

Cervical Spinal Manifestations in Down Syndrome Patients

Introduction: Atlantoaxial instability is among the most widely acknowledged musculoskeletal conditions associated with Down Syndrome (DS). While this cervical spine pathology is recognized extensively in existing literature, there is limited data concerning other cervical spine manifestations and their relation to DS. This study aimed to identify cervical spine complications that are associated with DS and their prevalence over time.

Methods: Using the National Inpatient Sample (NIS), patients admitted from 2005 to 2012 with DS (ICD-9 7580) were retrospectively reviewed and matched to controls by age, gender, and obesity status in a 1:1 ratio using propensity score-matching (PSM). Incidence rates of cervical spine complications were calculated and their matched controls. Univariate analyses evaluated demographics and cervical complications, while multivariate logistic regression models identified whether DS served as an independent risk factor for cervical spine complications.

Results: Of 49,817 patients with DS and 49,817 without said diagnosis, patients with DS had lower rates of cervical spine complications (Table 1). DS was associated with the development of certain cervical spine complications, however, for other cervical manifestations it decreased the risk.

It was noted that the incidence of cervical spine manifestations in patients with DS increased from 2005 to 2012.

Conclusion: Patients with DS were found to have an increased risk of instability and degeneration, and a decreased risk of disc herniation and pain/radiculopathy. Continued evaluation of the cervical spine in patients with DS allows for early diagnosis of instability and degeneration, while providing recommendations for intervention and improvement in quality of life.