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APPLICATION OF AUTHEMOTOMBOCYTE MASS IN SURGICAL DENTISTRY

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Abstract

Our observations have shown that one of the most effective means of increasing the regenerative capacity of tissues when applied topically is the patient's blood plasma enriched with platelets. According to recent studies, it is platelets that contain growth factors in a high concentration - tissue hormones that increase regeneration processes: Since this technique does not provide for any effects on the patient's blood, with the exception of fractionation, there are no medico-legal obstacles to its use, which greatly simplifies formal issues and facilitates implementation in surgical practice.

Keywords: surgical dentistry, autohemothrombocyte mass, blood sampling, bone tissue defect, engraftment, teeth, organ-preserving operations.

抽象的

我们的观察表明, 局部应用时增加组织再生能力的最有效方法之一是患者的富含血小板的血浆。根据最近的研究, 血小板含有高浓度的生长因子 - 促进再生过程的组织激素: 由于该技术不会对患者的血液产生任何影响, 除分馏外, 没有医学法律 其使用的障碍, 这极大地简化了形式问题并促进了外科实践中的实施。

关键词: 外科牙科, 自体血红细胞质量, 采血, 骨组织缺损, 植入, 牙齿, 器官保留手术。

Introduction

Until now, the issue of restoration of damaged bone tissue with natural or artificial biomaterials that do not harm the body of the recipient - patients, has been relevant.

Today, millions of organ-preserving surgeries using biological osteogenic materials are already being performed in the world. Currently, there are various ways of influencing reparative

osteogenesis. Analyzing the various available literature data, 7 (seven) main ways of influencing reparative osteogenesis can be identified: [1, 2, 10].

1. Healing the wound under the blood clot.
2. Application of osteoplastic materials (kolapol, kolapan hydroxyapol).
3. Application of platelet concentrate (P.R.P.; F.R.P.)

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4. Application of biomembranes (directed tissue regeneration; -pericardium; F.R.P.)
5. Application of cell cultures (bone marrow, osteocytes, osteoblasts, mesenchymal cells).
6. Physical methods of influence on bone tissue.
7. Combination of different paths.

Autohemotherapy is an injection method of local stimulation of regenerative processes in tissues in a number of dental procedures. The procedure is based on the properties of a person's own blood plasma, which is a biological regeneration stimulator containing growth factors, hormones, as well as proteins and vitamins in a natural combination. This method is completely biocompatible and drug-free. [1, 3, 5, 9].

The autohemotherapy procedure is the optimal method for treating many diseases in therapeutic and surgical dentistry. Platelet autoplasm allows accelerating wound healing during periodontal, implantological and other therapeutic and surgical interventions in the oral cavity [6, 11].

According to the literature, one of the most effective means of increasing the regenerative capacity of tissues when applied topically is the patient's blood plasma enriched with platelets. According to recent studies, it is platelets that contain growth factors in high concentration - tissue hormones that initiate regeneration processes:

When eliminating volumetric bone defects, P.R.P. the most effective in combination with transplant or artificial bone substitute materials. P.R.P. optimizes the processes of remodeling of the graft (implant) and significantly accelerates them [8, 13]. Thus, the use of homogenized platelet-rich plasma in sinus lifting in a mixture with CROSS, BONE material, consisting of 60% hydroxyapatite and 40% tricalcium phosphate, allows you to proceed to the implantation phase of treatment in 2-3 months.

Obtaining P.R.P., which is a suspension of "pure" platelets, is a complex, expensive process that requires the use of anticoagulants and bovine blood components (bovine thrombin). The latter circumstance creates certain difficulties with ensuring a 100% guarantee of the sterility of the product obtained.

Purpose of work: Apply autohemothrombocyte mass in order to improve tissue regeneration and replenishment of the bone defect.

Task: Determine the groups of patients with a bone defect in various areas of the jaws. Give a comparative assessment with other osteogenic drugs.

Materials And Methods

On an outpatient basis, 18 patients aged from 13 to 20 years were examined. In connection with the peculiarities of the structure of the jaw bones in children, we have chosen this age category, since these patients had the beginning of the formation of a permanent bite.

The indications for surgery were as follows: extensive cysts, radicular and follicular cysts of the jaws.

The operation was carried out in Bukhara Regional Pediatric Dentistry No. 2. In preparation for the operation, if there were no contraindications, we performed the operation. The medical history, complete blood count, and any concomitant diseases were studied.

Procedure for collecting platelet-rich mass from a patient. Before carrying out the blood sampling procedure, the patient is advised to follow a diet, exclude the use of alcoholic beverages, tobacco, and limit physical activity. Either the day before, or just before the operation, professional oral hygiene is performed. One of the important points is the time of blood sampling: the interval

between the blood sampling procedure and centrifugation should not exceed 10 minutes, since the isolation of plasma with a high platelet content is possible only from fresh blood (growth factors are most active within an hour, when stored for more than eight days, platelets die). Then 9-36 ml of blood (depending on the severity of the disease and the volume of the lesion) is collected in a special vacuum tube containing an anticoagulant in the form of a low molecular weight sodium salt of heparin and a separating gel filter. With the help of an anticoagulant thinly applied to the inner surface of the tube, blood clotting and platelet aggregation do not occur. The gel separates the blood into fractions: platelet plasma and settled erythrocyte mass. Place the tubes in a centrifuge to balance the tubes. The process takes 5 minutes at a speed of 3000-3200 rpm, depending on the model of the centrifuge [5, 12].

After that, with the help of a syringe, the plasma is taken, trying to avoid getting the gel into the needle. The resulting plasma is injected locally in the affected areas of the bone. Autoplasma begins to act in the very first minute after it enters the bone tissue, starting the process of renewing bone cells, the effect occurs 10-14 days after the first procedure, and a complete cure after a month [6].

Results

Our observations have shown that one of the most effective means of increasing the regenerative capacity of tissues when applied topically is the patient's blood plasma enriched with platelets. According to research in recent years, it is platelets that contain growth factors in high concentration - tissue hormones that increase regeneration processes: Since this technique does not provide for any effects on the patient's blood, with the exception of

fractionation, there are no medical and legal obstacles to its use, which greatly simplifies formal issues and facilitates implementation in surgical practice.

Conclusion

According to the developers, this technique has a number of other advantages:

- higher content of growth factors;
- local antibacterial action;
- osteoinductive effect;
- good adhesion to bone and soft tissues;
- the possibility of using the material in

various forms (a) a single clot - to fill volumetric defects; b) in crushed form - for use in a mixture with transplantation or implantation materials; c) in the form of a membrane - as an alternative to biomembranes of artificial, allo or xenogenic origin).

According to the developers, F.R.P. has a number of advantages over P.R.P., in addition to the above:

- higher content of growth factors;
- local antibacterial action (due to leukocytes contained in F.R.P.);
- osteoinductive effect;
- good adhesion to bone and soft tissues;
- the possibility of using the material in

various forms a) a single clot - to fill volumetric defects; b) in crushed form - for use in a mixture with transplantation or implantation materials; c) in the form of a membrane - as an alternative to biomembranes of artificial, allo or xenogenic origin).

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