Platelet-rich fibrin can play an important role in oral and maxillofacial surgery, implant dentistry, periodontal regeneration and post-extraction site preservation.

The fibrin is a reservoir of platelets that will slowly release growth factors and cytokines, which are the key factors for regeneration of the bone and maturation of the soft tissue. Platelet-rich fibrin (PRF) is an autoologus platelet concentrate prepared from the patient’s own blood at the dentist’s office just before the oral/ dental procedure.

Recent studies are focused on the development of natural therapeutic alternatives, which are easy to prepare, non-toxic or biocompatible to living tissues and economically inexpensive. The goal is the local release of growth factors, in turn accelerating hard and soft tissue healing.

By Dr. Alvaro Betancur, USA

Platelet-rich fibrin can be performed by a properly trained staff member.

Advantages of PRF compared with PRP

- No anticoagulants that affect the release of growth factors
- No drugs (calcium chloride) that could affect fibrin polymerization
- No animal products (bovine thrombin)

Handling patient’s blood and manufacturing blood products transforms the dental office into a blood bank facility where stricter cross-contamination control protocols should be followed in order to avoid doctor’s liability risks and to comply with federal regulations of the Center for Disease Control (CDC), OSHA and to perform the standard of care protocols for surgery.

PRF is used in invasive oesophageal surgery close to the eyes, ear, brain and in direct contact with bone, mandibular sinuses, veins, arteries and nerves that could be adversely affected. Proper contamination control protocols are not followed.

Handling patient’s blood and manufacturing blood products transforms the dental office into a blood bank facility where stricter cross-contamination control protocols should be followed in order to avoid doctor’s liability risks and to comply with federal regulations of the Center for Disease Control (CDC), OSHA and to perform the standard of care protocols for surgery. All instruments used for the manufacturing of PRF should be sealed sterile and dropped into a sterile field separate from the instruments used for the removal of contaminated tissues. The risk of contamination of the PRF membranes, PRF sticky and PRF steepy bone that is going to be used for bone augmentation, as well as the PRF exudate that can be used as a sealant of the surgical site.

Tourquemets, bandages, gauze, needled and blood collection tubes should be single patient-use packs only. I use the blood collection tubes steril pack (BCTP) from Boca Dental Supply, LLC.

PRF is the newest and most popular alternative to PRP, because of the easier and less expensive alternative, PRF liquid is starting to be used instead of PRP (PRF $40 vs. PRF $8 per patient).

More research is needed to determine the final damage of silica and other additives in the plastic blood collection tubes to the grafted area and grafted bone at post-extraction sites, maxillary sinuses, periodontal defects and all other bone augmentation procedures. There is currently not available publication or research to evaluate possible cause and systemic effects of silica and all other chemicals used to simulate the natural glass in plastic laboratory tubes when used for PRF manufacturing.

When plastic blood collection tubes without any additives are used for blood collection and centrifugation, we obtain liquid PRF that is used to apply to the sticky bone and transform it into PRF steepy bone. This improves the handling characteristics of the bone and aids in keeping the bone graft in material in solid form and preventing small particles of bone from migrating between the patient’s bone and periodontium. Migration of small particles of bone could be a cause of increased inflammatory response and swelling after surgery.

Because the time in the centrifuge is reduced to process blood in the plastic tubes to manufacture PRF liquid, less heat will be generated thus allowing a greater number of live white cells without degradation. This will accelerate the healing process, and it is also possible that when the blood is processed at 700 RPM or less, some stem cells could also be concentrated in the PRF liquid.

PRF is the newest and most popular technique to accelerate healing in dentistry. During most large implant dental conventions and meetings
in oral and maxillofacial surgery, periodontics, OMIS, endodontics, implantology and bone regeneration, the number of speakers presenting successful cases increases every year. We, as clinicians involved in regenerative procedures and the manufacturing of PES, are obligated to use only materials and supplies that guarantee patients’ safety and, at the same time, eliminate the clinician’s liability risks.

Note
Dr. Alvaro Betancur is the inventor of the Blood Collection Tubes Steri-Pack (BCTSP).

References


Editorial note: This article was origi- nally published in Implants Magazine 4 (online 2007/implantology).

mCME SELF INSTRUCTION PROGRAM
CAPPmeda together with Dental Tribune provides the opportunity with its mCME - Self Instruction Program a quick and simple way to meet your continuing education needs. mCME offers you the flexibility to work at your own pace through the material from any location at any time. The content is international, drawn from the upper echelons of dental medicine, but also presents a regional outlook in terms of perspective and subject matter.

Membership

Visit www.cappmea.com for CME. 1,000 AED per year. Once Time article newspaper subscription: 250 AED per issue. After the payment, you will receive your membership number and allowing you to start the program.

Completion of mCME

- mCME participants are required to read the continuing medical education (CME) articles published in each issue.
- Each article offers 1 CME Credit and is followed by a questionnaire online, which is available on www.cappmea.com under the corresponding issue.
- Each quiz has to be returned to events@cappmea.com or faxed to +971 4 3686883 in three months from the publication date.
- A minimum passing score of 80% must be achieved in order to claim credit.
- No more than two answered questions can be submitted at the same time.
- Validity of the subscription – 1 year
- Validity of the article – 3 months
- Collection of Credit hours: You will receive the summary report with Certificate: maximum one month after the expiry date of your membership. For single subscription certificates and summary reports will be sent one month after the publication of the article.

The answers and critiques published herein have been checked carefully and represent authoritative opinions about the question at hand.

For more information please contact events@cappmea.com or +971 3 5667473.

mCME QUICK AND EASY WAY TO MEET YOUR NEEDS

Membership in mCME Program

* mCME participants are required to read the Continuing Medical Education (CME) articles published in each issue.
* Each article offers 1 CME Credit and is followed by a questionnaire online.
* Participants will receive the summary report with Certificate.

For more information please contact-dtmea@dental-tribune.me

Fig. 7-9: Plain natural glass tube vs. silica coated tube.