Outcomes of Selective Motor Fasiculotomy in the management of lower limb spasticity due to Cerebral Palsy

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OBJECTIVES
To assess the outcome of Selective Motor Fasiculotomy (SMF) on relief in lower limb harmful resistant focal spasticity and to measure the resulting changes in motor functions in children with cerebral palsy.

METHODS
This prospective cohort study included 23 children with cerebral palsy, ranging from 5-18 (mean10.21) years, M: F ratio is 5:1. Assessed pre and post operatively with Modified Ashworth Scale (MAS), Selective Voluntary Control (SVC) grade and locomotor Abilities (kneel walking, squat to stand, standing and walking). SMF was performed on obturator (n=8), sciatic (n=11) and tibial nerves (n=23) for relief of spasticity in hip adductors, knee flexors and ankle plantar flexors respectively. Pre and post operative SVC grade also improved from 3.75 to 4.00, 4.08 to 4.17, 2.65 to 3.35 in hip adductors, knee flexors and ankle plantar flexors respectively but not significantly (p > 0.005). There were no complications and spasticity did not recur during this period of follow up.

RESULTS
During a mean follow up of 30(6 – 60) months. There was statistically significant reduction in spasticity (MAS, p < 0.0005) from 5.7 to 0.58, 1.92 to 0.08, 1.92 to 0.31 in hip adductors, knee flexors and ankle plantar flexors respectively. Pre and post operative SVC grade also improved from 3.75 to 4.00, 4.08 to 4.17, 2.65 to 3.35 in hip adductors, knee flexors and ankle plantar flexors respectively but not significantly (p > 0.005).

CONCLUSIONS
The SMF of obturator, sciatic and tibial nerves significantly relieves spasticity in the targeted muscles and thereby improves SVC and motor abilities in children having cerebral palsy. It is quite a safe procedure and the spasticity does not recur during a mean follow up of 30 months.

DISCUSSION
• Obturator SMF was performed on 4 children. All had decrease in the spasticity, experienced ease of walking due to decreased scissoring during the 30 months of follow up. This is comparable to the study done by Yeul-Bum Park et al on 12 spastic hip adductors in 6 children and 3 children underwent additional tenotomy, has been followed for 26 months. All had improved sitting posture and decreased severity of the pain.
• Sciatic SMF (9) was performed in 6 children with knee flexor spasticity. All the children had a significant reduction in spasticity in knee flexors with out significant improvement in SVC. There was significant improvement in gait, speed of walking during 30 months of follow up. Abdennebi et al performed selective neurotomies in 58 children, 10 were sciatic neurotomies. Spasticity improved in 72.4% and motor capacities in 65.5% in a follow up period of 50 months, similar results were shown by Decq etal. in 11 children
• Tibial SMF (20) was performed in 13 children having equinous deformity (7 underwent bilateral SMF and 6 children underwent unilateral SMF) performed. There was significant reductions in spasticity and improvement in SVC grade during the mean follow up of 30 months. All children had improvement in the equinous deformity and locomotor abilities following the procedure , comparable with study done by Sindou & Mertens who performed 62 procedures in 53 children (9 bilaterally and 44 unilaterally), spasticity improved in 82% and the beneficial effects of procedure lasted over 10 years of follow up (average 3 years). We have performed additional TA - Z p lasty in children with contracture.

REFERENCE

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