Application of Platelet-Rich-Plasma in Clinical Dentistry

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Platelet-rich plasma (PRP) has become a great approach in tissue regeneration procedures and is becoming an important addition in measures where efficient healing of dental tissues is required. The use of PRP in old individuals is becoming even more relevant. PRP is mainly derived from an individual’s blood by centrifugation process and contains several growth factors which may promote healing of the wounds and thus, plays a very vital role in tissue repairing and regenerative mechanisms. Common formulation of PRP is gel, which is formed by derivatives of the autologous whole blood that contains calcium chloride and thrombin. It contains high concentrations of native fibrinogen and platelets.

Recently in dental and oral surgical procedures, PRP has become an excellent adjunct which promotes healing. Common dental procedures which involve the use of PRP include the surgical procedures, mandibular repair/reconstruction and surgical repairs of alveolar clefts, treatment involving the correction of infra-bony defects of periodontium and perio-plastic reconstructive procedures. It is also used in procedures which are related to the placement of osseo-integrated dental implants. PRP is adhesive in nature and this allows for facilitation and easy handling of the grafting material, leading to predictable flap adaptation and good hemostasis, and thus, helps in achieving predictable seal than as compared to the primary closure alone.

The ease of use of PRP preparations are highly beneficial to be used in dentistry however; the evidence regarding the safety, efficacy and efficiency of PRP suggests that its use remains controversial since the majority of the studies were performed using different graft materials during different application procedures.

The literature suggests that using PRP into the alveolar socket soon after performing the exodontias improves soft tissue healing and it also certainly influences the bone regeneration process however; a few days after, the latter effect seems to diminish. PRP has also shown very good results in periodontal procedures when it is used in combination with other materials than when it is used alone, which suggests that PRP when combined with specific agents/materials could be important and may improve the surgical and periodontal results. PRP is actually very promising in periodontal and regenerative procedures should be continued to be studied by scientists and clinicians.

During the process of periapical healing, root lengthening and dentinal wall thickening in necrotic immature permanent teeth over the blood clot, platelet rich fibrin acts as a scaffold with concentrated micromolecules or storehouse of growth factors. Blood clot and PRP show comparative results in terms of apical closure, root lengthening, dentinal wall thickening, and periapical healing.

There have been no possible side effects which have been reported in many clinical studies involving PRP therapy. However; the only disadvantage of PRP preparations, one can mention would be the benefit outcome versus the costs involved during the application procedure. The success of procedures involving PRP may be termed doubtful and its use may not be justified because of the costs of the PRP-processing systems and the kits for its use. In addition, a less important inconvenience during the treatment would be that the patients themselves have to undergo procedures for drawing their own blood which is a requirement for PRP preparation.

REFERENCES

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