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CORR Insights

CORR Insights®: Reoperation After Cervical Disc Arthroplasty Versus Anterior Cervical Discectomy and Fusion: A Meta-analysis

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Where Are We Now?

Is there a higher reoperation rate after anterior cervical discectomy and fusion when compared to cervical disc replacement? This is a common question asked by spinal surgeons determining the best intervention for patients with cervical radiculopathy due to soft-disc herniation or minor spondylosis. Generally, spine surgeons indicate a patient for cervical disc replacement if there is only one level of disease or, at most, two levels assuming there is minimal to no spondylosis. It is also thought (and hoped) that cervical disc replacement would lessen the rate of adjacent segment disease and the need for reoperation. A meta-analysis can help detemine whether this aspiration will come to fruition. A number of intermediate-term trials [5–10] have suggested an increased rate of reoperation and poor health-related quality of life outcomes with anterior cervical discectomy and fusion when compared to cervical disc replacement. However, these findings have not been consistent. Some studies show no difference between anterior cervical discectomy and fusion and cervical disc replacement, while others demonstrate superiority of cervical disc replacement [2, 4, 5].

Where Do We Need To Go?

At this point, we need excellent and comprehensive followup of the patients enrolled in the investigational device exemption trials in order to understand the durability and performance of these devices in the long-term. Further, we need to understand if there are particular devices that are better suited for particular patient types or specific radiographic findings. Finally, we need to determine whether these questions will have different answers for one- versus two-level disease.

How Do We Get There?

The investigational device exemption studies from multiple companies that led to approval of a number of these devices contain some of the richest and most complete outcome data available in spinal surgery [5–10]. This is because the studies were well controlled with very specific enrollment criteria, close monitoring, and excellent followup. These cohort of patients need to be followed to obtain longer-

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term answers to the questions posed above. Further subanalyses of the dataset may have the potential to answer specific questions regarding details of decision making and radiographic criteria with which to make intervention decisions. Cervical disc replacement has the potential to be an excellent long-term intervention in this patient subset with these answers and further innovation to improve upon the devices available [1, 3].

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