



Commentary

Commentary on: Risk factors of second surgery for adjacent segment disease following anterior cervical discectomy and fusion: A 16-year cohort study



Adjacent segment disease (ASD) following the anterior cervical fusion for cervical degenerative disc disease remains a cause of concern. The incidence has been classically reported to be 2.9% per year during the 10 years after the operation [1]. The prevalent literature discusses this pathology under different domains including radiological adjacent degeneration, clinically symptomatic ASD and ASD that requires surgical intervention with a variable incidence. The long-term effectiveness of motion preservation surgery like cervical disc arthroplasty in preventing adjacent segment disease is still unclear.

Wu et al. have pointed out in this paper that young age and psychiatric disorders are independent risk factors predisposing to second surgery for adjacent segment disease after anterior cervical discectomy and fusion [2]. However, the method of collection of pertinent information from national insurance database has some associated limitations. There is a lack of specifics about the exact level operated on and indication for second surgery. Also, the conclusions may not be applicable to the population of different races due to varied genetic make-up and dissimilar psychosocial backgrounds. Nonetheless the study provides impressive near perfect 16-year follow-up of over 38000 patients. It offers insight into the non-surgical risk factors for ASD and highlights the need for development of strategies to postpone the occurrence of ASD.

Though cervical fusion has been considered as a contributing factor for the development of the ASD, the etio-pathogenesis appears to be multifactorial. Whether it is a result of an increase in biomechanical stresses in the adjacent segment or natural progression of degeneration is debatable [3]. Surgical factors like inadvertent intraoperative injury to adjacent disc and use of longer plate impinging on the adjacent disc are reported to be the risk factors for acceleration of these degenerative changes. The incidence of adjacent segment disease has been described to be high at the most mobile C5-6 and C6-7 levels. Sagittal alignment at the index level may potentially affect the stresses at the adjacent level possibly causing early degeneration. Based on a common understanding of the spinal biomechanics mechanical stresses are anticipated to be higher at the junctional segments adjacent to a long anterior cervical fusion. However, studies have disproved this notion [4].

The understanding towards development of the cervical adjacent

segment disease has greatly improved over the period but the management strategies for prevention are yet to be adequately defined. The surgical technique and the choice of the surgical procedure may play a significant role. As this science evolves further, newer treatment protocols and technology may be more effective in reducing the development of ASD. The meta-analysis of randomized controlled trials analyzing the adjacent segment changes have reported lower incidence of AS degeneration and reoperation but similar rates of AS disease after cervical disc arthroplasty than fusion [5]. Biology in addition to the biomechanics may be an important factor in this pursuit.

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