Editorial

Factors That Influence the Decision to Treat Pain of Spinal Origin With Epidural Steroid Injections

The decision to treat a patient with epidural steroid injections (ESIs) is atypical of the usual decision-making process in medicine. The initial decision is often made by a spine surgeon, as was the case in the recent study by Fanciullo et al.[1] The surgeon's definitive treatment for lumbar radiculopathy is surgery, so one might anticipate a certain reluctance to *refer* a patient to a practitioner whose treatment, if successful, will preclude the referring physician from providing that definitive therapy. The next decision is made by the pain clinic physician, whose definitive treatment for radiculopathy is epidural steroid injection. One might anticipate a reluctance to *withhold* such therapy, even if a patient is deemed to have a fairly low chance for success based on the history, physical findings, and imaging studies.

In such a peculiar and potentially distorted system, it is encouraging that there is at least some correlation between published guidelines and what is practiced. Perhaps the most consistent predictor of treatment outcome after epidural steroid injections is the presence of radiculopathy, and there was a strong tendency among spine surgeons to refer patients for the procedure if there was a dermatomal pain distribution. The most frequent working diagnoses among patients referred for ESIs were disk herniation and spinal stenosis. For both of these diagnoses, it is important to define the symptoms to predict outcomes. For patients with disc herniation, those with evidence of nerve root irritation are most likely to respond while those with purely discogenic pain are unlikely to improve. It is not enough to indicate the presence of radiating pain, as a substantial number of patients with annular disruption but no nerve root pathology describe pain in the lower extremity, often radiating to the lower leg.[2] It is important, therefore, to document the presence or absence of sciatic stretch signs, dermatomal distribution of pain, and neurologic changes. For patients diagnosed with spinal stenosis, we should distinguish between patients with radiologic evidence of spinal stenosis and constant radicular symptoms, who have a reasonable likelihood of success, and those with neural claudication, who are unlikely to benefit from ESIs.[3]

Over half of the patients treated with ESIs had symptom duration greater than 1 year. As the authors point out, this group is less likely to respond than those with less protracted symptoms. However, such patients may be referred more often, because they are also less likely to respond to surgical intervention.[4] This creates a dilemma for the pain clinic physician, who is pressured by both the referring physician and the patient to provide the requested treatment. There is a still greater dilemma if, as often occurs, the patient experiences several weeks of relief after each ESI. Such patients will invariably request repeated treatment, increasing their risk of steroid-induced and procedure-related complications. In addition, health insurance carriers are likely to limit the number of procedures they will cover.

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Another group of patients unlikely to benefit from surgery who are referred regularly for ESIs are those who have previously undergone spine surgery. Fanciullo et al.[1] suggest that a subset of previously operated patients who have clearly radicular symptoms may respond as well as nonoperated patients. I do not believe there is support in the literature for this position. Patients who have undergone previous back surgery, and especially those who have had multiple surgical procedures, are clearly less likely to benefit from ESIs and, if they do respond, their benefit is likely to be short-lived. Like the patients with chronic radiculopathy, they are likely to request repeated blocks when short-term relief is achieved.

The low numbers of patients treated for thoracic or cervical radiculopathy in the Fanciullo survey may be, in part, related to lower numbers of pain clinic physicians who are comfortable with these procedures. There is almost no literature on the use of ESIs for thoracic radicular symptoms. Thoracic disc herniation is uncommon, and thoracic compression fractures, a more common cause of thoracic radiculopathy, are unlikely to respond to ESIs. Cervical radiculopathy, on the other hand, appears to be at least as likely to respond to ESIs as lumbar radiculopathy. Rowlingson and Kirschenbaum[5] found that patients with cervical radiculopathy who exhibited a dermatomal pattern of sensory loss were very likely to benefit.

The relative prevalence of comorbidities in the survey may represent reluctance on the part of referring surgeons to operate on patients with significant concurrent disease. Patients with serious cardiac or pulmonary disease or morbid obesity are often denied surgical treatment because of the associated risks of anesthesia and surgery. Diabetic patients were more likely to be treated with ESIs, possibly because of the higher complication rate of diabetic patients undergoing spine surgery.[6] Fanciullo et al. downplay the hazards of epidural steroids in diabetic patients, citing a lack of documentation of steroid-induced hyperglycemia in this patient population. However, there is substantial documentation that systemic corticosteroids do increase insulin requirements, and most reported cases of epidural abscess after ESIs have occurred in diabetics.[7]

Thirty-eight percent of the patients who did not receive ESIs were described as having dermatomal pain distribution. The initial treatment success rate for such patients has been reported to be 60% or higher.[8] Thus, it appears that a substantial number of patients in the cohort (nearly 9,000) were deprived of a potentially useful treatment, and 5,000 or more of these patients might have responded favorably. On the other hand, well over half of these patients had symptoms of 2 years or more, 12% had a history of previous surgery, and some of those patients undoubtedly had clear surgical indications or contraindications to ESIs. Some may not have been referred because of patient preference to avoid injections.

The study by Fanciullo et al. did not address the issue of the influence of the results of imaging studies on the decision to treat with ESIs. Because the study involved the participation of spine center physicians, it is likely that the majority of patients underwent magnetic resonance imaging (MRI) or computed tomography scans before deciding on a treatment regimen. This is not always the case, however. In some centers, many referrals for ESIs are initiated by primary care physicians on the basis of a history and physical examination. Ideally, as is the case with surgical intervention, one would like to see MRI evidence of nerve root compression that corresponds closely with clinical findings before initiating treatment. Unfortunately, there is little correlation between imaging results and treatment success.[9] There is considerable controversy regarding this issue. Willingness to treat on the basis of history and physical findings could potentially create substantial savings. The risk of missing an unusual cause for symptoms that could contraindicate ESIs is quite small.

Because cervical and low back pain are caused by multiple conditions and there are relatively few good outcome studies that examine the effects of potential

treatment options, it is not surprising that there is little consistency in patterns of referral for ESIs. Studies of the effects of pretreatment variables on treatment outcome for both surgery and epidural steroids are contradictory and often inconclusive. We do not have the data to develop care maps for the treatment of radiculopathy. Therefore, decisions regarding the selection and timing of various interventions are largely based on the personal experiences and preferences of the treating physician, who is usually a surgeon, and the pain clinic physician, who is often an anesthesiologist. The willingness of insurance providers to pay for ESIs undoubtedly plays a role as well. As Fanciullo et al. point out, we have the tools to determine the best role for epidural steroids in the management of radiculopathy, but have yet to use them effectively.

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