PREVALENCE AND CLINICAL SIGNIFICANCE OF LEFT-SIDED MAIN THORACIC AND RIGHT-SIDED LUMBAR SCOLIOTIC CURVES

CK Chiu, YY Thum, Saturveithan C, CYW Chan, MK Kwan

Department of Orthopaedic Surgery, National Orthopaedic Centre of Excellence for Research and Learning (NOCERAL), Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia

Background:

In patients with scoliosis, right-sided thoracic or left-sided lumbar curves are considered typical curve directions. Curve directions such as left-sided thoracic or right-sided lumbar/thoracolumbar are considered atypical and are believed to be associated with patients with non-idiopathic scoliosis such as neuromuscular scoliosis, syndromic conditions, and patients with neural axis abnormalities (NAA).

Objectives:

To study the prevalence and clinical significance of left-sided thoracic and right-sided lumbar/thoracolumbar scoliotic curves.

Materials and methods:

A retrospective study analysed scoliosis patients seen in scoliosis clinic from 2012-2018. Included were those with lateral spine curve exceeding 10° in the coronal plane; excluded were those with degenerative scoliosis or those who received prior treatment elsewhere. Whole spine AP standing radiographs were obtained for main curve and type analysis. Patients' data including age, gender, presenting symptoms and signs, comorbid, and MRI/CT findings, were collected and analysed.

Results:

A total of 954 patients, aged 2 to 41 years, were enrolled in the study. 766 (80.3%) were females and 188 (19.7%) were males. The incidence of thoracic and lumbar atypical curve direction was 18.1% (173 cases), left-sided thoracic curves, 3.1%, right-sided lumbar/thoracolumbar curves, 15%. 2.5% has proximal thoracic curve and was omitted. Among the 173 cases, 40 (23.1%) were diagnosed with non-idiopathic scoliosis. This subgroup was predominantly male (64.2%) and aged between 11 and 18 years old (49.1%). Most associated NAAs were Chiari malformation (20.7%) and syringomyelia (15.1%). Most associated syndrome was neurofibromatosis (9.4%).

Conclusion:

A significant proportion (18.1%) of patients with scoliosis have left-sided thoracic or right-sided lumbar/thoracolumbar curve types. Male gender and adolescent age group are risk factors of NAAs. Most common NAAs found in atypical curve types were Chiari malformation and syringomyelia.