Informed consent form for Human body Research of The Second Affiliated Hospital of Zhejiang University

Dear patient:

we invite you to participate in a clinical study of "Clinical Application of GTR combined with APRF/CGF in promoting periodontal Bone defect Regeneration: a Randomized controlled Clinical trial". Before you decide whether to participate in this study, please read the following carefully, which can help you understand the study and why it is conducted, the procedure and duration of the study. The benefits, risks and inconveniences that may be brought to you after participating in the study. The following is an introduction to this study:

I. Research background and purpose

Guided tissue regeneration (GTR) combined with bone grafting is the main method for clinical treatment of periodontal bone defect. This classic operation uses membranous materials to shield the faster growing gingival epithelial cells and connective tissue cells to create an effective closed space and time for the growth of periodontal ligament cells with regenerative potential. as a result, new cementum is formed on the root surface and periodontal ligament fibers are embedded, resulting in regenerative healing. At the same time, the bone graft material was implanted into the periodontal tissue defect area to maintain enough submembrane space to help stabilize the blood clot which is essential for periodontal regeneration, and then guide the formation of autogenous bone tissue. However, it has been reported that although GTR can repair some

intraosseous defects, the result of periodontal tissue restoration is far from the desired goal of doctors and patients.

In order to improve the effect of periodontal regeneration therapy, as early as 1990s, scholars began to mix platelet concentrate and bone graft in periodontal regenerative surgery to improve the ability of local bone induction and tissue healing. Studies have shown that platelet concentrate, which is rich in a variety of growth factors in autologous blood, can promote soft tissue and bone tissue healing by acting on tissue healing cells (osteoblasts, epithelial cells, connective tissue cells, etc.). It is closely related to periodontal regeneration; the regenerative component of platelet concentrate, growth factor, and the structure of fibrin network containing growth factor are the key to promote tissue repair and regeneration. Modified platelet-rich fibrin (APRF) and concentrated growth factor (CGF) are the latest generation of platelet concentrates. A number of studies have shown that APRF and CGF contain more cytokines, have a denser fibrin network, and show stronger ability to promote the migration and proliferation of gingival fibroblasts, suggesting that both of them may have better ability to promote bone tissue healing. At present, the latest generation of platelet concentrate has been widely used in implant surgery, but their clinical effects in periodontal regeneration surgery are still lack of conclusive evidence. there is no report on comparing the clinical effects of the two through randomized clinical controlled trials.

Based on this, this study compared the clinical application of GTR combined

with APRF/CGF and simple GTR in promoting periodontal repair in periodontal .The purpose of this study is to further explore the efficacy of three methods in increasing the amount of alveolar bone regeneration, and whether APRF and CGF can improve the effect of periodontal tissue regeneration, so as to provide a certain basis for future clinical work.

II. Specific procedures and procedures

This study will be carried out in the Department of periodontitis, the second affiliated Hospital of Medical College of Zhejiang University from November 2020 to March 2022. At present, you have been diagnosed with chronic periodontitis and have natural teeth with intraosseous defects in the mouth. You will be randomly divided into GTR group, APRF+GTR group or CGF+GTR group. We will give you oral health education and make an appointment with you for the operation. Before the operation, the surveyor will measure your baseline data, and all measurements will be repeated twice to take the average. The operation was then performed by experienced doctors. If you are assigned to the control group, the bio-oss bone graft material is implanted and the bio-gide barrier membrane is covered during the operation to complete the periodontal regeneration operation. If you are assigned to the experimental group, the nurse will draw your 20ml elbow venous blood through a special centrifuge (APRF:TR-18plus series, Jiangsu Chuangying Co., Ltd.; CGF:Medifuge, Salfident, Italy) to obtain gelatinous APRF or CGF, one tube is mixed with bone graft material and implanted into the bone defect site, and the other tube is pressed and covered on the bio-gide

barrier membrane to complete periodontal regeneration surgery combined with APRF or CGF. Blood collection and centrifuge operation are completed by specialized nurses who receive special training. Aseptic operation should be strictly carried out throughout the operation, blood needle and centrifuge tube should be used by 1 person and discarded after use, and the medical waste should be disposed of in accordance with the medical waste process. Pre-operative screening and necessary blood tests were performed to ensure the quality of blood extract.

You need to have the stitches removed two weeks after the operation. After the stitches are removed, you cannot disclose the grouping information to the surveyor during the evaluation. After that, you need to revisit at 12, 24 and 48 weeks after operation, and the surveyor will measure or evaluate you accordingly. All numerical measurements are repeated twice to take the average, and you cannot disclose the grouping to the surveyor during the measurement period. During the study, you need to follow up at the hospital on time and have some oral examinations, which may take up some of your time, or cause you trouble or inconvenience.

III. What do you need to do if you participate in the research?

If you are assigned to the experimental group, you need to agree and cooperate with the blood sampling operation during the operation; you need to agree to your relevant clinical and imaging data for research.

You must carry out oral hygiene maintenance and operation area protection under the guidance of your doctor. At the same time, you cannot use drugs that are not approved by the researcher during the study. If you need other treatment, please contact your doctor in advance.

