

SPINAL CORD STIMULATION IN THE MANAGEMENT OF PAIN FROM BRACHIAL PLEXUS AVULSION

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Index terms: Brachial Plexus Avulsion; Spinal Cord Stimulation; Dorsal Root Entry Zone; Pain

Objectives: The effectiveness of spinal cord stimulation (SCS) in 11 patients suffering pain from brachial plexus avulsion (BPA) is presented.

Background: After a traumatic plexus brachialis lesion about 80 % of the patients develop pain in the deafferentated arm, which reduces to 20 % after 3 years. This pain is considered as resistant to many forms of therapy. In the early 1970s, SCS was introduced in the treatment of BPA pain, with disappointing results^{1,2}. Dorsal root entry zone (DREZ) thermocoagulation turned out to be specially suitable to treat this type of pain^{3,5}, but is however a destructive procedure.

Material, Methods: In the period 1990- 1998 11 patients (9 males, 2 females) with severe pain were selected for a trial of SCS. The mean age at the time of the trauma was 25, mean age at presentation for SCS was 36, pointing out that most patients already had a long history of pain and several previous treatments which had failed thusfar. Patients underwent cervical myelography and CT scanning, and were analyzed by pain and quality of life scores before they underwent a trial of stimulation. If the pain relief was more than 50 % a definitive system was implanted.

Results: The results of the SCS were divided in 3 groups: Group A, consisting of 4 patients with a good result, defined as more than 50 % pain relief. Group B, consisting of 3 patients with a poor result, defined as less than 25 % pain relief. Finally group C, consisting of 4 patients, in which it was not possible to obtain stimulation in the area of the pain. At a later stage, DREZ lesions were performed in 4 patients, 2 belonging to group A, and 2 to group C. The 2 patients of group A preferred DREZ lesions because they expected a better pain relief than they reached after SCS. Three of the 4 patients with a DREZ lesion showed a good result. No complications were observed.

Discussion: Although the results of DREZ lesions seem to be better when compared with SCS, DREZ thermocoagulation is a major irreversible operation including risks for neurological deficit. Complications of SCS are very rare. Besides, the success percentage of DREZ lesions is described to be 70 %⁵, implying still a relative large group of 30% remains with pain. In our serie, the success percentage of SCS is 40% after 2 years follow up. Another point of interest is the experience that some patients with extensive root avulsions still felt stimulation in the area of the pain. The patients of group A suffered a remarkable minor loss of sensory when compared with the patients belonging to group B and C. Obviously, the findings on myelography not always correlate with the findings on electromyogram. This emphasizes that a trial of SCS should be offered to any patient, even when the findings on myelography and electromyogram suggest a severe BPA.

Conclusion: SCS is expected to be more effective in patients with partial root avulsion or intact roots, nevertheless the success rate is unpredictable. Therefore SCS remains the first choice of treatment, especially due to its relative non-invasive technique when compared with DREZ lesions. After failure of SCS, DREZ thermocoagulation is a good option.

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