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What Perioperative Factors are Associated with High-Risk Daily Morphine Milligram Equivalents in Cervical Spinal Fusions?

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Background: Morphine Milligram Equivalent (MME) dosing recommendations were introduced for primary care providers to aid in understanding the cumulative effect of opioids and the risk associated with long term use in chronic pain patients.

Research question: We sought to understand how many patients undergoing cervical spinal fusions received opioids at higher risk doses and which patient demographic and historical factors could predict this higher risk.

Design: Retrospective analysis

Methods: 237 patients that underwent one to six level cervical fusion within a multi-center network over 2 years were included in the study.

Results: Overall mean MME per day was 67.32 ± 42.34 , with a range of 0-188.54 MME/day. "High MME" was defined as greater than the overall upper quartile value, 95.02 MME/day. A total of 60 patients were determined to have "High MME" during their inpatient stay. Patients with high MMEs were significantly younger than those with MMEs within normal limits (WNL), 52.87 ± 11.33 vs 59.49 ± 11.94 respectively. Patients age ≤ 60 accounted for 70% of the High MME group. 23.3% were categorized "young" and 46.7% were "middle" aged. There were also significant differences between the two groups in terms of preoperative prescriptions for opioids. 32.3% of patients with High MMEs had an active preoperative opioid prescription vs 20.3% of those with MMEs WNL. Age was the only significant variable affecting the odds ratio. For each unit decrease in age, risk increased by 0.48.

Discussion: Patients with high MME/day who underwent one to six level cervical fusions were significantly younger and more likely to have been prescribed preoperative opioids than cervical fusion patients with MME WNL. Younger age at the time of surgery significantly impacted the risk of high MME. As a result, pre-operative opioid risk education and mitigation strategies should be considered for those at risk, especially in the younger spine population.