

Assessment of Correlation between Cobb's Angle and Hip Tilting on Standing Whole Spine Radiographs in Sri Lanka

AL Abeyweera^{1#} and P Sathyathas²

¹Department of Radiology, Nawaloka Hospital PLC Colombo, Sri Lanka

²Department of Radiography and Radiotherapy, Faculty of Allied Health Sciences,
General Sir John Kotelawala Defence University, Sri Lanka

#amila92@gmail.com

Scoliosis is a three-dimensional deformity of the spine and rib cage. It may develop as a single primary curve (C shape) or as two curves (S shape). Commonly Scoliosis occurs in thoracolumbar area but it can occur in thoracic or lumbar area. This deformity is measured using Cobb's angle. Unequal hip level is one of the symptoms in Scoliosis. The aim of this study was to assess the correlation between Cobb's angle and distance between hip levels. This was a quantitative cross-sectional study, which included data from 131 whole spine standing radiographs. The data were collected from Nawaloka Hospital PLC Colombo 02. Radiographs were taken when the patient was in the standing position. The Cobb's angle and Hip level distance were measured manually. Further, measured data were categorized into three groups according to Cobb's angle: Normal (Cobb's angle $< 10^{\circ}$), Low grade (Cobb's Angle 10° to 19°) and High grade (Cobb's angle $\geq 20^{\circ}$). Pearson correlation coefficient was used to find the significance. The majority of the data belonged to normal group while the minority of the data belonged to the high grade group. There was a moderate positive (+0.47) correlation ($p < 0.05$) obtained between the Cobb's angle and hip level in the normal group and a small negative (-0.36) correlation ($p < 0.05$) between Cobb's angle and hip level in the high risk group, while no significant correlation ($p > 0.05$) was observed between Cobb's angle and hip level in the low risk group.

Keywords: Whole spine, Cobb's Angle, Hip tilting