATUS:** This abstract does not discuss or include any applicable devices or drugs.

<https://doi.org/10.1016/j.spinee.2020.05.575>

### 165. Impact of a centralized spinal orthoses program on cost of care in the hospital setting

Susan Willey, MS, PT<sup>1</sup>, James Lenk, BS, MPT<sup>2</sup>, Linda Waters, PT<sup>1</sup>, Jonathan Cayce, PhD, MS<sup>2</sup>, Charles French, MBA<sup>2</sup>; <sup>1</sup>Ascension Via Christi, Wichita, KS, US; <sup>2</sup>DeRoyal Industry, Powell, TN, US

**BACKGROUND CONTEXT:** Off-the-shelf (OTS) adjustable spinal orthoses benefit hospital patients in their recovery from spinal fractures, traumatic spinal injuries, and spinal surgery. Best practice routinely recommends physical therapy for early mobilization and training patients in spinal orthosis management. Medicare and private insurance increasingly place hospitals under economic pressure to provide excellent patient care with less financial resources. A gap exists in the literature that explores the most cost-effective model for orthosis fitting and delivery. At the study facility, a level 1 trauma center, we experienced delivery delays by the external vendor that prevented the timely mobilization of patients and impacted discharge. These challenges led us to consider alternative models for providing OTS spinal orthoses to improve patient care.

**PURPOSE:** To investigate the cost-effectiveness and process efficiency of an external vendor provided OTS spinal orthoses program compared to a hospital-based physical therapist provided OTS spinal orthoses program.

**STUDY DESIGN/SETTING:** A retrospective study to examine clinical changes pre- and postimplementation of a centralized OTS spinal orthoses program managed by the physical therapy department in a hospital setting.

**PATIENT SAMPLE:** Study compared 100 patients from preprogram to 120 patients in the postprogram.

**OUTCOME MEASURES:** N/A

**METHODS:** We developed an OTS spinal orthoses program managed by the physical therapy (PT) department at our facility. In the program, the PT department stocked three adjustable sizes of lumbar spinal orthoses (LSO) and thoracic lumbar spinal orthoses (TLSO). Physical therapists fit the brace and mobilize the patient during the first PT visit. We compared the new program to the previous program by evaluating the time to delivery of the orthosis, time to mobilization by physical therapy, length of stay and cost of care between the two programs for trauma, surgical, and all patients - statistical analysis used parametric and nonparametric tests as appropriate for the data. P-values less than 0.05 identified significant differences.

**RESULTS:** Time to mobilization of patients by physical therapy significantly decreased when comparing the two programs (all patients=14.6 hrs [p=6.56E-9] trauma patients=16 hrs [p=9.6E-6]). The length of stay decreased by an average of 9.2 hrs (p=n.s.). The new program resulted in an average charge reduction of \$2026.50 (p<2.2E-16) related to providing the orthosis and mobilization of the patient. Often clinicians can conservatively manage spinal trauma patients with spinal orthosis and physical therapy. We evaluated a subset of trauma patients with LOS<11 days and LOS<4days to consider the program's effect on patients without complicated hospital stays. For both groups, time to mobilization significantly decreased by 12.7 hrs (p=3.7E-6) and 11 hrs (p=4.6E-5) respectively. With earlier mobilization, both groups experienced significant reductions in length of stay of 1 day(p=0.026) and 14.4 hrs (p=0.0045) respectively. These findings demonstrate that the program improved the quality of care for trauma patients treated at our facility.

**CONCLUSIONS:** These findings demonstrate how a PT managed centralized spinal orthoses program can facilitate rapid mobilization of patients

and reduce the length of stay of our patients. The program improved the quality of care and reduced costs associated with the mobilization of patients requiring OTS spinal orthoses.

**FDA DEVICE/DRUG STATUS:** DeRoyal Spinal Orthoses (Approved for this indication)

<https://doi.org/10.1016/j.spinee.2020.05.576>

### 166. Effectiveness of epidural amniotic fluid injection for low back pain

Glenn R. Buttermann, MD<sup>1</sup>, Louis C. Saeger, MD<sup>2</sup>, Matthew G. Thorson, MD<sup>3</sup>; <sup>1</sup>Midwest Spine Institute LLC, Stillwater, MN, US; <sup>2</sup>Premier Spine and Pain Clinics, Minneapolis, MN, US;; <sup>3</sup>Advanced Spine and Pain Clinics, Edina, MN, US

**BACKGROUND CONTEXT:** Epidural corticosteroid injections have long been used to treat pain and inflammation associated with lumbar HNP, DDD and spinal stenosis symptoms. amniotic fluid, AF, is rich in the components that are believed to contribute to healing by minimizing inflammation. AF injections in nonspinal conditions have been shown to be safe and avoid adverse effects related to steroids.

**PURPOSE:** To investigate the efficacy and safety of a single amniotic fluid injection into the epidural space for the treatment of low back pain. Specifically, this pilot study is to define indications for future large-scale comparative studies. Three diagnostic LBP patient groups were evaluated, HNP, stenosis, and DDD.

**STUDY DESIGN/SETTING:** IRB approved prospective three cohort clinical study.

**PATIENT SAMPLE:** Patients were enrolled who had LBP and leg symptoms for more than 3 months with clinical and MRI findings for HNP, stenosis or DDD. Inclusion criteria necessitated that patients had not responded to medications, physical therapy, and chiropractic.

**OUTCOME MEASURES:** Back pain and leg pain VAS, ODI, PROMIS, pain medication usage.

**METHODS:** After obtaining consent, 20 patients in each diagnostic group, had 2mls transforaminal epidural AF injected at symptomatic level using fluoroscopy. Pre- and postprocedure outcomes were obtained with follow-up outcomes obtained at 2 weeks, 6 weeks, 3-4 months, 6 months and 1 year.

**RESULTS:** The average age ( $\pm$  SD) of HNP, stenosis, and DDD patients was 39 $\pm$ 13, 57 $\pm$ 10, 44 $\pm$ 14 respectively. There were no complications or other adverse effects. HNP patients had the greatest reduction in symptoms with average LBP VAS improvement from 6.5 to 2.4, leg VAS from 5.7 to 1.5, and ODI from 35 to 6. Stenosis patients had LBP VAS from 6.1 to 3.7, leg VAS from 6.0 to 2.2, and ODI from 41 to 29. DDD patients had LBP VAS from 6.8 to 4.6. Within groups, HNP had significant improvement at all follow-ups for VAS back & leg pain, Pain Diagram, ODI, and PROMIS-Phys. Stenosis patients had significant improvement at all FU <8 months for VAS back & leg pain, Pain Diagram, ODI, and PROMIS-Phys. DDD group had significant improvement at all FU for VAS back pain. Between groups, there was no difference in pretreatment measures. HNP had significantly greater improvement in VAS back & leg pain, & ODI compared to DDD. HNP had significantly greater leg pain improvement compared to Stenosis. Stenosis patients had significantly greater improvement in VAS leg pain compared to DDD. HNP patients had the greatest reduction in pain medications. Of patients that failed AF, 2 HNPs had discectomy and 4 DDDs had fusion/TDR which is dramatically less surgery than in prior steroid injection studies by the authors

**CONCLUSIONS:** AF epidural injections are most effective for patients with lumbar HNP and moderately effective for those with stenosis. AF injections for DDD patients gave inconsistent results. Future prospective studies of AF vs steroid injections are warranted for HNP and stenosis patients.

**FDA DEVICE/DRUG STATUS:** This abstract does not discuss or include any applicable devices or drugs.

<https://doi.org/10.1016/j.spinee.2020.05.577>