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Total Lumbar Disc Replacement with SB Charite-III Prosthesis: Chinese Experience with 2-10 Years Follow-up

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Objectives: To determine the med-term and long-term clinical results, radiographic results, and incidence of complications in a large patient cohort with lumbar total disc replacement (TDR).

Methods: Between January 1998 and August 2008, 82 patients with lumbar DDD and failing nonoperative treatment were treated with lumbar arthroplasty. Among these patients, 68 patients (72 prosthesis) were followed-up for more than 2 years (2-10 years). There were 37 females and 32 males, and the mean age at the time of surgery was 43.6 years (range, 34-56 years). The primary diagnosis was discogenic low back pain with radiculopathy in 46 patients, discogenic low back pain without a radicular component in 13 patients and failed lumbar disc surgery in 10 patients. All patients had a minimum of 6 months of treatment with physiotherapy and medication. All patients had a minimum of 6 months of treatment with physiotherapy and medication. All patients underwent standard anterior procedure under general anesthesia. There were 65 patients with one level replacement (L3-4 in 6 patients, L4-5 in 33 patients and L5-S1 in 26 patients) and 4 patients with two level procedures (L3-4/L4-5 in 1 patient and L4-5/L5-S1 in 3 patients). Clinical and radiographic results of these patients were evaluated during follow-up period (1, 3, 6, 12, 24 and latest follow up).

Results: 69 patient were followed for more than two years (2-10 years). The average VAS score was 9.2 preoperatively, 4.1 one month postoperatively, 2.5 two years postoperatively and 1.8 at the latest follow up evaluation. The average Oswestry Disability Index was 46.2 preoperatively, 29.4 one month postoperatively, 12.9 two years postoperatively and 8.8 at the latest follow up evaluation. All operated levels but 5 maintained mobile and There were 3 cases (%) of postoperative facet arthrosis, 2 cases (2.8%) of subsidence, 5 cases (2.8%) of adjacent-level degeneration, 1 case need reoperation because of adjacent-level disease. All patients returned to work (38 returned to previous work and 10 for modified work). All patients but one (99%) were satisfied with the surgery at the latest follow up evaluation.

Conclusion: This is the largest series of lumbar total disc replacement with SB Charite III prosthesis in China for the treatment of degenerative lumbar disc disorders. The clinical and radiographic results at more than two years follow up showed that all patients benefited from the procedure and satisfied with their outcome. Lumbar total disc replacement is effective for the treatment of degenerative disc disorders.

Keywords: Intervertebral disk; Lumbar; Proseses and implants; Treatment outcome