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Epidural Steroid Injection: A Need for a New Clinical Practice Guideline

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There is no denying that chronic spinal pain originating from a degenerative spinal disease is one of the most common causes of disability in the industrialized world. It is also associated with escalating pain control costs and a significant loss of work and productivity. In order to manage the pain, to improve the patient's daily functioning, to enable their return to work, as well as to avoid surgery, multiple conservative treatment methods are provided. With the absence of a fully reliable and effective treatment method, epidural steroid injections (ESI) have become the most commonly performed spinal intervention in the world today. One report showed that the ESI in Medicare beneficiaries had increased significantly from 2000 to 2011 by an overall 130% per 100,000 Medicare beneficiaries, with an annual increase of 7.5% in the USA [1]. Perhaps a similar situation or even higher increase will be observed in Korea.

Despite the explosive growth of epidural steroid injections, their cost-effectiveness and levels of effectiveness and safety as reported by recently-published systematized review articles, have failed to meet pain specialists' expectations. In a number of thought-provoking review articles published between 2012 and 2014, the evidence of the effect of ESI for radiculitis on the lumbosacral and cervical region was only fair to good [2-4] and the evidence of the effectiveness of ESI for back pain with or without sciatica was limited to moderate [3,5-12]. Furthermore, ESI offers only short-term relief of pain and disability, with no long-term effects. A group of authors even insisted that "moderate and high-quality evidence for nonoperative treatment is lacking and thus prohibits recommendations for guiding clinical practice" [8]. The misreading and/or misunderstanding of ESI as an ineffective treatment for pain by non-specialist doctors and the healthcare system may lead to a completely wrong decision.

According to the conclusions of these papers, should we then consider ESI as an out-of-date technique? Even though excellent information has been provided through appropriate search strategies and quality assessments, some points of concern persist that make it difficult for us to draw a wise clinical decision. As mentioned in their conclusions, most systematized review articles suffer from a limitation in the paucity of the available literature. First, there were no consensus-based validated tools with which to measure the functional scale. Second, there are many factors that make it difficult to completely accept the studies' conclusions, such as the definition of a degenerative spinal disease, the dosage and volume of epidurally in-

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jected drugs, the correlation between the radiologic degree of degeneration and treatment outcomes, and the heterogeneity in the level of evidence. Furthermore, none of the studies introduced a more advantageous alternative to ESI as a treatment method for the short-term management of pain. Medication, home exercise and physical therapy are not sufficient. Oral opioid therapy may be helpful in some instances, but it is unclear from the high-quality literature whether limitations from adverse effects exist [13]. Regarding the epidural lysis of adhesion, Cohen and his colleagues presented a comprehensive review on KJP [14]. They concluded that the evidence surrounding the epidural lysis of adhesions was still controversial. A few randomized studies favoring it over conventional ESI and/or other conservative therapies had notable limitations in terms of study design and were conducted by the same group of investigators. The evidence level and cost utility of an ambulatory epidural lysis of adhesions for a failed back surgery syndrome, spinal stenosis and radiculopathy refractory to less invasive procedures have not been determined yet. Surgery appeared to be more effective than non-surgical care when data were analysed in an as-treated way, but not when considered in a by intention-to-treat analysis [15].

Regardless of the insufficient evidence to support the use of ESI in a wide variety of degenerative spinal disorders, I believe that most pain specialists will continue to use ESI. The primary purpose of ESI is the short-term relief of pain, which allows an early return to daily physical activities. Qualified doctors will be aware that the purpose of ESI is not to completely cure the underlying degenerative disease, and that while the injections may reduce incidences of unnecessary surgery, they do not replace it. Obviously, epidural steroid — which has not been approved by FDA — is not a panacea, and ESI should not be a first-line option. Various side effects and complications related to the procedure itself and/or to the injectates can occur. If an ESI procedure is necessary, it should be carried out following guidelines and with appropriate systems in place to avoid unpleasant side effects and complications [16].

1. Evidence is insufficient, but transforaminal ESI is more efficacious than interlaminar ESI, and fluoroscopy can improve treatment outcomes.
2. A dose higher than the equivalent of 40mg of depomethylprednisolone or triamcinolone represents the ceiling effect in terms of efficacy.
3. The indiscriminate use of ESI is cost-ineffective, but judicious use in well-selected patients may reduce healthcare utilization and possibly prevent surgery.
4. There is no consensus-based guideline for the frequency, timing, or steroid selection related to ESI.
5. In high-risk scenarios, reducing or even in some cases eliminating the steroid component of epidural injections may be helpful.

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