Paper #12: Radiographic Parameters Correlating with Success of Mehta Cast Utilization in Infantile Idiopathic Scoliosis

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Introduction: Mehta casting has gained a considerable momentum as a non-operative treatment option for the initial management of progressive infantile idiopathic scoliosis (IIS). Despite its acceptance, there is paucity of data that characterize the radiographic parameters associated with Mehta casting and the factors correlated with a sustained curve correction.

Methods: A retrospective review of IIS patients who underwent Mehta casting was performed with a mean 2-year follow up. X-rays were evaluated at each visit for the Cobb angle, focal deformity, rib-vertebral angle difference (RVAD), and height of concavity and convexity of the apical 3 vertebrae. Concave-to-convex height ratios were calculated and tracked for each patient. Radiographic parameters were compared from pre-casting to after final casting, and from final casting to most recent follow up.

Results: A total of 45 patients were identified of which 18 (40%) were male and 27 (60%) were female, with a mean age of 18.8±9.5 months at first casting and a mean follow up of 37.7±19.7 months. Following final casting, mean Cobb angle (26° vs 53°), focal deformity (18° vs 31°), RVAD (18° vs 32°), and concave-to-convex height ratios improved relative to precast parameters. At final follow up, mean Cobb angle (16° vs 26°) and concave-to-convex height ratios progressively improved when compared with final cast measurements. Five (11%) patients did not demonstrate sustained curve correction when compared with precast to last cast periods were correlated with sustained Cobb angle correction from cast removal to most recent follow up.

Conclusions: Radiographic parameters associated with successful Mehta cast application for IIS include improvements in focal deformity and concave-to-convex height ratios for +1 and -1 apical vertebrae after final casting. Mehta casting is an effective treatment for symptomatic IIS and continues to provide IIS patients with significant curve correction.