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The effect of plasma proteins on periodontal tissue regeneration

Submission date	Recruitment status	[_] Prospectively registered
17/10/2018	Recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
29/10/2018	Ongoing	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
18/12/2023	Oral Health	

Plain English summary of protocol

Background and study aims
Periodontitis is a common disease of the gums which causes bleeding, gum shrinkage and bone loss around the teeth. It may result in tooth loss and can impact on the quality of life. Routine treatments for periodontal disease to control infection can be surgical or non-surgical. Surgical treatment involves lifting the gum to clean the infection away. If surgical treatment is necessary, procedures to re-build bone may also be performed. A new way of aiding the rebuilding and healing of tissue following surgery is with the use of a product derived from your own blood called Plasma Rich in Growth Factors, or PRGF for short). It has been shown that PRGF can enhance tissue healing and minimize complications that can occur after the surgery, such as pain and swelling.
The aim of this study is to investigate whether PRGF can improve healing and bone regeneration in patients who have periodontal bone defects (a weakness in the bone surrounding a tooth) that are going to be treated with surgery.

Who can participate?
Healthy adult volunteers with 2 periodontal defects, both requiring surgical treatment

What does the study involve?
To complete this study, all participants will be asked to attend the Bristol Dental Hospital on 7 occasions over approximately 10 months as follows:
1. An initial screening visit: this will take around 15 minutes
2. 2 surgical visits: There will be separate surgical visits for each defect to be treated. Each visit will last around 60 minutes
3. 2 surgical visits 1-2 weeks after each surgery: around 15 minutes at study site
4. 2 surgical visits 8-12 weeks after each surgery: around 15 minutes at study site
The screening visit will take place approximately 3 months before the start of the treatment. A dentist will take a detailed medical history and perform an examination of the teeth and mouth. Every study participant will then have two surgical treatments, one for each of the defects to be treated. Participants will receive both treatment options in a random order. The treatments are:
1. Standard surgical procedure to repair the bone defect
2. Standard surgical procedure to repair the bone defect with the use of PRGF
Immediately before the surgical treatment that will use PRGF, participants will be asked to

supply a sample of their own blood. The study clinician will withdraw 4-6 tubes of blood from the participant's arm, equivalent to 7-10 teaspoons of blood. The blood collected will then be prepared to produce the PRGF. Once the blood has been processed to prepare the PRGF, which will be a gel like structure, it will be placed in the surgical site. Dissolvable sutures/stitches will be used for all surgical procedures. Any of the blood sample that is not used to prepare the PRGF will be disposed of immediately following the appointment and will not be stored. Following each surgical procedure, participants will be asked to return to the clinic after 1 - 2 weeks for routine suture/stitch removal and to review the surgery sites and to complete a questionnaire regarding their oral health. Approximately 8 – 12 weeks after each surgery, participants will be asked to return to the clinic for a final check of the surgical sites. At this visit, participants will also be asked to complete a final questionnaire with regards to the health of their teeth and mouth following each surgery.

What are the possible benefits and risks of participating?
We cannot say whether the PRGF will improve surgical outcome, but there are no known risks to participants taking part in the study. The use of PRGF with periodontal surgery will not inhibit healing or reduce the success of any periodontal treatment.
The risks are no greater than for standard periodontal surgery. Participants may experience some pain or discomfort following each surgical procedure, but this is to be expected following this type of surgical procedure.
The risks associated with taking blood to prepare the PRGF are no greater than those encountered when giving blood for a standard blood test. Participants may experience a small amount of pain or discomfort during the procedure and possible bruising following the procedure, but this is temporary. All procedures and assessments will be carried out by experienced and appropriately qualified staff. Only standard examining procedures and sterile examination instruments will be used.

Where is the study run from?
Bristol Dental Hospital (UK)

When is the study starting and how long is it expected to run?
May 2018 to May 2028

Who is funding the study?
Self-funded

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
2903

Study information

Scientific Title
The effect of Plasma Rich in Growth Factors (PRGF) on periodontal tissue regeneration

Acronym
PRGF

Study objectives
To investigate the effect of surgical placement of PRGF (marketed as PRGF/Endoret) on enhancing tissue regeneration in patients with vertical interproximal periodontal defects compared to surgical treatment without the placement of PRGF.

Ethics approval required
Old ethics approval format

Ethics approval(s)
SW-Exeter, 10/07/2018, 18/SW/0102

Study design
Interventional single-centre single-blind two-treatment split-mouth randomized controlled trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Vertical interproximal periodontal defects in differing quadrants of the mouth

Interventions
Participants who fulfil the entrance criteria of at least 2 vertical interproximal defects present in different quadrants in the mouth will be randomised using a split-mouth design to receive either treatment A or B to each of the sites according to a predetermined randomisation schedule.
For treatment procedure A, surgery on vertical interproximal defect 1 will include the use of PRGF, with the second surgery on defect 2 consisting of surgical debridement alone, without the use of PRGF.
For treatment procedure B, surgery on vertical interproximal defect 1 will consist of surgical debridement alone, without the use of PRGF, with the second surgery on defect 2 including the use of PRGF.
Following each surgical procedure, the participant will be required to return to the clinic after approximately 1-2 weeks for routine suture removal. The participant will also be required to complete a questionnaire with regards to their oral health following each surgery using a Visual Analogue Scale (VAS).
Approximately 8–12 weeks following each surgery, the participant will be asked to return to the clinic for final assessment of the oral hard and soft tissues, and assessment of the surgical treatment sites with regards to tissue regeneration. The participant will also be asked to complete a final questionnaire with regards to their oral health following each surgery.
The study duration for each participant will be approximately 10 months.

