Long Term Follow up of a Prospective Randomized Study of Chemonucleolysis Compared to Surgery

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Purpose of the study: Assessment of long term results of Chemonucleolysis vs. surgical enucleation in soft disc herniation

Material and methods: From 1982 to 1985, 100 patients with symptomatic disc herniation were randomly allocated to receive either Chemonucleolysis or standard discectomy after a three months trial of conservative treatment. Ten of the chemonucleolysis had no relief of leg pain at three months and had surgery. The results at one year showed no significant difference between the groups. In 1995, a 10 - 13 year follow up was conducted. Sixty one of the original 100 patients responded, 32 were from chemonucleolysis group and 29 from the surgical group. In addition, 32 patients agreed to have a lumbar spine radiograph, 18 from the chemonucleolysis and 14 from the surgery group. In 2009, a 25 - 27 year follow up was conducted. Forty four patients out of original 100 patients responded. 24 were from chemonucleolysis group and 20 from the surgical group.

Results: The clinical outcomes were measured using the MacNab Criteria. The disc height of the affected disc was measured from the lateral lumbar spine radiograph and compared to the adjacent disc above expressed as a percentage.

The results of two groups of patients were compared using Chi square and T test for independent samples.

At 10 - 13 years, by the Macnab criteria, 20 (63%) had excellent 3 (9%) good, 5 (16%) fair and 4 (13%) poor results in the chemonucleolysis group and 18 (62%) had excellent 3 (10%) good, 4 (14%) fair and 4 (14%) poor results in the surgery group.

At 25 - 27 years, 7 (29%) had excellent 8 (33.5%) good, 3 (12.5%) fair and 6 (25%) poor results in the chemonucleolysis group and 7 (33.5%) had excellent, 7 (33.5%) good, 4 (19%) fair and 3 (14%) poor results in the surgery group. Patients with poor result in Chemonucleolysis group consisted of four patients who had early surgery post chemonucleolysis, three of whom also had co-existing pathology, a poor result post TKR, post fracture neck of femur, and one had fibromyalgia. Poor results in surgical group were due to persistent back pain.

The radiological outcome revealed that the mean initial disc height in the chymopapain group was 88,4% compared to 83.1% in the surgery patients. At 10 - 13 years it was 76.2% and 74.7% respectively, and at 25 - 27 years it was 62% and 67.2% respectively.

Conclusion: The clinical results at all three time points have shown no statistically significant difference between the patients treated initially by either chemonucleolysis or surgery. In addition there is a small loss of disc height following both treatments over time with no statistical difference between the two treatments. The added benefit of using chymopapain injection as the primary treatment is that it is of lower cost and no detrimental effect on the long term outcome. Chemonucleolysis should have a wide role in treatment of sciatica due to intervertebral disc herniation.