

PAINMEDICINE NEWS

Interventional

MAY 10, 2018

Platelet Lysate Epidural Injections Effectively Treat Lumbar Radicular Pain

Patients with lumbar radicular pain who were treated with platelet lysate epidural injections reported significant improvements in their pain, according to a recently published study in the *Journal of Experimental Orthopaedics*.

“For many years, interventional pain physicians have used corticosteroids for epidurals in patients with radiculopathy,” said lead author Christopher Centeno, MD, an interventional spine specialist in private practice, in Broomfield, Colo. “The good news is that this injection is often helpful in reducing pain and allowing patients to become active again. But patients might receive only a couple [of] weeks of relief with one injection or diminishing returns with repeated injections.”

In 2005, Dr. Centeno founded Regenexx Inc., a physician-operated medical network company and developer of orthopedic stem cell injections. “I sought a therapy that would increase the longevity of pain relief,” said Dr. Centeno, who serves as the company’s chief medical officer.



One of the routes pursued was incorporating platelet lysates. “To make platelet-rich plasma [PRP], you take blood and concentrate the blood platelets, typically via a bedside centrifuge,” he said. “Conversely, removing the growth factors from the platelets is called a lysate. This results in a growth factor–rich serum.”

Dr. Centeno said such a serum likely contains anti-inflammatory cytokines, including alpha2-macroglobulin, interleukin-1 receptor antagonist protein and tissue inhibitors of metalloproteinases. The serum is also proangiogenic, thus allowing vascular endothelial growth factor to form new blood vessels around a nerve, and is a stimulus for nerve growth (nerve growth factors).

The retrospective study used registry data from 470 patients treated with platelet lysate epidural injections, who presented with symptoms of lumbar radicular pain and MRI findings that were consistent with symptoms (*J Exp Orthop* 2017;4[1]:38). Patients with continuing symptoms were given more than one injection. On average, patients received one to three injections over several months.

“Unlike corticosteroids, we did not observe diminishing returns with each subsequent injection, and, in fact, we generally saw longer term efficacy of six months or more,” Dr. Centeno said.

Compared with baseline, patients reported a significantly lower numeric pain score and Functional Rating Index score at all time points through two years after treatment. The average modified Single Assessment Numeric Evaluation rating also showed a 49.7% improvement at 24 months.

About 6% of patients reported mild adverse events related to treatment with platelet lysate. “But these side effects were the same as would be expected from injections with corticosteroids,” Dr. Centeno said.

Regenexx continues to develop protocols to increase the dose of growth factor levels that can be extracted from the platelets for improved outcomes.

At Dr. Centeno’s practice, high-dose corticosteroid epidural injections have not been offered since 2011, replaced by platelet lysate epidural injections as first-line therapy. Eliminating the use of such corticosteroids for treating lumbago is important because of

their side effect profile, according to Dr. Centeno. “This includes destroying joint cartilage, an increase in fracture risk among older females and changes to the cortisol axis in diabetics.”

Despite the benefits of platelet lysate epidural injections, “we are still one of the few practices that use them for lower back pain,” Dr. Centeno said. “Meanwhile, PRP use in spine has become much more common.”

Dr. Centeno predicts orthobiologic solutions like platelet lysate epidural injections eventually will replace corticosteroid injections completely. “But we need more data on this type of approach for insurance coverage,” he said. “To date, there are only about 500,000 people in the [United States] who have coverage for the procedure. I expect that number to dramatically increase, though, over the next few years.”

Charles Argoff, MD, the director of the Comprehensive Pain Center at Albany Medical Center, in New York, and a member of the *Pain Medicine News* editorial advisory board, said the study is “interesting but suffers from key shortcomings. Not only is the analysis performed in a heterogeneous fashion without uniform end points, [but] the treatment being touted as effective— platelets—was injected along with a steroid and a local anesthetic.”

Dr. Argoff said that independent of the study, “certain patients experience an excellent response to epidural injections performed with steroid alone or steroid and anesthetic. This paper does not address who among the responders responded to the platelet-derived treatment compared to those who were responding to the steroid and/or anesthetic.” Thus, “this publication should not be viewed as a true assessment of any specific treatment. In fact, there are serious flaws in this paper that cannot be corrected.”

Based on the findings, Dr. Argoff does not plan to use platelet injections.

—Bob Kronemyer

Dr. Centeno reported holding shares in Regenexx. Dr. Argoff reported no relevant financial disclosures.