Impact of GLP-1 Agonist Therapy on Postsurgical Outcomes Following Multilevel Correction for Adult Spinal Deformity: A Propensity Score-Matched Analysis

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INTRODUCTION: GLP-1 receptor agonists (GLP-1As) have gained recent popularity for their utility in managing diabetes mellitus. A recent surge in research exploring their role in perioperative surgical care has demonstrated a benefit of reduced postoperative complications. Spinal surgery continues to be one field that is underrepresented, particularly when evaluating its intersection with spinal pathology. This study focuses on the surgical outcomes in patients with adult spinal deformity (ASD) who underwent spinal deformity correction with and without GLP-1A use.

METHODS: This multi-center, retrospective cohort study was performed using the TriNetX Global Collaborative Database (2005-2025) utilizing CPT and ICD-10 codes for patients undergoing spinal deformity correction due to ASD. Patients prescribed GLP-1As within 1 year of surgery were 1:1 propensity-score matched with patients who were not using GLP-1As. Cohort balancing was achieved according to patient demographics and comorbidities. Surgical outcomes between groups were analyzed at 1- and 2-year intervals. Statistical significance was defined as $P < 0.05$.

RESULTS: At 1- and 2-years following surgery, patients taking GLP-1As had significantly lower odds of pseudoarthrosis, hardware failure, wound dehiscence, infection, cardiorenal complication, thromboembolic events, readmission, and mortality.

DISCUSSION AND CONCLUSION: Our findings reveal a statistically significant reduction particularly in pseudoarthrosis, hardware failure, readmission and mortality among patients treated with GLP-1As. These results align with the recent literature, pointing to a potential complementary therapy in management of ASD. Further research characterizing the mechanism by which GLP-1As exert their effects on spinal physiology is warranted to assess their utility in the optimization of patient outcomes.