

A34

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Impact of Hypothyroidism on Postoperative Outcomes of Spinal Fusion (4+ levels) in Adults with Spinal Deformity

Introduction: There is limited literature evaluating the impact of hypothyroidism on long-term outcomes after spinal fusion surgery in adults with spinal deformity. This study aimed to study patients with spinal deformity who underwent 4+ level spinal fusion surgery to compare outcomes between those with and without hypothyroidism. **Methods:** The New York Statewide Planning and Research Cooperation System (SPARCS) was queried to identify patients who underwent 4+ level spinal fusion surgery between 2009 and 2011. Patients with hypothyroidism were matched 1:1 to patients without hypothyroidism using propensity score matching by age, sex, and obesity status. Univariate and multivariate analyses were performed to assess basic demographics and outcomes between cohorts. **Results:** 665 hypothyroidism patients were matched with 665 non-hypothyroidism patients. The hypothyroidism cohort had higher surgical charges (\$78,190.19 ± 59,884.42 vs. \$70,271.61 ± 60,128.99, p=0.016). **R** Overall surgical complication rates (hypothyroidism: 28.6%, non-hypothyroidism: 31.0%, p=0.337), medical complication rates (hypothyroidism: 7.8%, non-hypothyroidism: 8.1%), and postoperative mortality rates (hypothyroidism: 0.0%, non-hypothyroidism: 0.3%, p=0.337) were comparable between both cohorts. **Conclusion:** Adults with hypothyroidism and spinal deformity who underwent 4+ level spinal fusion surgery had higher surgical charges, but comparable overall surgical and medical complications and postoperative mortality rates compared to those without hypothyroidism. Further studies examining reasons for higher surgical charges may better inform clinical practice to optimize outcomes and reduce costs.