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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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Fate of Proximal Thoracic Curve in Adolescent Idiopathic Scoliosis after Selective Thoracic Fusion (Systematic Review of Literature)

A Systematic Review

For Partial Fulfillment of Master Degree in Orthopedic Surgery

By

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Ahmed Soliman

Dedication

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List of Abbreviations

Abb.	Full term
AIS	Adolescent Idiopathic Scoliosis
ASF	Anterior Spinal Fusion
AVR	Apical vertebral rotation
AVT	Apical vertebral translation
CSVL	Central sacral vertical line
L	Lumbar
MT	Main thoracic
MTC	Main thoracic curve
N	Normal
NR	Not reported
PJK	Proximal junctional kyphosis
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analysis
PSF	Posterior Spinal Fusion
PT	Proximal thoracic
PTC	Proximal thoracic curve
SD	Standard deviation
SRS	Scoliosis Research Society
STFs	Selective thoracic fusions
TL	Thoracolumbar
VTE	Venous thromboembolism

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INTRODUCTION

Definition

Scoliosis comes from the Greek Word "skoliosis" meaning crooked. It is a complex three-dimensional deformity of the spine characterized by a lateral deviation of at least 10 degrees (Cobb angle of 10° or more) with a rotation of the vertebra and usually associated with reduction of normal kyphotic curvature of the spine (Hypokyphosis). [(1)]

It can be classified into congenital, neuromuscular, and idiopathic.[(2)]

Adolescent Idiopathic Scoliosis (AIS)

The overall prevalence of AIS is 0.47% to 5.2% in the current literatures. AIS commonly affect girls with a female to male ratio of 1.5:1 to 3:1. This ratio increases substantially with increasing age. 90% of the presentation will show a right-sided thoracic curve.[(3)]

The cause of scoliosis is largely unknown in 80% of cases. It may be related to the central nervous system, proprioception, or homeostasis. A genetic link has been suggested, as 1 in 4 patients with scoliosis has a relative condition, but the pattern of inheritance is variable. Primary muscle disorder was postulated as a possible aetiology of idiopathic scoliosis. Currently, the cause is thought to be multifactorial with genetic predisposing factors, including

Metabolic (based on melatonin studies), Hormonal and Biomechanical factors.[2]

The upper thoracic spine (T1–T5) in adolescent idiopathic scoliosis (AIS) may present an added curve, the proximal thoracic (PT), at times almost equal to and symmetrically opposite to the underlying main thoracic (MT). This is the typical "double primary thoracic curve pattern", first described by Moe [4].

Some authors have advocated the inclusion of the proximal thoracic curve (PTC) in the fusion construct with the main thoracic curve (MTC) to prevent postoperative shoulder asymmetry and truncal decompensation. Furthermore, the criteria to fuse large PTCs are speculative [5,6].

Some authors have reported spontaneous correction of the PTC after selective fusion of the MTC, whereas others contend the contrary [7].

The diagnosis of a PTC was based on the presence of positive T1 tilt, a higher left shoulder, and apical vertebral rotation (AVR). The latter is based on clinical evidence of an elevated left scapula (scapula hump) and/or radiographic evidence of asymmetry of the pedicle shadows at the apex of the upper thoracic curve. The indication for fusion was a curve magnitude of >45 degrees, whereas those less than this magnitude were left unfused [8].

Spontaneous PT curve correction consistently occurs after instrumented correction of the MT curve after either posterior or anterior instrumentation and fusion, Additionally, this spontaneous correction is somewhat greater after an anterior *versus* posterior of the MT curve. The postoperative PT curve correction positively correlates with the preoperative PT curve magnitude and preoperative PT curve flexibility [9,10].

AIM OF THE WORK

We aim to do a systematic review and meta-analysis to evaluate the fate of the non instrumented proximal thoracic curve (PTC) after isolated correction of the main thoracic curve (MTC) by either an anterior or posterior instrumentation and fusion.