The Effects of Perioperative Methylprednisolone on Cervical Spondylotic Myelopathy

Introduction: Cervical spondylotic myelopathy (CSM) is the most common type of spinal cord dysfunction in patients older than 55 years and the most common cause of acquired spastic paraparesis in the middle and later years of life. It was suggest that, to treat CSM, surgery is better than medical management such as collar immobilization and traction. Methylprednisolone (MPI) could reduce white matter edema, inflammation, and destructive effects of lipid peroxidation on cell membranes. And it also improves spinal cord blood flow and sodium-adenosine triphosphatase (ATPase) activity. Our study was to explore the significance of perioperative MPI for the patients with cervical spondylotic myelopathy.

Methods: 92 cases of CSM were enrolled. Among which, there were 55 male and 37 female. The average age was 56.1 years old (ranging from 40 to 71). All the cases suffered different stage of spinal cord dysfunctions preoperatively. 1000 mg MPI was administered intravenously during the decompression and 80 mg MPI qd for 3 days postoperatively in group A (n=53). In group B (n=39), only 10 mg dexamethasone (intravenously) was administered qd for 3 days postoperatively. All cases were treated with dehydration, losec and neuro-nutritional medicine postoperatively. The general status and complications were compared in the two groups, as well as the concentration of IL-6 and CRP in the serum was analyzed. Moreover functional evaluation of spinal cord was examined by JOA Score at 3 days, 1 week and 6 months postoperatively.

Results: Concentration of IL-6 and CRP in the serum were lower in group A than in group B at 1 and 3 days after the operation (P<0.05). No statistical difference of the concentration of IL-6 and CRP in the serum were noted between the two groups at the 7 days after the operation (P>0.05). Preoperative JOA Scores between the two groups were of no statistical difference. The neurological functions of spinal cord in group A had improved obviously at 3 days, 1 week and 6 months after surgery. The JOA scores of group A were higher than those of group B. There were no complications such as digestive ulcer, infection, cardiovascular system failure related to MPI in group A.

Conclusion: The result shows that high dose successive administration of MPI can improve postoperative neurological functions recovery of CSM significantly. It can also alleviate the surgical stress. And complications such as digestive ulcer, infection, cardiovascular system failure related to MPI are infrequent.