Editorial

Sciatica: predicting who would undergo surgery and who not

Pravesh S. Gadjradj^, Kaleem Ullah, Roger Härtl

Department of Neurosurgery, Weill Cornell Medicine, New York-Presbyterian-Och Spine, New York, NY, USA

Correspondence to: Pravesh S. Gadjradj, MD, PhD. Department of Neurosurgery, Weill Cornell Medicine, New York-Presbyterian-Och Spine, 435 E 70 Street, 11, New York, 10021 NY, USA. Email: p.gadjradj@erasmusmc.nl.

Comment on: Pacaud A, Darloy J, Flipo RM, *et al.* Frequency and determinants of surgical treatment in patients with uncomplicated disc-related sciatica hospitalized in the Rheumatology Department of Lille University Hospital. J Spine Surg 2022. doi: 10.21037/jss-22-43.

Submitted Nov 01, 2022. Accepted for publication Nov 17, 2022.
doi: 10.21037/jss-22-97
View this article at: https://dx.doi.org/10.21037/jss-22-97

It is with great interest, we read the publication by Pacaud *et al.* entitled "Frequency and determinants of surgical treatment in patients with uncomplicated disc-related sciatica hospitalized in the Rheumatology Department of Lille University Hospital" (1). In their retrospective analysis of 405 patients, the authors aimed to assess the proportion of patients with sciatica that would undergo surgery, a year after hospitalization. Patients who had a direct indication for surgery were excluded from this study. Furthermore, they aimed to identify patient characteristics that may be related to outcomes of surgery. The authors demonstrated that only a small proportion of the patients admitted to the hospital due to sciatica, around a third, would eventually undergo surgery. Furthermore, in a multivariate analysis the authors showed that having work, impulsive pain, motor loss, a duration of pain for three months, and multiple epidural injections, were all associated with a higher hazard for surgery. Of these factors, having work [hazard ratio (HR) 2.3], pain increasing during moments of increased abdominal pressure (HR 2.0) and motor loss level 4 out of 5 on the Medical Research Council scale (HR 1.7), were the strongest predictors. On the other hand, surgery was less frequently observed in patients who had a decrease in pain score during their hospitalization.

Throughout the years, decision-making for surgery due to sciatica has proven itself to remain complex and with their current study, Pacaud *et al.* tried to give some guidance on this matter. Even though all 405 patients in this study were hospitalized for their sciatica, still only around a third eventually underwent surgery within one year of follow-up, underlining the importance for conservative treatment as the first method of treatment.

In 2006, The Spine Patient Outcomes Research Trial showed that there were only small differences in patient-reported outcome measures 2 years after randomization in patients who underwent surgery *vs.* conservative treatment for sciatica (2). Thirty percent, however, of the patients that were assigned to non-operative treatment, received surgery. A year later, the results of the Sciatica-trial showed a comparable finding, namely that of the 283 patients that would be assigned to either early surgery or prolonged conservative treatment, eventually 39% of the patients in the conservative treatment group would undergo surgery (3). After publication of these two landmark studies, conservative treatment itself became more commonly used as a treatment modality. Throughout the years, innovation in the treatment of sciatica has also continued and both surgical and conservative treatment have improved. For instance, a recent British study showed that transforaminal epidural steroid injections had similar effectiveness as surgery in patients with at least 6 weeks of sciatica and that injections as first treatment would be highly cost-effective compared to surgery (4). Another recent study showed that a combination of mechanical diagnosis and treatment and transforaminal epidural steroid injections, was also successful in preventing surgery in 67% of the patients with sciatica that were already on the waiting list for surgery. In their cost-effectiveness analysis, they showed that on

^ ORCID: 0000-0001-9672-4238.

average, €1,363 could be saved per patient when treating them with conservative treatment instead of surgery. Both these studies demonstrate the success of conservative treatment, which is supported by the study by Pascaud *et al.*

Aside from these medical determinants for surgery, there is also the perspective from a health economics point, which was not addressed in the current publication. In the current era in which the value-based healthcare model becomes more and more important, it is of great importance for both doctors and policy-makers to choose the treatment plan which is most effective and least costly. It is true that for acute sciatica, both conservative care and surgery lead to similar leg pain reduction, one year after treatment (3). However, the question remains if surgery would be more cost-effective when it is provided early after onset of the symptoms and whether it would prevent or shorten these 405 hospitalizations as reported by Pacaud *et al.* This is important since surgery nowadays is performed from a minimally invasive approach in an ambulatory surgery setting and there is a growing amount of evidence claiming that surgery is more effective for chronic sciatica compared to conservative treatment (5,6). Both factors highlight the gap that Parcaud *et al.* tried to address which was whether patients may benefit more from surgery than from conservative treatment. Having work appeared to be the most important predictor for undergoing surgery in the first year after hospitalization. This may not be so surprising as patients with sciatica are usually somewhat younger and in the middle of their career. In these situations where there are no red flags present and the indication for surgery is relative, it is imaginable that these patients would opt for surgery if given the choice (7).

Overall, this study is an excellent addition to the literature as sciatica is a highly prevalent condition which many health care professionals are confronted with. We applaud the authors on their effort to give readers some nuance on the role of surgery in the treatment of sciatica and by formulating predictors for undergoing surgery. However, before these predictors can be used in other patient settings and even more so in other countries, validation of this model in independent patient samples, is warranted.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Journal of Spine Surgery*. The article did not undergo external peer review.

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at https://jss.amegroups.com/article/view/10.21037/jss-22-97/coif). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

References

1. Pacaud A, Darloy J, Flipo RM, et al. Frequency and determinants of surgical treatment in patients with uncomplicated disc-related sciatica hospitalized in the Rheumatology Department of Lille University Hospital. J Spine Surg 2022. doi: 10.21037/jss-22-43.
2. Weinstein JN, Tosteson TD, Lurie JD, et al. Surgical vs nonoperative treatment for lumbar disk herniation: the Spine Patient Outcomes Research Trial (SPORT): a randomized trial. JAMA 2006;296:2441-50.
3. Peul WC, van Houwelingen HC, van den Hout WB, et al. Surgery versus prolonged conservative treatment for sciatica. N Engl J Med 2007;356:2245-56.
4. Wilby MJ, Best A, Wood E, et al. Surgical microdiscectomy versus transforaminal epidural steroid injection in patients with sciatica secondary to herniated lumbar disc (NERVES): a phase 3, multicentre, open-label, randomised controlled trial and economic evaluation. Lancet Rheumatol 2021;3:e347-56.

5. Bailey CS, Rasoulinejad P, Taylor D, et al. Surgery versus Conservative Care for Persistent Sciatica Lasting 4 to 12 Months. N Engl J Med 2020;382:1093-102.
6. Gadjradj PS, Rubinstein SM, Peul WC, et al. Full endoscopic versus open discectomy for sciatica: randomised controlled non-inferiority trial. BMJ 2022;376:e065846.
7. Gadjradj PS, Smeele NVR, de Jong M, et al. Patient preferences for treatment of lumbar disc herniation: a discrete choice experiment. J Neurosurg Spine 2021. [Epub ahead of print]. doi: 10.3171/2021.8.SPINE21995.

Cite this article as: Gadjradj PS, Ullah K, Härtl R. Sciatica: predicting who would undergo surgery and who not. J Spine Surg 2022;8(4):406-408. doi: 10.21037/jss-22-97