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“What is the Prevalence and Impact of Vitamin D Deficiency in Adolescent Idiopathic Scoliosis?”

Introduction: Vitamin D plays an important role in bone health, including development of specific deformities. Some authors have also suggested that vitamin D deficiency may precipitate certain osteochondroses and other types of bone-related pain. However, the impact of low vitamin D on the adolescent spine has not been clearly elucidated. The present study investigates the associations of Vitamin D level with spine deformity and pain in patients diagnosed with adolescent idiopathic scoliosis (AIS).

Methods: A retrospective chart review of consecutive patients, ages 10-17, diagnosed with AIS between 01/01/2018 and 12/31/2021 at an academic tertiary free-standing children's hospital with recorded vitamin D levels was conducted. Patients with surgery prior to diagnosis were excluded. Variables collected include demographic and clinical patient characteristics and Vitamin D level. Summary statistics and univariate associations (Chi-square test or analysis of variance) were produced using SAS/STAT software.

Results: A total of 175 AIS patients with vitamin D levels were included for analysis. Patient were predominantly female (75.4%), averaged 12.8 years old, had an average Cobb angle of 22.7 degrees, and mostly carried Medicaid insurance (61.1%). The majority of patients had Lenke type 1 (48.6%) and Lenke type 5 (42.9%) curves. The following Vitamin D levels were observed: 36.5% were deficient (30 ng/ml). More than half of the patients reported back pain (57.1%). No association was observed between Vitamin D deficiency and pain presence ($p=0.75$), Cobb angle ($p=0.44$), Lenke type ($p=0.72$), insurance type ($p=0.12$), age ($p=0.92$), or sex ($p=0.85$). Race was associated with vitamin D deficiency ($p=0.002$).