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Paresthesia a Prognostic Cue During Lumbar Injections

Washington—Interlaminar lumbar epidural steroid injections (LESI) are a proven method for providing short-term relief of low back and unilateral radicular pain. But predicting how patients will respond to such treatments has not been so straightforward. But a study by a Chicago research team has found that ipsilateral pressure paresthesias occurring during LESI correlates with pain relief, and can be used as a prognostic factor when a parasagittal approach to the epidural space is used.

“Lumbar epidural steroid injections are among the most commonly performed interventional pain procedures in the country,” said Nebojsa Nick Knezevic, MD, PhD, director of anesthesiology research at Advocate Illinois Masonic Medical Center. “In this study we tested ... the parasagittal approach—which means we’re going 1 cm laterally from the midline, depending on the side where the pain is.”

The investigators hypothesized that a pressure paresthesia occurring in the same distribution of the radicular pain would give prognostic information regarding the efficacy of the LESI.

The investigators enrolled 100 adult patients, all of whom received LESI by either the midline (n=50) or parasagittal approach (n=50), both under fluoroscopic guidance. Patients confirmed whether or not they experienced a pressure paresthesia, and if so, whether it was in the distribution of “usual and customary pain.” Patients also graded pressure paresthesias (0 = *no paresthesia*; 1 = *mild*; 2 = *moderate*; 3 = *severe*), both ipsilaterally and contralaterally.

As Dr. Knezevic reported at the 2012 annual meeting of the American Society of Anesthesiologists (abstract 202), most parasagittal patients felt pressure paresthesias as “usual and customary pain” (39 of 50). In contrast, 23 patients undergoing the midline approach gave the same response (*P*=0.002).

With respect to severity, 32 parasagittal patients felt moderate or severe paresthesia on the ipsilateral side as their radicular pain compared with 19 midline patients. By comparison, only five patients in the parasagittal group felt pressure paresthesia on the contralateral side and 18 in the midline group.

Average pain score before injection was 5.1±2.4 at rest and 7.2±2.2 during movement in the midline group, and 4.9±2.5 at rest and 7.6±1.9 during movement in the parasagittal group. Both LESI approaches clinically and statistically significantly reduced unilateral lumbosacral radiculopathic pain compared with the basal level (both at rest and during movement), according to the researchers.

The investigators found a statistically significant negative correlation between ipsilateral pressure paresthesia and both types of pain score in parasagittal patients, and with only pain at rest in midline patients.

“The correlation between pain relief and pressure paresthesia was indirect when the paresthesia was on the ipsilateral side and direct when identified on the contralateral side,” Dr. Knezevic explained. “This means that a more severe pressure paresthesia ipsilaterally and a less severe paresthesia contralaterally is related to better pain relief.”

As a result, he added, the findings “could be utilized to optimize our therapeutic success in patients who get these injections for radiculopathic pain.”

The association between pressure paresthesia and pain relief did not surprise David Provenzano, MD. “To me, it indicates that directing the medicine toward the area of nerve compromise is important,” said Dr. Provenzano, executive director of the Institute for Pain Diagnostics and Care at Ohio Valley General Hospital, in Pittsburgh. “That’s one of the reasons why some practitioners advocate for the use of transforaminal steroid injections. The downside of the midline interlaminar approach is the medicine may never get where you want it to go.”

—Michael Vlessides