

Thoracic Spinal Manifestations in Down's Syndrome Patients

Introduction: There is a paucity of data regarding Down's Syndrome's (DS) effect on the thoracic spine. The purpose of this study was 1) to compare patient demographics of DS against controls, 2) identify thoracic spinal complications (TSCs) associated with DS, and 3) track the incidence of TSCs over time.

Methods: A retrospective review of the National Inpatient Sample from 2005 to 2012 for DS patients (ICD-9:758.0). A 1:1 propensity score match (n=49,817) by age, gender, and obesity was performed. Univariate analyses evaluated demographics and TSCs. Logistic regression models were used to identify DS as an independent risk factor for TSC. A p-value of 0.01 was the significance threshold.

Results: DS patients were more likely to be white, have Medicare/Medicaid, and be younger. DS patients had longer total lengths of stay and higher total charges, but a lower obesity rate and Deyo score. DS patients had higher rates of overall TSC, including kyphosis and scoliosis, and lower rates of costochondritis, fracture, post-laminectomy syndrome, and pain/radiculopathy (Table 1). DS was an independent predictor for developing any TSC (OR 1.2; $p < 0.001$), kyphosis (OR 2.0; $p = 0.001$), and scoliosis (OR 2.4; $p < 0.001$). Fractures (OR 0.5; $p < 0.001$) and pain/radiculopathy (OR 0.2; $p < 0.001$) had a decreased risk. The incidence of TSCs in DS increased from 2005 to 2012, from 2.4 to 4.2 per 1,000,000 person-years.

Conclusion: Patients with DS had an increased risk of kyphosis and scoliosis and a decreased risk of fractures and pain/radiculopathy. Monitoring the spinal curvature of DS patients may help prevent further complications.