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Effect of growing systems on hyper-kyphotic deformities

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Growing sparing implants such as growing rod and VEPTR-like systems are distraction-based systems, due to the repetitive lengthening procedures; this means that hyperkyphosis may be a relative contraindication in the treatment of early onset deformities. We reviewed 20 pediatric patients affected by kyphoscoliosis surgically treated with Growing systems. Dual growing rod was in 9 cases, VEPTR in 11. Pre-operative main thoracic scoliosis averaged 64° (range, 10° to 100°) and thoracic kyphosis 71° (60° to 90°), 67° in patients with growing rod and 77° for VEPTR. We performed 31 lengthening procedures (1.9 per patient). Two groups: Growing-Rod and VEPTR-like measuring the preoperative and postoperative range of scoliosis and kyphosis, then the final FU result. We noted a significant decrease of scoliotic and kyphotic deformity during the first surgery, then a significant loss of correction during the FU period even in coronal then in sagittal profile, in particular in VEPTR-like group. 15 minor complications occurred in 8 patients and revision surgery was performed in 7 patients. Growing implants can be safely used in the treatment of EOD even if hyperkyphosis is present. We can say that final result is mostly related to kyphosis correction obtained during first surgery but the loss of correction is always less than the first correction. Growing rods, through cantilever maneuver performed during first surgery, seem to grant a better sagittal plane restoration compared to VEPTR. Complication rate is little higher than the complication rate of general surgical treatment of early onset scoliosis.

Biography

Elena Maredi has completed her University studies from Bologna Alma Mater Studiorum University and Residency studies from Rizzoli Orthopedic Institute. From 2009, she works as a student researcher and then as residence at Rizzoli Orthopedic Institute. She has published more than 10 papers in reputed journals.

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