



## **Prevalence of Vitamin D Deficiency in a Tertiary Paediatric Spine Surgery Unit in Patients undergoing Scoliosis Corrective in London, United Kingdom**

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### **Background**

There is interest in Vitamin D and spine pathologies, in one study, 74% of patients with AIS were found to have deficient levels requiring supplementation (1). Severe deficiency had been reported to be as high as 42.2% in South Asian ethnic group, and 12.5% in Black African-Caribbean group (2).

### **Methods**

Between 01 June 2020 to 31 December 2023, 317 patients had 25 Hydroxy Vitamin D levels measured prior to surgery. Our laboratory reference values are: <25nmol/L – Vitamin D deficiency; 25-50nmol/L – insufficiency; and >50nmol/L – sufficiency.

### **Results**

Across all diagnosis, average Vitamin D levels were 50.7nmol/L (range= 9–174nmol/L, n=317), 17.7% (n=56) had deficiency, 38.2% (n=121) had insufficiency, and 44.2% (n=140) had sufficiency. Groups with insufficient average levels were African/Caribbean/Any other Black background (AC), Any other ethnic group, White and Asian (Mixed), and White and Black Caribbean (Mixed). All other ethnic groups had sufficient average levels. No ethnic group had deficient average levels. 126 patients (67.4%) with Idiopathic diagnosis had

deficient/insufficient levels, 61 (32.6%) had sufficient levels. Higher levels observed in Neuromuscular/Syndromic (NM) diagnosis within the AC, Indian/Pakistani/ Any other Asian background, and White/Any other White background groups when compared to Idiopathic group ( $p < 0.05$ , unpaired t-test). A higher level in the NM diagnosis across all ethnic groups when compared with Idiopathic group ( $p < 0.0001$ , unpaired t-test).

## **Conclusion**

Less than 18% of our patients had deficiency. No ethnic group had deficient average levels. 67.4% of patients with Idiopathic diagnosis had deficient/insufficient levels. Patients with NM diagnosis had significantly higher levels in certain ethnic groups, perhaps due to supplementation via enteral feeding in some patients. Larger studies are required to inform guidelines for targeted testing of Vitamin D levels in different ethnic groups.