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Quality of life outcome after selective dorsal rhizotomy – Initial experience

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Introduction: Selective Dorsal Rhizotomy (SDR) aims to improve function and mobility through reduction in abnormal tone. We present outcomes from the first 20 cases performed in our centre in England. This includes prospective Quality of Life (QoL) outcome data obtained using a standardised validated questionnaire. Whilst general functional outcomes have been reported from other centres, QoL after SDR has not been reported.

Methods: SDR was performed according to a standardised protocol. Through a single-level laminectomy, using intra-operative neurophysiology, approximately 66% dorsal rootlets are cut from L1-S1. Standardised selection criteria were used - spastic diplegia with dynamic spasticity limiting function, no dystonia, typical MRI changes, and Gross Motor Function Classification System (GMFCS) Level 2 or 3. All patients had standardised pre & post op assessments with 3D Gait Analysis, GMFM-66, Ashworth grading, muscle power & joint range of movement. QoL data was prospectively collected for all patients using the CPQoL questionnaire.

Results: Twenty patients have had SDR (15 male, 5 female). Mean age at surgery was 6.8 years (range 2.6-13.3). Twelve patients were GMFCS 3, eight were GMFCS 2. Mean follow-up is 216 days (range 56-455). All patients have shown reduction in tone after SDR. GMFM-66 results demonstrate early improvement, and will continue to be monitored. Joint range of movement has not demonstrated any significant change. QoL assessment demonstrated general improvement across the cohort, with continuous improvement throughout the first year after surgery. There were no significant complications - specifically no instances of paralysis, numbness, or bladder / bowel dysfunction. One patient required antibiotics for a superficial wound infection.

Conclusion: SDR represents a safe and effective surgical treatment for appropriately selected patients with spastic diplegic cerebral palsy. Important improvements in QoL are now demonstrated in addition to the expected improvement in tone.