Treating sport injuries and OA

By Ivonne Herrera, MD

During the past several years, much has been written about a preparation called platelet-rich plasma (PRP) and its potential effectiveness in the treatment of injuries. Many famous athletes such as Tiger Woods, tennis star Rafael Nadal, and several NFL players, have received PRP for various problems, such as sprained knees and chronic tendon injuries. These types of conditions have typically been treated with medications, physical therapy, or even surgery. Some athletes have said PRP helped them return to competition more quickly.

What is Platelet Rich Plasma?

Platelet Rich Plasma is a non-surgical form of tissue restoration that uses the patient's own blood cells to stimulate new cell growth and promote healing. It attempts to take advantage of the blood's natural healing properties to repair damaged tendons, ligaments, muscles, joints, bones and skin.

Platelets contain hundreds of proteins called growth factors which are very important in the healing of injuries. PRP is plasma with many more platelets than what is typically found in blood. The concentration of platelets — and, thereby, the concentration of growth factors — can be five to 10 times greater than usual.

Experts are unsure exactly how PRP therapy may alleviate symptoms for chronic tendinitis or osteoarthritis (OA). Doctors who use PRP to treat osteoarthritis theorize that the PRP might: inhibit inflammation and slow down the progression of OA, stimulate the formation of new cartilage, increase the production of natural lubricating fluid in the joint or contain proteins that alter a patient's pain receptors and reduce pain sensation. It could be that PRP does all of these things, or none. More large-scale, high-quality clinical studies are needed before scientists can know.

How PRP is prepared

To develop a PRP preparation, blood must first be drawn from a patient. The platelets are separated from other blood cells and their concentration is increased during a process called centrifugation. Using the patient's own blood, especially prepared platelets are taken and re-injected into the injured area often using musculoskeletal ultrasound for accuracy.

Medical applications

Although not considered standard practice, a growing number of people are turning to PRP injections to treat an expanding list of orthopedic and rheumatologic conditions. Nearly all of the research investigating the use of PRP to treat OA and other cartilage defects has been done since 2000, and the vast majority of research articles on the topic have been published since 2010. Several clinical studies have demonstrated that PRP injections have improved function and decreased pain to various maladies, including tendinitis, ligament injuries and OA. Tennis elbow has been the most frequent tendinitis treated with PRP; others include Achilles tendinitis, plantar fasciitis, gluteal tendinitis, hip bursitis, hip and knee OA.

In two studies involving knee OA, PRP treatment was shown to be more effective than hyalluronic acid treatment. Another small study examined patients with knee OA. Each arthritis knee underwent a MRI to evaluate joint damage and then received a single PRP injection. In addition, each knee underwent a second MRI after one year. Researchers found:

One year after receiving a PRP injection, most patients had less pain than they did the year before and MRIs showed that the degenerative process had not progressed in the majority of knees. While knee cartilage did not seem to regenerate for patients, the fact that the arthritis did not worsen may be significant. Evidence suggests that an average of 4 to 6% of cartilage disappears each year in arthritic joints.

Pros and cons of PRP injections

Side effects are very limited as the patient is utilizing their own blood. In contrast, multiple therapies currently used for the treatment of OA, such as Ibuprofen or Naproxen, may increase the risk of heart attacks, strokes, kidney failure or gastric bleeding. Repeated cortisone injections in joints with OA can weaken ligaments and tendons. Minor arthroscopic surgeries to treat OA have mixed results and may not be better than placebo.

PRP may not be appropriated for patients with severe OA, blood or bleeding disorders, undergoing anticoagulation therapy, or during pregnancy. The American Academy of Orthopaedic Surgeons recommends patients adhere to the following pre-injection guidelines: Avoid corticosteroid medications for two to three weeks prior to the procedure, stop taking non-steroidal anti-inflammatory drugs (NSAIDs), such as aspirin or ibuprofen, or other arthritis medications such as Celebrex, a week prior to the procedure. Do not take anticoagulation medication for five days before the procedure. Some relative rest is needed immediately following the procedure, and then usually followed by a progressive stretching and strengthening program.

Patients should keep in mind that PRP is not a cure-all, and it may be best used in combination with nonsurgical treatments and life style changes, such as physical therapy, weight loss, bracing and NSAIDs. However, treatment with PRP holds great promise.

About the author

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