The Use of Platelet-Rich Plasma in the Foot and Ankle

Background:
- Autologous platelets yield high concentrations of growth factors and other proteins that enhance healing of bone and soft tissue.
  - Platelets
    o Derived from megakaryocytes within the bone marrow.
    o Contain several proteins that play a role in tissue healing and hemostasis.
    o Secrete many different growth factors including PDGF, Insulin-like growth factor, VEGF, epidermal growth factor, epithelial cell growth factor, osteocalcin, fibrinogen, and fibronectin.
- Acquisition
  o Blood collected from patient.
  o Platelets separated by means of centrifugation.
  o Separated into 3 layers of product – plasma, buffy coat layer (WBC) and remaining blood products (RBCs).

Theory:
- 3 phases of wound healing
  o Inflammatory
  o Proliferative
  o Remodeling
- Acute Injury: PRP will increase the concentration of platelets to the injury site over the baseline.
- Chronic Injury: Paucity of platelets, PRP will restart inflammatory phase.

Clinical Uses:
- Plantar Fasciitis
- Achilles Tendinopathy and Rupture Repair
- Cartilage Injury
- Bone Augmentation
- Wound Healing

Limitations:
- Studies are all limited by small sample size, poorly designed, lack of long-term follow up, lack of consistent protocols.
- Further human, large, consistent, and well performed prospective studies of PRP of the foot and ankle are needed.
- Cost, most insurances do not cover the use of PRP.

References: