Preliminary Summary of the Treatment of 13 Cases of Spastic Cerebral Palsy with Highly Selective Spinal Nerve Posterior Root Rhizotomy

Zhu Jia Kai

Department of Microsurgery, First Affiliated Hospital, Zhong Shan Medical University, Guangzhou, 510080

Cerebral palsy is a clinical syndrome caused by the loss, partly or totally, of the higher central control to the spinal cord. The etiology could be congenital or acquired. Should the cerebral cortex be injured or developed incompletely, especially when the affected is motor area, then spastic cerebral palsy would appear. It is most commonly seen and comprised about 50-70%. This is a seriously disabling disorder. In serious cases, there is not only loss of working power but also ability of self-management of daily living, bringing heavy burden to the society and family. Its treatment mainly depends on rehabilitation therapy. In the mild ones, motor functions of the affected limbs could be recovered, and the patients returned to society. In more seriously affected ones, they would need accessory corrective operational treatments to improve function. Recently there were some cases using highly selective spinal cord posterior root rhizotomy for treatment. Utilizing electrophysiological method, the posterior roots of cauda equina were identified at lumbosacral region. The afferent Ia fibers from the muscle spindle were cut and this could decreased the muscle tension, eliminate the hyperreflexia and pathologic reflexes, so as to eliminate the spastic conditions. Through further positive rehabilitation exercise, comparatively good motor functions could be recovered. This operation has been affirmed by scholars locally and abroad. Xu Lin of China reported that the long term efficiency rate was 95%, no recurrency occurred. Indications for the operation are: (1) Simple spasticity with increased muscle tension, muscle power over 4°; (2) mild contracture or no contracture; (3) Heavy contractures, athetosis or ataxia patients; (4) Mentally retarded patients; (5) Marked spinal deformity and under developed cases.

In this department we had from 1992 performed 13 cases of this operation, post-operative short-term results were satisfactory. The muscle tensions were normal, hyperactive tendon reflexes and pathological reflexes were diminished. Continuous post-operative rehabilitation exercise and training could recover all of their motor functions. There were two cases which we had followed up for half year, and found that there was no recurrency of spasm. All 13 cases were children, half of them received operation before or after school age. This provided a good motor function condition to the children attending school. Patients were all satisfied. We have established a set of pre- and post-operative rehabilitation training, self-management movements, and evaluation according to the degree of self achievement of assigned movements, which were comparatively easy to execute. We have also made some modifications to the operative methods, to reduce as much as possible injury to the posterior column of the lumbar vertebrae. Positive post-operative on-bed exercises were given, and the patient would be asked to do exercise out of bed three weeks after operation. After 2-3 months, most patients could recover with better motor functions.