Intervention Type
Device

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
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Primary outcome(s)
To determine whether PRGF supports the predictable regeneration of the lost periodontal tissue by assessing clinical attachment levels using:
1. Bleeding on probing
2. Pocket depth (mm)
3. Gingival recession measured from the amelo-cemental junction (mm)
4. Clinical attachment level (gingival recession + pocket depth in mm)
5. Width of keratinized mucosa at the surgical site (mm)
6. Biotype of the gingiva (thin/thick)
7. Turesky plaque index (0-5)
8. Suppuration
9. Mobility - 0, I, II, III [13]
10. Furcation - 0, I, II, III [14]
11. Radiograph of each surgical site
12. Photograph of each surgical treatment site during surgery
12. Bony defect classification (1, 2, 3) (to be recorded once exposed)
This will be completed at the baseline and 8-12 weeks following each surgery with the exception of outcome measure 12.

Key secondary outcome(s))

Determine whether the use of PRGF in periodontal regeneration surgery is more effective than a conventional surgical approach alone in improving clinical attachment loss by assessing clinical attachment levels, through the same method as per the primary outcome measure, at the baseline and 8-12 weeks following each surgery.

Completion date
01/05/2028

Eligibility

Key inclusion criteria
1. Willing to participate and voluntary written informed consent
2. Aged 18 years or older
3. Willing, able and likely to comply with all study procedures and restrictions
4. Good general health with (in the opinion of the investigator) no clinically significant and relevant abnormalities of medical history or oral examination
5. At least 2 vertical interproximal periodontal defects in different quadrants of the mouth as evidenced by radiographic investigation
6. Full mouth Turesky plaque index score <2
7. Non-smoker or have stopped smoking for 6 months prior to surgery

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
All

Total final enrolment
30

Key exclusion criteria
1. Pregnant or who are intending to become pregnant over the duration of the study
2. Breastfeeding
3. Current or recurrent disease/dental pathology that could affect the assessments
4. Bleeding disorders
5. Immuno-compromised
6. Current or relevant previous history of serious, severe or unstable physical or psychiatric illness, or any medical disorder that may require treatment or make the participant unlikely to fully complete the study, or any condition that presents undue risk from the study products or procedures.

7. Tooth with less than grade I mobility
8. Known or suspected intolerance or hypersensitivity to the study materials (or closely related compounds) or any of their stated ingredients
9. Use of antibiotics one month prior to start of the study
10. Participation in another clinical study or receipt of an investigational drug within 10 days of the screening visit
11. Recent history of alcohol or other substance abuse
12. Member of the study site or a family relative. The study site for this protocol is the Clinical Trials Unit in the Bristol Dental Hospital. Employees of the Bristol Dental Hospital not associated with the Clinical Trials Unit are eligible to participate
13. Any participant who, in the judgement of the investigator, should not participate in the study

Date of first enrolment
10/10/2018

Date of final enrolment
10/10/2028

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Bristol Dental Hospital
Bristol Dental Hospital
Lower Maudlin Street
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Sponsor information

Organisation
University of Bristol

ROR
https://ror.org/0524sp257

Funder(s)

Funder type

Other

Funder Name
Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are not expected to be made available as a result of the following (wording agreed with the MHRA):
“The Authors of this study acknowledge that Plasma Rich in Growth Factor (PRGF) falls within the definition of a medicinal product which is set out in the 2012 UK Human Medicines Regulations. As a consequence of this classification, this study should have been carried out in accordance with the requirements of EU and UK clinical trials regulations which requires, inter alia, PRGF to have been manufactured under conditions of Good Manufacturing Practice by a holder of a manufacturer licence for investigational medicinal products. The Authors have discussed the reasons for not doing this with the UK regulatory authority; the Medicines and Healthcare products Regulatory Agency (MHRA) and accept these requirements underpin Good Clinical Practice which ensures the quality of clinical trials. However, the MHRA accepts that reasonable efforts were made by the Authors to ascertain, from the MHRA the regulatory requirements relating to this product, and that the failure to comply with the relevant regulatory requirements was entirely accidental.”
As such the results should not be considered representative of outcomes gained in accordance with approved regulatory practice - and therefore the data should not be shared.

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Basic results		14/12/2023	15/12/2023	No	No
HRA research summary			28/06/2023	No	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes