Use of Bone Morphogenetic Protein-2 in Vertebral Column Tumor Surgery: a National Investigation

Jonathan Nakhla, MD; Rafael De la Garza Ramos, MD; Murray Echt, MD; Ryan Holland, MD; Andrew Kobets, MD; Merritt D. Kinon, MD; Reza Yassari, MD

Department of Neurological Surgery, Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, New York

Poster ID: 42263
Disclosures

• None
Introduction

• One of the greatest challenges in spinal oncological surgery is achieving arthrodesis in cases where instrumentation is implemented.

• Recombinant human bone morphogenetic protein-2 (rhBMP-2) plays an important role in the stimulation of bone growth; however, its role in spinal oncology has yet to be delineated.
Methods

• The Nationwide Inpatient Sample database (2012-2014) was queried to identify patients who underwent spinal fusion for vertebral column tumors (primary and metastatic).

• The rate of rhBMP-2 use was calculated for each procedure, and patient/operative factors associated with its use was also investigated.
Results

• A total of 9,375 patients who underwent fusion surgery for spinal tumors between 2012 and 2014 were identified, with 540 cases using rhBMP-2 (5.8%).

• The rate of rhBMP-2 use in primary benign tumor surgery was 4.9%, 7.9% for primary malignant tumors, and 5.7% for metastatic lesions (p-value 0.607).

• Patients who received this growth factor were less likely to have epidural spinal cord compression (37.0% vs. 49.2%, p=0.014), and more likely to have elective surgery (53.7% vs. 37.7%, p<0.001). Based on hospital location, the highest usage of rhBMP-2 was in the South (p=0.002).
Discussion

• The use of rhBMP-2 has been used off-label to promote arthrodesis; however, its use on cancer patients is even more controversial.

• In this national study, rhBMP-2 use was more likely to occur in the South, in patients without epidural cord compression, and in elective cases.