684 Scoring System to Triage Patients for Spine Surgery in the Setting of Limited Resources

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INTRODUCTION: As of May 04, 2020, the COVID-19 pandemic has affected over 3.5 million people and touched every inhabited continent. Accordingly, it has stressed health systems the world over leading to the cancellation of elective surgical cases and discussions regarding healthcare resource rationing. It is expected that rationing of surgical resources will continue even after the pandemic peak, and may recur with future pandemics, creating a need for a means of triaging emergent and elective spine surgery patients.

METHODS: Using a modified Delphi technique, a cohort of 16 fellowship-trained spine surgeons from 10 academic medical centers constructed a scoring system for the triage and prioritization of emergent and elective spine surgeries. Three separate rounds of videoconferencing and written correspondence were used to reach a final scoring system. Sixteen test cases were used to optimize the scoring system so that it could categorize cases as requiring emergent, urgent, high-priority elective, or low-priority elective scheduling.

RESULTS: The devised scoring system included 8 independent components: neurological status, underlying spine stability, presentation of a high-risk post-operative complication, patient medical comorbidities, expected hospital course, expected discharge disposition, facility resource limitations, and local disease burden. The resultant calculator was deployed as a freely available web-based calculator: https://jhspine3.shinyapps.io/SpineUrgencyCalculator/

CONCLUSION: Here we present the first quantitative urgency scoring system for the triage and prioritization of spine surgery cases in resource-limited settings. We believe that our scoring system, while not perfect, has potential value as a guide for triaging spine surgical cases during the COVID pandemic and post-COVID period.

685 Early Versus (<24 hrs) Late (≥ 24 hrs) Surgical Decompression for Central Cord Syndrome: A Propensity Score-Matched Analysis

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INTRODUCTION: The optimal clinical management of central cord syndrome (CCS) remains unclear.

METHODS: Patients who underwent surgery for CCS (LEMS-UEMS≥5) were identified from three prospective, multi-center spinal cord injury (SCI) datasets (NACTN; STASCIS; NASCIS III). Propensity scores were calculated adjusting for data source, age, injury mechanism, and baseline ASIA motor score (AMS), AIS grade, and neurological level. Propensity score matching was performed in a one-to-one ratio by an ‘optimal matching’ technique. The primary endpoint was motor recovery (upper extremity motor score [UEMS]; lower extremity motor score [LEMS]; AMS) at 1 year. Secondary endpoints were Functional Independence Measure (FIM) motor score and complete independence in each FIM motor domain at 1 year. Effect sizes for outcomes were summarized by mean differences (MDs) or odds ratios (ORs).

RESULTS: The study cohort consisted of 186 patients. Baseline characteristics were balanced between early (N= 93) and late (N= 93) surgery groups. Early surgical decompression resulted in significantly improved recovery in upper limb (MD 2.3, P= .047), but not lower limb (MD 1.1, P= .256), motor function, as compared with late surgery. On subgroup analysis, outcomes were comparable with early or late decompressive surgery in AIS grade D patients. However, in patients with AIS grade C injury, early surgery resulted in significantly greater recovery in overall motor score (MD 9.5, P= .038), owing to gains in both upper and lower limb motor function.

CONCLUSION: This study found early (< 24 hrs) compared to late (≥ 24 hrs) surgical decompression to result in improved recovery in upper limb motor function at 1 year in patients with central cord syndrome. The benefit of early surgery was especially realized in patients with AIS grade C injury.

686 An ACGME-Based Comparison of Neurosurgical and Orthopaedic Resident Training in Spine Surgery Via a Case Volume and Hours-Based Analysis

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INTRODUCTION: In a 2014 analysis of orthopaedic and neurosurgical case logs published by the Accreditation Council for Graduate Medical Education (ACGME), Daniels et al found that graduating neurosurgery residents performed over twice the number of spinal procedures over their training than graduating orthopaedic residents. There has, however, been no follow-up assessment of this trend. Moreover, whether this gap in case volume equates to a similar gap in procedural hours remains unstudied. Given the association between surgical volume and outcomes, evaluating the status of this disparity is imperative.

METHODS: A retrospective analysis of ACGME case logs published by the Accreditation Council for Graduate Medical Education (ACGME), Daniels et al found that graduating neurosurgery residents performed over twice the number of spinal procedures over their training than graduating orthopaedic residents. There has, however, been no follow-up assessment of this trend. Moreover, whether this gap in case volume equates to a similar gap in procedural hours remains unstudied. Given the association between surgical volume and outcomes, evaluating the status of this disparity is imperative.

INTRODUCTION: A retrospective analysis of ACGME case logs from 2014–2019 for graduating orthopaedic and neurological surgery residents was conducted for spinal procedures, excluding vascular lesion and peripheral nerve surgeries. Case volume was converted to hours using periprocedural times from the 2019 Medicare/Medicaid Physician Fee Schedule. Graduating spinal cases and hours, averaged over the study period, were compared between the two specialties using 2-tailed Welch’s t tests (α = 0.05). Longitudinal trends in each metric were assessed by linear regression, followed by cross-specialty comparisons via tests for equality of slopes.