You must take your personal medical records to the hospital according to the follow-up time agreed by your doctor and you (during the follow-up period, the doctor may know your condition by phone and door-to-door visit). Your follow-up is very important because your doctor will determine whether your treatment really works and guide you in a timely manner.

IV. the benefits that may be brought to you by participating in this study

In this study, your intraosseous defects may be repaired at a higher level, but there may be no difference. It should be pointed out that the treatment results mainly depend on the level of plaque control and the ability of self-organization recovery in the oral cavity after operation. You can get professional knowledge related to periodontal health and professional guidance on maintaining oral health. You can enjoy a comprehensive oral health examination and conduct a review during the follow-up period to detect, diagnose and treat oral health problems early; during the follow-up period, the cost of maintenance and treatment of periodontitis is free of charge (usually 399 yuan for total oral cleaning, 80 yuan for scraping front teeth and 200 yuan for posterior teeth). In addition, participating in this study will promote the research progress of periodontal hard

tissue defect repair and regeneration, and provide scientific basis for the application of APRF and CGF combined with GTR. Whether you are assigned to the experimental group or the control group, you can enjoy the above benefits.

V. the possible adverse reactions, risks and risk prevention measures to participate in this study

In this experiment, no matter which group you are assigned to, you will operate with Geiger's granular bone powder (inorganic regardless of salt material extracted from bovine bone) and absorbable periosteum (bilayer absorbable collagen membrane made from pig collagen). At present, the above two products are routinely used in clinic, and a large number of clinical studies have shown that they are safe, but you cannot rule out allergy or rejection to the above products. If you have any discomfort during the test, please inform your doctor in time. If it is confirmed by your doctor that the product is related to the surgical implantation, it will be recommended that you remove the implant again and provide you with free anti-allergy / anti-rejection treatment.

In addition, the treatment of APRF, CGF combined with GTR is not the routine method recommended in clinical guidelines for the treatment of periodontal bone defects, and if you have any remaining discomfort, or new changes in your condition, or any unexpected circumstances during the study period, whether related to the study or not, you should inform your doctor in a timely manner, and he / she will make a judgment and give appropriate medical treatment. The

hospital has taken out insurance for scientific research projects initiated by researchers after passing the ethical review. In case of serious adverse events related to the research, the hospital will seek compensation for you in accordance with relevant laws and regulations.

Contact doctor: Lei Lihong; contact information: 0571-87767068

VI. Description of the cost

To participate in this trial, compared with the clinical routine, there will be no additional examinations or items, nor will there be any additional expenses. The surgery and material fees required for the treatment will be charged according to the routine medical treatment, which will be paid by you and your health insurance.

VII. Compensation for participation in the study, including compensation for injury

When you have an adverse reaction, the doctor will try his best to prevent and treat the injury that may be caused by this study. If an adverse event occurs in a clinical trial, the medical expert committee will determine whether it is related to the xenogeneic collagen matrix membrane used in the treatment. The organizer will provide the cost of treatment and corresponding economic compensation for the damage related to the test in accordance with the relevant regulations of our country.

VIII. Alternatives

If you are not willing to participate in this study, you can use other surgical methods for treatment, which will not affect your routine clinical treatment.

IX. Confidentiality of your personal information

Your medical records (including research medical records and physical and chemical examination reports, etc.) will be kept in the hospital in accordance with the regulations. Except for researchers, ethics committees, inspectors, inspectors, drug administration departments and other relevant personnel will be allowed to access your medical records, other people who are not related to the research have no right to access your medical records without permission. Your personal identity will not be disclosed in the public report on the results of this study. We will make every effort to protect the privacy of your personal medical data within the scope of permission.

X. Stop participating in the study

Whether or not to participate in this study depends entirely on your willingness. You may refuse to participate in this study, or withdraw from the study for no reason at any time in the course of the study, which will not affect your relationship with your doctor, nor will it affect the loss of interest in your medical or other. In addition, your participation in this study may be terminated for the

following reasons: 1. You did not follow the doctor's advice of the research doctor. 2. You have a serious condition that may require treatment. 3. The research doctor believes that terminating research is best for your health and well-being.

XI. Ethics Committee

This study has been reported to the Human body Research Ethics Committee of the second affiliated Hospital of Medical College of Zhejiang University, and has been approved by the committee, including the risk assessment of the subjects. In the course of the study, please contact the Human body Research Ethics Committee of the second affiliated Hospital of Medical College of Zhejiang University, telephone: 0571-87783759 during the day; night (total duty): 13757118366; email address: HREC2013@126.com

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I confirm that I have read and understood the informed consent form of this study, voluntarily accept the treatment in this study, and agree to use my medical data for the publication of this study.

Subject signature: contact information: date:

agent signature: contact with the subject: date :

(if necessary)

witness (if necessary): contact information: date:

I confirm that I have explained the details of this study to the patient. Including its rights and possible benefits and risks, and give it a copy of the signed informed

consent.

Signature of the researcher:

contact information: (mobile phone)

date: