

自體血小板生長因子濃度對於軟骨再生與運動傷害治療的優勢效應與關聯性  
Clinical superiority and correlation of autologous PRP and growth factors  
concentration for cartilage regeneration and sport medicine therapy

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**Introduction:** Degenerative osteoarthritis diseases and sport injury are steadily increasing because of the continued rise in orderly and sport population. Thus, a variety of noninvasive solutions have been proposed for pain treatment and improvement the tissue function. Among them, PRP therapy is now an innovative technique that allows one to obtain from autologous blood separation. The aim of this study was to explore the effective of PRP and contained growth factors concentration for applied in different orthopedic fields such as osteoarthritis, Rotator cuff tear and sport injuries

**Materials and Methods:** Patients with orthopedic diseases such as OA, RCT, ACL and achilles tendon tear are the major target of clinical treatment groups. PRP blood component was prepared using the full automatic centrifuge machine (SEPAX system, Biosafe SA, Switzerland). An amount of 100mL venous blood was drawn from the patient into blood bag containing 15mL of anticoagulant (JMS, Singapore). After 20minutes of processing, PRP, PPP (platelet poor plasma), and RBC (red blood cell) were collected individually. The PRP was drawn aseptically into a sterile syringe. Then, PRP either direct injected into the local site or combined with other absorbent sponge to place onto the surgical site

**Results:** The average concentration of isolation PRP from 100 patients was around 3 times compared with the normal platelet number of patient by the Cell counter machine. In addition, the typical growth factors after final concentrated PRP were also measured by the Elisa microplate reader and corresponding kits. Preliminary data had been shown the trend that the higher the Platelet number, the higher the growth factor amount. Meanwhile, no complications were observed during this PRP treatment and follow-up period. Almost 80% patients who got PRP treatment could effective modified the historical problem and repaired the damaged tissue. Hence, the preliminary clinical results of this study suggest that this procedure may be useful for treated the degenerative OA or other tissue injuries.

**Discussion:** PRP secrete multiple growth factors shown a positive influence in clinical fields. In particular, transforming growth factor, one of the most important factors involved in the process of cartilage regeneration to induce chondrogenic differentiation from mesenchymal stem cells. Meanwhile, platelet-derived growth factor could also increase the chondrocyte proliferation and upregulate proteoglycan synthesis. Thus, in order to prove the mechanism and actual action of PRP treatment, these growth factors parameters were needed to be further confirmed.

Osteogenesis imperfecta with Sofield procedure in different age

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**Introduction:** Osteogenesis imperfecta is a congenital disorder characterized by defect in type I collagen. The clinical picture are blue sclera, short stature, dentinogenesis imperfecta, hearing defects, and fragile bone quality. Some study showed benefit about biphosphonate appliance for osteogenesis imperfecta. However, Sofield procedure is still the treatment option, and it will bring advantage to patient with detailed pre-operative consideration.

**Materials and Methods:** We will present three cases with Sofield procedure in different age with regular follow-up. The series plain film and gross picture was available for advanced discussion. We will showed our decision making and practice pitfil according to past clinical experience.

**Results:** There are no clinical guideline about the timing and duration of biphosphonate medication. The timing of Sofield procedure was not clear, and it should depend on patient's clinical course, functional demand and surgeon's experience. Current concept showed no physéal arrest was noted with smooth k-pin through physéal plate in Sofield procedure. Surgeon should avoid inadequate devascularization for better bone union.

**Discussion:** Although, Sofield procedure is a complicated surgery, and it is an effective surgical intervention. It need detailed pre-operative assessment and post-op hip spica protection.