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Total Disc Arthroplasty and Anterior Cervical Discectomy and Fusion in Cervical Spine: Competitive or Complimentary? Review of the Literature

Anterior cervical discectomy and arthrodesis has come to represent standard of care for patients with persistent radicular and/or myelopathic symptoms that have failed to improve with conservative treatments. One potential complication of the procedure is the accelerated degeneration of the vertebrae and the intervertebral discs adjacent to the level fused and the effects of fusion on those levels. The concern that fusion may be a contributing factor to accelerated adjacent segment degeneration led to increased interest in cervical disc replacement after anterior decompressive surgery. Several studies analyzing the short-term outcomes of the disc replacement procedure have been published since then, and the pros and cons of both procedures continue to remain a topic of debate among the scientific community. The analysis of published literature and our own experience has convinced us that the overall longer-term clinical outcomes after anterior cervical discectomy and fusion (ACDF) and total disc replacement (TDR) in the general patient population are not significantly different in terms of symptomatic improvement, neurological improvement, and restoration to better quality of life. Age of the patients and number of affected levels may impact the outcomes and hence determine the choice of optimum procedure. To definitely compare the incidence of adjacent segment disease after these procedures, multi-institutional studies with predetermined and unanimously agreed upon clinical and radiological criteria should be undertaken and the results analyzed in an unbiased fashion. Until that time, it is reasonable to assume that ACDF as well as cervical TDR are both safe and effective procedures that may have outcome benefits in specific patient subgroups based upon demographics and clinical/radiological parameters at the time of surgery.

頸椎人工椎間盤置換術和前路椎間盤切除和融合：競爭或補充？文獻回顧

頸椎前路椎間盤切除術和關節融合術已代表對保守治療後沒有改善的持續性神經根和/或脊髓性症狀患者的護理標準。手術後的一個潛在併發症就是加速了與融合節段相鄰的椎骨和椎間盤的退化，以及融合手術對這些節段的影響。值得關注的是融合可能是加速了相鄰節段退化的一個促進因素，增加研究對前路減壓手術後需要頸椎間盤置換的興趣。從那時起，一些分析椎間盤置換手術的短期研究結果已經公佈，而這兩種手術的優點和缺點仍是科學界爭議的話題。對已發表文獻的分析和我們自己的經驗，使我們確信頸椎前路椎間盤切除和融合術（ACDF）和人工椎間盤置換術（TDR）在一般患者改善症狀的各方面包括改善症狀群，神經功能改善和恢復更好的生活質量，結果顯示並沒有明顯的不同。病人的年齡和受影響的節段數量都可能影響結果，並根據以些因素決定最適合的手術。要清楚和明確地比較這些手術後相鄰節段病變的發病率，應採用多學院的研究，並在臨床和放射

學標準上使用預定和一致同意的方式和用持平的態度為結果進行分析。直到那時，基於手術時的人口統計和臨床/放射學參數，才可合理地假設 ACDF 和頸椎 TDR 在特定的患者群組中是既安全又有效的手術。