

## **[2003 Fall A16] Intradiscal Thermal Annuloplasty (IDTA) for the treatment of discogenic pain in patients with multilevel degenerative disc disease**

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**Background:** Degenerative disc disease (DDD) is a painful chronic condition leading to significant deterioration of quality of life. Intradiscal annuloplasty (IDTA) is a minimally invasive treatment for painful DDD (1,2). Our previous studies demonstrated benefits of IDTA in patients with one or two levels painful DDD (3). In this prospective study we hypothesized that there may be an improvement in pain scores and the functional abilities of patients who have multilevel DDD of 3 or more intervertebral discs following IDTA.

**Methods:** Patients 24-66 years old, male and female with multi-level DDD (multi-DDD) and matched 1 or 2 level DDD (1,2-DDD) patients were enrolled in study. They were selected in both groups based on previously reported criteria (1,3). 17 of those patients were found on the lumbar MRI study to have at least 3 level degenerative disc disease. Those patients were matched with 17 patients who have 1 or 2 level DDD. IDTA was performed as previously described (2). Those patients were followed over period of 12 months following IDTA. VAS pain score and pain disability index (PDI) were the outcome parameters analyzed.

**Results:** The average age of the patients for two matched groups were  $45.3 \pm 11.2$  years for multi-DDD group and  $41.6 \pm 9.1$  years for 1,2-DDD group. The average number of affected intervertebral discs by DDD as shown on MRI were 3.7 for multi-DDD group and 1.6 for 1, 2-DDD group. 1,2-DDD patient group had in average  $2.5 \pm 2.4$  VAS pain score at 12 months following annuloplasty compared to  $7.7 \pm 2$  before procedure. Multi-DDD average VAS pain score was  $4.9 \pm 2.9$  at 12 months following procedure compared to  $7.4 \pm 1.8$  before. That was significantly better than the average VAS score prior to annuloplasty. There were no significant differences from 3rd to 12th month in VAS scores; therefore improvement in pain perception was maintained throughout the year. In addition, from the 3rd to 12th month following procedure pain relief was significantly better in patients with 1,2-DDD than in multi-DDD group ( $p < 0.00273$ ). At the same time frame of 2-12 months following procedure PDI improved significantly in both groups ( $P < 0.001$ ), estimated differences in mean PDI using mixed model analysis were significant between two groups from 6th to 12th month after annuloplasty.

**Discussion:** Our study demonstrated significant improvement in pain scores and PDI following IDTA in both multi and 1,2-DDD patient groups. However, the 1,2-DDD group did better following IDTA. Our conclusion is based on better improvement in pain scores and PDI one year following IDTA in the 1,2-DDD group. If one reviews the results of the previous studies on IDTA it is very likely that presence of the multilevel DDD was the main cause that those patients studied did not improve much better following IDTA (2,4). Considering dramatic improvement of pain scores and total disability index, IDTA is an effective, noninvasive treatment of discogenic pain in properly selected single or even multilevel degenerative disc disease patients.

### **References:**

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