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Application and histologic evaluation of hyaluronic acid in the treatment of gingival papilla loss

Submission date
23/04/2024

Recruitment status
No longer recruiting

Registration date
25/04/2024

Overall study status
Completed

Last Edited
06/05/2025

Condition category
Oral Health

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Hyaluronic acid (HA) may affect periodontal (gum) regeneration because it is an essential component of the periodontal ligament (tissue attaching the tooth to the bone) and has been shown to play various important roles. HA has anti-inflammatory activity promoting soft and hard tissue healing. HA has already been tested in patients with chronic periodontitis (gum disease) in several clinical studies showing its beneficial effects.
Unfortunately, so far, there is no human histological (tissue) evidence of healing after the use of HA in papilla augmentation procedures (restoring lost gum tissue between teeth). Therefore, this human histological study aims to evaluate the early healing after HA gel injection.

Who can participate?
Patients aged over 18 years with periodontitis stage III, grades A and B

What does the study involve?
Participants will receive papilla augmentation procedures with hyaluronic acid gel and surgical periodontal treatment.

What are the possible benefits and risks of participating?
Participants will benefit from the periodontal surgical treatment. Hyaluronic acid products have no reported risks

Where is the study run from?
Victor Babeș University of Medicine and Pharmacy Timișoara (Romania)

When is the study starting and how long is it expected to run for?
January 2024 to April 2024

Who is funding the study?
Victor Babeș University of Medicine and Pharmacy Timișoara (Romania)

Who is the main contact?
Dr Vela Octavia Carolina, vela.octavia@umft.ro

Contact information

Type(s)
Public, Scientific, Principal Investigator

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
01/26.01.2024

Study information

Scientific Title
Histologic evaluation of early papilla healing after augmentation with injectable hyaluronic acid. A proof of concept

Acronym
PAPILLA-HA

Study objectives
The purpose of this human histological study is to histologically evaluate the healing of papillae after one injection with hyaluronic acid (HA) gel for augmentation, at three healing time points.

Ethics approval required

Ethics approval required

Ethics approval(s)
Approved 26/01/2024, Scientific Research Ethics Committee of the University of Medicine and Pharmacy “Victor Babes” Timisoara (P-ta Eftimie Murgu, nr 2, Timisoara, 300041, Romania; +40 (0)256293389; comisiaeticaumft@umft.ro), ref: 08/26.01.2024

Study design
Single-center experimental histological study

Primary study design
Interventional

Secondary study design
Histological study

Study setting(s)
University/medical school/dental school

Study type(s)
Other

Participant information sheet
See study outputs table

Health condition(s) or problem(s) studied
Treatment of gingival papilla loss for patients diagnosed with periodontal disease

Interventions
After steps 1 and 2 of periodontal treatment the selected patients will receive the papilla augmentation procedure. The suitable papillae will be injected once with approximately 0.2 ml of hyaluronic acid gel (hyaDENT BG®) after local anesthesia of the area. Depending on the case, at least one papilla from every patient will be injected per week for 3 weeks. At the fourth week mark, the papillae will be harvested as part of step 3 of the periodontal surgical treatment. After harvesting papillae will be fixed in 10 % formalin solution and sent for histological analysis.

Intervention Type
Procedure/Surgery

Primary outcome measure
The presence of new collagen formation and the presence of the hyaluronic acid compound detected using histological analysis after hematoxylin-eosin staining, at 1 week, 2 weeks, and 3 weeks post hyaluronic acid injection recorded dichotomously on the specimens as the presence or absence of the parameter with the following scores: 0/- (absence), 1/+ (presence low), 2/++ (presence medium), 3/+++ (presence high)

Secondary outcome measures
The presence and characteristics of inflammatory infiltrate, detection of granulomatous reactions, presence of interstitial edema, detected at 1 week, 2 weeks and 3 weeks after

hyaluronic injection recorded dichotomously on the specimens as the presence or absence of the parameter with the following scores: 0/- (absence), 1/+ (presence low), 2/++ (presence medium), 3/+++ (presence high)

Overall study start date
27/01/2024

Completion date
01/04/2024

Eligibility

Key inclusion criteria
1. Nonsmoking, aged above 18 years
2. Presence of an uninterrupted frontal arch (maxillary or mandibular) of teeth affected by severe periodontitis
3. Presence of interproximal pockets deeper than 6 mm in at least 6 adjacent teeth
4. Class I, II, or III papillary recession, according to Nordland and Tarnow's classification (1998)
5. The distance from the contact point to the alveolar bone crest ≥5 mm
6. Keratinized tissue width of the entire area to be operated of at least 3 mm
7. Good oral hygiene - Plaque Index (PlI<1)

Participant type(s)
Patient

Age group
Adult

Lower age limit
18 Years

Upper age limit
60 Years

Sex
Both

Target number of participants
10

Total final enrolment
10

Key exclusion criteria
1. Systemic diseases such as diabetes mellitus, hypertension, or conditions that alter the outcome of periodontal therapy
2. Pregnant or lactating women
3. Tobacco users
4. Patients with known allergies to hyaluronic acid or any excipients of the product used
5. Patients with current or previous drug intake that may predispose to gingival enlargement

6. Patients under orthodontic treatment or having orthodontic treatment in the past 6 months
7. Patients with a history of traumatic oral hygiene measures or periodontal surgeries over the last 6 months in the area of interest

Date of first enrolment
27/01/2024

Date of final enrolment
01/03/2024

Locations

Countries of recruitment
Romania

Study participating centre
Victor Babeş University of Medicine and Pharmacy Timişoara
P-ta Eftimie Murgu nr 2
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Sponsor information

Organisation
Victor Babeș University of Medicine and Pharmacy Timișoara

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Sponsor type
University/education

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ROR
https://ror.org/00afdp487

Funder(s)

Funder type
University/education

Funder Name
Victor Babeș University of Medicine and Pharmacy Timișoara

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact peer-reviewed journal

Intention to publish date
01/05/2024

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request (Dr Vela Octavia Carolina, vela.octavia@umft.ro).
Type of data: periodontal charts, histological analysis.
Data will become available after the publication of the study and will be available for 5 years.
Data will be shared for similar studies, on request from the first author.
Written consent from participants will be obtained.
Data from participants are anonymized. The key to the names of the participants is located in the repository.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Other files			25/04/2024	No	No
Participant information sheet			25/04/2024	No	Yes
Results article		13/07/2024	06/05/2025	Yes	No