



## Editorial

### *Platelet concentrates in dentistry*

The main goal of modern dental surgery is low level of invasiveness along with a higher rate of healing. In the last two decades, various platelet aggregates have been used for the repair and regeneration following various dental procedures.

The first generation platelet derivative, platelet rich plasma (PRP) has been extensively applied in cell based therapy, tissue engineering and regenerative therapies. PRP, derived by methods that concentrate platelets, has been described and used in various clinical applications with apparent success. It has been defined as a volume of autologous plasma that has the platelet concentration above the midline. However, some of the drawbacks of this procedure involve the fact the preparation protocol is expensive, complicated and very operator dependent, and the need for animal thrombin raises legal issues in some countries. The short duration of release of growth factors along with poor mechanical properties, led to the development of second generation platelet derivatives.

Platelet rich fibrin (PRF) is a second generation platelet concentrate that can enhance both hard and soft tissue healing. It also contains physiologically available thrombin that results in slow polymerization of fibrinogen and creates a physiological architecture more favorable to wound healing. This simple and inexpensive biomaterial has multiple uses in dentistry including regenerative procedures, osseous surgeries, sinus lift techniques, regeneration around implants, guided bone regeneration, and preservation of extraction sockets, ridge augmentation, recession coverage procedures and local drug deliveries. Owing to its superb bactericidal and healing abilities, PRF has found tremendous use in post operative application following surgical wounds that heal by secondary intention.

Following PRF, the concept of concentrated growth factors (CGF) was introduced recently, which promises a denser matrix, richer in growth factors. Similarly the concept of “sticky bone” and injectable PRF (i-PRF) has found widespread application in numerous dental procedures. The notion of Titanium activated PRF (T-PRF), based on the hypothesis that titanium is a better activator of platelets than silica, and is further expected to revolutionize the very field of platelet derivatives.

To summarize, both PRP and PRF along with its various modifications represent innovative tools in dentistry. However, some of the disadvantages of PRP, including biochemical blood handling with addition of anticoagulants make the use of this first generation platelet concentrate debatable and the subject of controversy. On the other hand, PRF, with its autologous nature, simple collection, ease of chair-side preparation and lack of risk associated with allogenic or animal derived products is a safe and promising biological treatment with a wide range of applications in dentistry. At this point, it becomes imperative for the dentist to be well aware of the nature of these growth factor concentrates, so as to avoid misuse and choose the appropriate alternative in clinical procedures.