Objective: The purpose of this retrospective study is to determine the clinical outcome of the patients with degenerative disc diseases (DDD) following lumbar total disc replacement (TDR) using ProDisc-L in a minimum 5-year-follow-up.

Methods: Among 42 consecutive patients undergoing lumbar TDR by a single surgeon (C.K.P.) between 2003 and 2005, 32 patients who agreed to be followed up and could be interviewed were enrolled in this cohort study. The remaining 10 patients couldn't be reached due to wrong address or phone number. Mean age was 48.84±11.31 years (range: 29~70) at the interview. Mean follow up period was 77.19±10.79 months (6.4 years) (range: 60~94). Twenty-three patients underwent one-level TDR and 9 patients two-level.

The clinical outcome was assessed using VAS (visual analogue scale) score and ODI (Oswestry disability index), and compared between preoperative and last follow-up results. At the last follow up, the patients were also evaluated with a 4-point scale to assess overall satisfaction and with another 5-point scale to assess 'choose the same treatment again'. In addition, sporting activity was evaluated using 'modified Cincinnati sports activity scale (0-100)', and SF (Short-form)-36 was evaluated.

Results: At the last follow-up, mean VAS score was considerably low (1.28±1.71) and the decrease was statistically significant compared to preoperative mean VAS score (7.27±2.89) (p< 0.05). Mean ODI score was also low (16.94±15.88) and significantly decreased from the preoperative value (37.06±17.82) (p< 0.05). Twenty patients responded as 'satisfied' with the treatment (62.5%), 11 did as 'somewhat satisfied' (34.3%), and 1 did as 'somewhat dissatisfied' (3.1%). As for 'choose again' question, 19 responded as 'definitely yes' or 'probably yes' (59.4%), and 6 'not sure' (18.8%), 1 'probably not' (3.1%), and 6 'definitely not' (18.8%). Mean sports activity scale score was significantly much higher at the final follow-up (52.97±17.64) compared to the preoperative one (6.87±9.65) (p< 0.05). Analysis of the SF-36 revealed significant differences between preoperative and last follow-up results. Physical and mental summary scores at the last follow up (PCS; 38.87±13.47, MCS; 52.24±11.08) were significantly higher than the preoperative value (PCS; 33.95±8.78, MCS; 36.49±13.88), respectively (p< 0.05).

Conclusions: The study demonstrates that lumbar TDR using ProDisc-L in the treatment of degenerative lumbar disc diseases provides with considerably better clinical outcome compared to the preoperative state. Not only therapeutic effects of lumbar TDR on back pain, mental and physical functions and sports activity but the patients' satisfaction and friendly feeling toward TDR treatment also appear to maintain until more than 5 years postoperatively.