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The Clinic Result of Bryan Artificial Disc Single Level Replacement for the Cervical Disc Degenerative Diseases: Two-year Follow-up

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Objective: This observation study was to evaluate the two-year clinical outcome of single segment Bryan disc replacement for the cervical disc degenerative diseases.

Methods: From Nov, 2004 to Apr, 2007, 30 patients who had poor remission of their symptom after 3-month conservative treatment for cervical disc degeneration accepted the single level Bryan artificial disc replacement. Before the operation, 1, 6, 12, 24 months after the operation, all patients were evaluated by Neck Disable Index (NDI), Subjective Symptom Scale, Visual Analogue Scale (VAS), SF-36 scale and Odom Score at each time points. Radiological examination included X-ray, CT scan and MRI.

Result: Operations were successfully performed in 30 patients (male female ratio 1.5). Patient's average age was 43.75 ± 7.3 (Range from 29 to 58). All patients had obeyed the follow up visiting at the expected time in the next two years after the operation. Patients' symptom scale, VAS for neck pain, VAS for arm pain, were 2.4 ± 0.6 , 5.3 ± 3.3 , 5.4 ± 2.8 , respectively before the operation and significantly decreased to 0.6 ± 0.5 , 1.8 ± 1.4 , 1.3 ± 1.3 , respectively at the end of follow up ($P < 0.05$). NDI, JOA score, SF-36 physical score, SF-36 psychological score and SF-36 sum score were 25.0 ± 12.9 , 16.8 ± 2.9 , 35.5 ± 15.9 , 39.1 ± 17.8 and 35.5 ± 16.7 , respectively before the operation and significantly decreased to 6.5 ± 5.8 , 21.3 ± 1.9 , 80.8 ± 12.9 , 81.7 ± 16.8 and 83.2 ± 15.0 , respectively ($P < 0.05$). All patients estimated their Odom score higher than good. The mean operation time was 162 ± 46 min (range from 95 to 290 min), the average blood loss was 149 ± 128 ml (range from 30 to 600 ml). Radiological evaluation showed the idea position of all implants. The normal motion of the artificial disc was observed when patients extending or flexing their neck. No sign of cervical instability was observed. No adverse event related to the prosthesis was found.

Conclusion: Single segmental Bryan disc replacement is a safe and efficient treatment for the cervical disc degeneration, which can maintain the disc height and cervical stable motion after decompression. Two-year follow-up demonstrates patients' relieved symptom, improved cervical function and better life quality both with Bryan and Prestige LP prosthesis.