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Platelet-Rich Plasma (PRP)

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 — Tiger Woods, tennis star Rafael Nadal, and several others — 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 credited PRP with their being able to return more quickly to competition.

Even though PRP has received extensive publicity, there are still lingering questions about it, such as:

- What exactly is platelet-rich plasma?
- How does it work?
- What conditions are being treated with PRP?
- Is PRP treatment effective?

What Is Platelet-rich Plasma (PRP)?

Although blood is mainly a liquid (called plasma), it also contains small solid components (red cells, white cells, and platelets.) The platelets are best known for their importance in clotting blood. However, platelets also 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 5 to 10 times greater (or richer) than usual.

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. Then the increased concentration of platelets is combined with the remaining blood.

How Does PRP Work?

Although it is not exactly clear how PRP works, laboratory studies have shown that the increased concentration of growth factors in PRP can potentially speed up the healing process.

To speed healing, the injury site is treated with the PRP preparation. This can be done in one of two ways:

- PRP can be carefully injected into the injured area. For example, in Achilles tendonitis, a condition commonly seen in runners and tennis players, the heel cord can become swollen, inflamed, and painful. A mixture of PRP and local anesthetic can be injected directly into this inflamed tissue. Afterwards, the pain at the area of injection may actually increase for the first week or two, and it may be several weeks before the patient feels a beneficial effect.
- PRP may also be used to improve healing after surgery for some injuries. For example, an athlete with a completely torn heel cord may require surgery to repair the tendon. Healing of the torn tendon can possibly

be improved by treating the injured area with PRP during surgery. This is done by preparing the PRP in a special way that allows it to actually be stitched into torn tissues.

What Conditions are Treated with PRP? Is It Effective?

Research studies are currently being conducted to evaluate the effectiveness of PRP treatment. At this time, the results of these studies are inconclusive because the effectiveness of PRP therapy can vary. Factors that can influence the effectiveness of PRP treatment include:

- The area of the body being treated
- The overall health of the patient
- Whether the injury is acute (such as from a fall) or chronic (an injury developing over time)

Chronic Tendon Injuries

According to the research studies currently reported, PRP is most effective in the treatment of chronic tendon injuries, especially tennis elbow, a very common injury of the tendons on the outside of the elbow.

The use of PRP for other chronic tendon injuries — such as chronic Achilles tendonitis or inflammation of the patellar tendon at the knee (jumper's knee) is promising. However, it is difficult to say at this time that PRP therapy is any more effective than traditional treatment of these problems.

An injection of PRP is used to treat tennis elbow.

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Acute Ligament and Muscle Injuries

Much of the publicity PRP therapy has received has been about the treatment of acute sports injuries, such as ligament and muscle injuries. PRP has been used to treat professional athletes with common sports injuries like pulled hamstring muscles in the thigh and knee sprains. There is no definitive scientific evidence, however, that PRP therapy actually improves the healing process in these types of injuries.

Surgery

More recently, PRP has been used during certain types of surgery to help tissues heal. It was first thought to be beneficial in shoulder surgery to repair torn rotator cuff tendons. However, the results so far show little or no benefit when PRP is used in these types of surgical procedures.

Surgery to repair torn knee ligaments, especially the anterior cruciate ligament (ACL) is another area where PRP has been applied. At this time, there appears to be little or no benefit from using PRP in this instance.

Knee Arthritis

Some initial research is being done to evaluate the effectiveness of PRP in the treatment of the arthritic knee. It is still too soon to determine if this form of treatment will be any more effective than current treatment methods.

Fractures

PRP has been used in a very limited way to speed the healing of broken bones. So far, it has shown no significant benefit.

Conclusion

Treatment with platelet-rich plasma holds great promise. Currently, however, the research studies to back up the claims in the media are lacking. Although PRP does appear to be effective in the treatment of chronic tendon injuries about the elbow, the medical community needs more scientific evidence before it can determine whether PRP therapy is truly effective in other conditions.

Even though the success of PRP therapy is still questionable, the risks associated with it are minimal: There may be increased pain at the injection site, but the incidence of other problems — infection, tissue damage, nerve injuries — appears to be no different from that associated with cortisone injections.

If you are considering treatment with PRP, be sure to check your eligibility with your health insurance carrier. Few insurance plans, including workers' compensation plans, provide even partial reimbursement.

Last reviewed: September 2011

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