Selective Peripheral Denervation

Selective peripheral denervation (SPD) is currently the primary surgical treatment for spasmodic torticollis (ST) or cervical dystonia .

Although the majority of patients experience a significant relief of symptoms, there is a substantial risk of reinnervation and/or change in the pattern of the cervical dystonia [1)]

Patients with unsatisfactory treatment effects after an Selective Peripheral Denervation (SPD) or deep brain stimulation of the globus pallidus (GPi-DBS) experienced improvement from subsequently undergoing other types of surgery [2)].

Therefore, combined surgical procedures are additional surgical options with good outcomes in the treatment of patients with residual symptoms after their initial surgery [3)].

Case series

Between June 1995 and June 2013, 648 patients underwent SPD for ST. 293 women (45.2 %) and 355 men (54.8 %) with a mean age of 41.1 years (range, 8-74 years) at the onset of dystonia. Surgery was performed at a mean of 3.6 years (range, 1-32 years) after onset of symptoms. Data on clinical presentation, radiological studies, operation tragedy, clinical outcomes and complications were analysed retrospectively. For evaluation of clinical outcomes, patients' responses were assessed using the Toronto Western Spasmodic Torticollis Rating Scale (TWSTRS).

Results were obtained from all 648 patients with a follow-up period ranging from 11 months to 154 months (mean, 33.4 months). The mean preoperative TWSTRS score was 54.7 ± 18.3 points (range, 39-67 points), which decreased to 31.1 ± 11.6 points postoperatively (range, 1-67 points); a significant improvement was observed between preoperative and postoperative TWSTRS evaluation; the clinical improvement of TWSTRS was 73.5 ± 11.9 %. In addition, no deaths and serious complications occurred in this cohort of patients.

SPD is an effective surgical method for patients with ST. This procedure should be recommended if conservative therapy does not offer satisfactory relief of symptoms [4)].

1)
Bergenheim AT, Nordh E, Larsson E, Hariz MI. Selective peripheral denervation for cervical dystonia: long-term follow-up. J Neurol Neurosurg Psychiatry. 2014 Oct 31. pii: jnnp-2014-307959. doi: 10.1136/jnnp-2014-307959. [Epub ahead of print] PubMed PMID: 25362089.
2)
Contarino MF, Van Den Munckhof P, Tijssen MA, de Bie RM, Bosch DA, Schuurman PR, Speelman JD. Selective peripheral denervation: comparison with pallidal stimulation and literature review. J Neurol. 2014 Feb;261(2):300-8. doi: 10.1007/s00415-013-7188-4. Epub 2013 Nov 21. PubMed PMID: 24257834.
3)
Chung M, Han I, Chung SS, Jang DK, Huh R. Effectiveness of selective peripheral denervation in combination with pallidal deep brain stimulation for the treatment of cervical dystonia. Acta Neurochir (Wien). 2014 Dec 5. [Epub ahead of print] PubMed PMID: 25471274.
4)
Wang J, Li J, Han L, Guo S, Wang L, Xiong Z, Ma J, Liang J, Wang L. Selective peripheral denervation for the treatment of spasmodic torticollis: long-term follow-up results from 648 patients. Acta Neurochir

(Wien). 2015 Jan 25. [Epub ahead of print] PubMed PMID: 25616622.