Platelet-Rich Plasma

What Is Platelet Rich Plasma (PRP)?

Definitions:
A.) Platelets are small cell-like bodies that are derived from a certain type of white blood cell that are formed in bone marrow. They promote blood clotting and wound healing. Platelets are the smallest of all of the blood cells and yet are rich in alpha and dense granules that are rich in several growth factors or cytokines that are involved in tissue healing.

B.) Plasma is the fluid component of blood that contains red and white blood cells as well as clotting factors and other proteins. It is made mostly of water (90%) and is responsible for transporting cells around the body.

C.) Platelet rich plasma is a concentrate from blood that contains approximately three to five times more platelets than the normal concentration of platelets in human blood. PRP promotes several types of cell activity, including inflammation, proliferation and remodeling, all of which are necessary in wound healing.

How is Platelet Rich Plasma Prepared?

Blood is first drawn from a patient with a syringe using sterile technique and then centrifuged (spun) and separated out into three layers. The bottom layer is made up of red blood cells, the middle layer consists of platelets and white blood cells and the top layer is plasma. The total volume of platelet rich plasma that is collected is approximately 5 milliliters or one teaspoon. Once it is prepared it is stable for up to eight hours, however once it is “activated” it must be used within ten minutes. The PRP is then delivered directly to the area of injury, and often times used with the assistance of an ultrasound machine.
What is PRP Used For?

PRP was originally studied for its use in general surgery and maxillofacial surgery, yet has now been shown to be highly effective in muscle and tendon injuries in the fields of orthopedics and sports medicine. Most recently, PRP has been made publicly aware because of its use to treat an injured Pittsburgh Steelers football player.

It is used for injuries of tendons, muscles and ligaments. Common injuries that can be treated with PRP include tennis elbow (Lateral Epicondylitis), Achilles tendonitis, Plantar Fascitis, Patellar Tendonitis and studies are being done on its use for rotator cuff injuries and Osteoarthritis.

What Should I Expect Before a PRP Treatment?

Please do not take any medications like Motrin, Ibuprofen, or Naprosyn for at least 5 days prior to the procedure. These meds could alter the effectiveness of the procedure.

Blood is drawn with an 18-gauge needle using sterile technique from the front of the elbow (antecubital region) and then transferred to the centrifuge to be separated out into the necessary components. Approximately 5milliliters (one teaspoon) of platelet rich plasma will be prepared and some physicians may add an additional solution of calcium or Thrombin (clotting factor) or use the PRP sample alone. Before delivering the PRP, an ultrasound will be used to locate the area of injury and a local anesthetic (Lidocaine) will be placed over the area before the PRP is injected.
After the procedure, ice should be applied to the area as needed to control pain, the limb that was treated should be elevated and activity should be limited for the first 1-2 days. Medications such as Motrin, Ibuprofen and Naprosyn should not be taken within the first two weeks since it can stop the necessary healing effects of the PRP.

Based on the injury and location, several PRP treatments may be needed and may be as frequent as once a week as the full effect of PRP takes up to seven days. Since the platelet rich plasma promotes inflammation, there will be moderate discomfort after the treatment, yet this will subside with time and acetaminophen (Tylenol) may be used for pain control.

We will send you to physical therapy after the procedure to help you progress back to full activity.

Please see these references below for more information.

References:


Images:


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