

Letter to the Editor

“Trends, Major Medical Complications, and Charges Associated With Surgery for Lumbar Spinal Stenosis in Older Adults”

To the Editor: Deyo¹ and colleagues recently published a paper in the Journal of the American Medical Society describing the apparent use of fusion in Medicare patients operated upon for lumbar stenosis. The authors found that despite a relatively stable rate of surgery for lumbar stenosis between 2002 and 2007, and a relatively stable rate of adjunctive fusion procedures, there was a significant increase in the frequency of “complex” fusion surgeries performed in patients with spinal stenosis in the Medicare administrative database. The utilization of “complex” procedures was associated with increased risks of major complications, 30-day mortality, and resource use. In an accompanying editorial, Dr. Carragee emphasized the role of marketing and financial incentives as a driving force for the utilization of more complex procedures. He cited several examples of the use of technologies for spinal fusion despite the lack of high quality evidence to support the practice and insinuated that physician reimbursement was a significant driving factor in the choice of procedure performed, especially in the Medicare population because of the low reimbursement rate offered by Medicare.

While the associations reported by Deyo et al, are of interest, it is important to recognize the limitations of this retrospective analysis of an administrative data set and the inability to draw conclusions regarding the appropriateness of surgical procedures. First of all, both Deyo et al and Dr. Carragee acknowledge the effectiveness of surgical

intervention for patients with neurogenic claudication and both papers acknowledge the appropriateness of fusion as an adjunct to decompression in a subset of patients operated upon. There has not been a significant change in the number or percentage of patients operated upon or subject to fusion procedures according to the Deyo data. Therefore, the economic forces cited by Dr. Carragee do not appear to be driving more frequent decompressive surgery or the more frequent use of fusion in this population. The focus of the Deyo article, however, was on the isolated finding that the proportion of patients treated with “complex” fusion procedures increased compared to “simple” fusion procedures between 2002 and 2007. The authors report some of the limitations of using an administrative dataset; however, there are many concerns not cited by the authors that significantly limit the ability to draw any conclusions regarding the appropriateness of this apparent shift in surgical technique.

First of all, the issue of coding fidelity remains a significant concern despite the author’s assurance to the contrary. For example, ICD-9 codes identifying the number of levels fused were not available until October of 2003². Multilevel single-approach surgeries in 2002-2003 would have been “simple” and yet would have been considered “complex” in 2003-2004 with the updated coding methodology. Examining the figure on page 1261 of the JAMA article, it is clear that the vast majority of the increase in reported “complex surgery” occurred between 2002 and 2004 with only a minimal increase in such surgeries between 2004 and 2007. It is possible that this change in coding methodology alone could account for a substantial proportion of the apparent increase in “complex” fusions. Another concern related to the use of administrative databases relates to the homogeneity of the patient population described by a single administrative

code. For example, regional kyphosis, spondylolisthesis, preoperative radiographic instability, and iatrogenic instability are all reported as relative indications for fusion following decompression in the setting of deformity; yet none of these would necessarily appear in an administrative database^{4,5}. A 65 year old patient with stenosis and low grade spondylolisthesis with regional kyphosis and mobility with flexion and extension is not the same as a 75 year old patient with stenosis and spondylolisthesis associated with a collapsed disc space and significant inherent stability. These patients would be treated quite differently by the vast majority of conscientious, cost conscious and concerned surgeons. Both of these patients would however, be described identically in the administrative database.

A final concern related to the retrospective analysis of an administrative database concerns the accuracy of the reported codes even when applied appropriately. Note that there was no effort made by the Deyo group to audit any of the submitted data. Campbell et al., recently presented the results of an audit of ICD-9 codes applied to patients treated with spinal surgery at their institution and found that ICD-9 codes as submitted to the administrative database over-reported cardiac morbidity by approximately 300% and under-reported neurological morbidity by 300% when compared to a prospective assessment of the same outcomes³. Therefore, while retrospective review of administrative databases is a useful tool to raise questions, no conclusions regarding the appropriateness of any procedure can be drawn.

While Dr. Carragee's point that surgical decision making should not be driven by marketing or financial concerns is well taken, the data presented by the Deyo group provides no evidence whatsoever that those such factors were operant in the patient

population described. Spinal surgery has been under the microscope for a number of years now, as described by Dr. Carragee in his editorial, and spinal surgeons have been widely disparaged by the professional and lay press as immoral opportunists who apply dangerous and ineffective procedures to unwitting patients for financial gain (refs). This disparagement has occurred despite the lack of any evidence to demonstrate that commonly employed non-surgical strategies for symptomatic patients with the most commonly treated disorders (neurogenic claudication, lumbar radiculopathy, spinal instability) are associated with long term pain relief (refs). The fact is that substantial evidence does exist to support surgical management of these disorders. The use of adjuncts such as instrumentation, BMP, or anterior posterior approaches needs to be examined in a systematic fashion, not simply dismissed as a financially appealing fad. This is why organized spine societies have taken the lead in producing clinical practice guidelines to aid practitioners and payors alike in determining what the best available evidence for a particular practice is and why our spine societies need to push the frontiers of outcomes research on behalf of our patients.

Deyo and colleagues have identified a potential trend towards the application of more complex fusion procedures to Medicare patients who are treated with fusion as an adjunct to decompressive procedures for lumbar stenosis. The only way to assess the appropriateness of this trend is to present data including clinical variables used for technique selection and outcomes measures describing the effectiveness of the procedures. Without a clear understanding of patient selection criteria, outcomes achieved, and risk stratification, over-interpretation of such data is potentially misleading and dangerous.

References

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