

Chronic Corticosteroid Use Is Associated With Increased Postoperative Complications Following Lumbar Microdiscectomy

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INTRODUCTION

Lumbar microdiscectomy (MLD) is a widely performed, minimally invasive treatment for lumbar disc herniation. Although generally safe, short-term complications remain a concern. Chronic corticosteroid use has been associated with impaired wound healing and infection in spine surgery, yet its impact on MLD remains poorly defined. This study evaluated the association between chronic corticosteroid use and 30-day postoperative complications following elective MLD.

METHODS

A retrospective cohort study was conducted using the 2016–2023 ACS-NSQIP database. Adult patients undergoing elective lumbar MLD were identified by CPT 63030. Exclusion criteria included disseminated cancer, preoperative sepsis, or concurrent fusion procedures. Chronic corticosteroid use was defined as ≥ 3 months of therapy prior to surgery. Propensity score matching (3:1 nearest-neighbor) was performed on age, sex, BMI, ASA class, diabetes, smoking, COPD, CHF, and hypertension. Multivariable logistic regression was adjusted for race, ethnicity, inpatient status, and operative year.

RESULTS

Among 64,380 eligible patients, 2,439 (3.8%) used chronic corticosteroids. Propensity matching yielded 9,648 patients (2,439 users; 7,209 controls) with balanced baseline characteristics. In adjusted analyses, chronic steroid use was associated with higher odds of 30-day readmission (OR 1.41; 95% CI 1.12–1.77; $p=0.003$), pneumonia (OR 2.21; 95% CI 1.08–4.44; $p=0.026$), deep vein thrombosis (OR 2.04; 95% CI 1.00–4.08; $p=0.046$), and sepsis (OR 3.18; 95% CI 1.60–6.37; $p<0.001$). Operative time, transfusion, length of stay, and discharge disposition were similar between groups.

DISCUSSION

Chronic corticosteroid use significantly increased the risk of sepsis, pneumonia, DVT, and unplanned readmission following MLD, even after propensity matching and adjustment. These findings reflect the immunosuppressive and pro-thrombotic effects of chronic steroid therapy. Despite MLD's minimally invasive nature, chronic steroid use confers elevated perioperative risk.

SIGNIFICANCE/CLINICAL RELEVANCE

Chronic corticosteroid use is an important risk factor for adverse short-term outcomes after lumbar microdiscectomy. Surgeons should incorporate proactive perioperative strategies, such as aggressive infection prophylaxis, pulmonary hygiene, and strict thromboprophylaxis, when managing patients on long-term steroids.

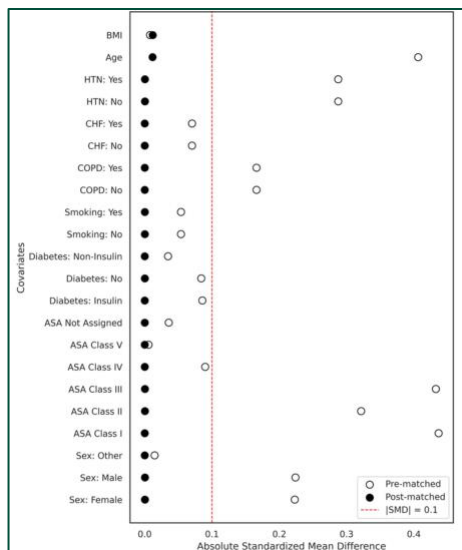


Figure 1. Absolute Standardized Mean Differences Before and After Matching

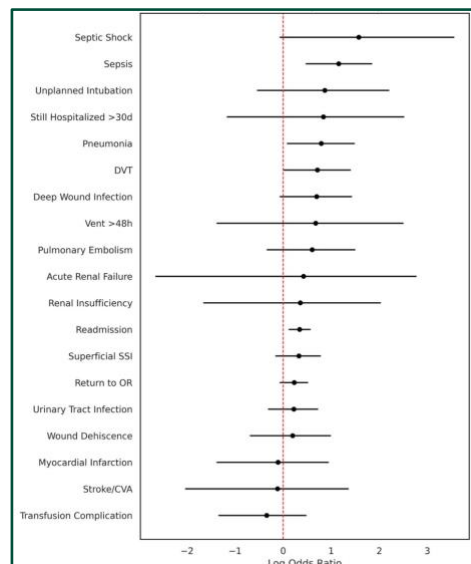


Figure 2. Log Odds Ratios for Postoperative Complications in patients on chronic corticosteroids