

The role of an over the counter topical containing green tea extract in scarring

Submission date 03/07/2018	Recruitment status No longer recruiting	☐ Prospectively registered
		☐ Protocol
Registration date 16/07/2018	Overall study status Completed	☐ Statistical analysis plan
		☒ Results
Last Edited 03/08/2021	Condition category Skin and Connective Tissue Diseases	☐ Individual participant data

Plain English summary of protocol

Background and study aims

A scar is a natural part of healing. Most people produce fine, thin scars but this can depend on a number of factors. It is thought that a long time for wound healing and skin closure can cause thicker, more raised scars. These unsatisfactory scars are often itchy, painful and cause distress to the sufferers.

The antioxidant properties and health benefits of green tea, *Camellia sinensis*, a popular beverage, have been known for centuries and used in traditional Chinese medicine. A component of green tea has been shown to influence a range of areas including cancer, inflammation, photo protection, anti-aging and wound healing.

This study aims to investigate how the topical application of the green tea cosmetically improves skin scarring and to determine what changes occur in the new scar tissue and cells. Additionally, we would like to identify if and how this topical treatment can reduce the symptoms of scarring and improve the cosmetic quality of skin scarring by its moisturising properties.

Who can participate?

Healthy volunteers aged over 18 years

What does the study involve?

Participants undergo an 'initial study appointment' (Day 0) where they receive a punch biopsy to create a scar on both upper inner arms. Depending upon group allocation, two groups will commence immediate application of the topical formulations around the wound site and 5 groups will apply the topicals two weeks after a scar has formed. During this period they are seen on a weekly basis where photographic images are taken of the scars at each visit along with other measurements looking at properties of the scar. Each participant also keeps a diary of how the scar changes over time. Participants may be in the study for 1 week or up to 8 weeks, depending on which group they are allocated to (at random). At the final appointment the scars are biopsied so that they can be evaluated in the lab for further analysis of the effects of both topicals. At that point the participant completes the trial.

We aim to offer flexible appointments (i.e. early or late appointments). Each visit lasts approximately 30-60 minutes.

What are the possible benefits and risks of participating?

There are no direct benefits to participants in this study. Participants are carefully screened so that risks to them taking part (i.e. allergies to any of the topicals or local anaesthetic/dressings) are minimised. They are however left with a scar, which may take time to fade.

Where is the study run from?

Manchester University NHS Foundation Trust (UK)

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

December 2015 to May 2018

Who is funding the study?

Combination - Integra and gift donation

Who is the main contact?

Sara Ud-Din (scientific)

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Contact information

Type(s)

Scientific

Contact name

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Additional identifiers

Protocol serial number

Protocol version 7 09.05.2017. University Research Ethics Committee 4 Reference 14333

Study information

Scientific Title

The role of an over the counter topical containing camellia sinensis in the cosmetic management of skin scars

Study objectives

To evaluate the role of topical application of camellia sinensis in scar cosmetic appearance against a placebo

Ethics approval required

Old ethics approval format

Ethics approval(s)

University of Manchester Ethics Committee 4 Reference 14333

Date of approval: 02/10/14

Primary study design

Interventional

Study design

Interventional randomised controlled blinded single centre

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Cosmetic skin scarring

Interventions

Participants are screened and allocated into seven groups. Each group represents a time point (1,2,3,4,5,6,8 weeks). Participants receive 5 mm punch biopsies to both upper inner arms to create the scar. They are independently randomised as to which arm should receive either treatment or placebo topicals.

Treatment: Camellia Sinensis (Green Tea extract)

Placebo: Same base as treatment topical but no active ingredient

Participants apply both topicals according to instructions, (one to each scar, with arms independently randomised by a medical statistician at the University of Manchester). Depending on which group they are in, receive their final biopsy (of the scars) at this time point where they then complete the trial.

Topicals are applied from two weeks after the scar is created for 5 of the groups and immediately for 2 of the groups (on day 0), and up until the point that participant exits the trial (at 1,2,3,4,5,6,8 weeks).

Topicals are applied twice daily, massaged into the scar for a period of 2 minutes.

Non-invasive measurements are taken on a weekly basis for each participants' duration of the trial.

Final scar biopsies are used for histological, gene and protein analysis.

Intervention Type

Supplement

Primary outcome(s)

Scar colour is measured using the Dermalab combo colour probe (Cortex technologies, Denmark)
Pigmentation is measured using SIAscopy (Medex Health, Canada) - IHC for Melan A and Masson fontana to look for pigmentation
Erythema is measured using Dermalab combo colour probe (Cortex technologies, Denmark), and SIAscopy (Medx Health, Canada); mast cell tryptase and chymase staining
Blood flow is measured using FLPI-2 (Moor Instruments, UK), and OCT (Michelson Diagnostics, UK), ultrasound (Cortex Technologies, Denmark) measures skin thickness.
Elasticity is measured using Dermalab combo elasticity probe (Cortex Technologies, Denmark), validated by IHC stains for elastin, and fibronectin.
Collagen is measured using SIAscopy (Medx Health, Canada) and validated by IHC staining for Collagen I and III, and Herovici staining.
H&E staining is performed on all samples to look at scar morphology.
RNA sequencing and QRT-PCR performed to validate IHC analyses.
All of the above measurements were taken on a weekly basis through the duration of the trial.

All of the above are measured for normal skin (day 0) and at weeks 1,2,3,4,5,6,8.

Key secondary outcome(s)

Symptom scoring including pain, itching and redness are evaluated by the patient using a numerical value out of 10 in a daily diary.

Completion date

02/10/2019

Eligibility

Key inclusion criteria

1. Aged 16 years or older
2. Able to fully understand study requirements and attend all follow-up visits (in the opinion of the investigator)
3. Weigh between 40 and 150 kg with a body mass index 20-35 kg/m² (as described in the Quetelet's index – weight (kg)/height² (m))

Participant type(s)

Healthy volunteer

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Total final enrolment

62

Key exclusion criteria

1. Known allergy to any components of the topical formulation
2. History or evidence of keloid scarring or fibrotic disorders (self reported or determined by physical examination)
3. Pregnant or planning to conceive within the next 3 months
4. Chronic or active skin disorder considered to adversely affect the scar healing by the investigator
5. Likely healing impairment due to a significant medical condition such as renal, hepatic, haematological, neurological or immune disease, including rheumatoid arthritis, chronic renal impairment, diabetes mellitus, significant hepatic impairment, inadequately or uncontrolled congestive heart failure, malignancy (diagnosed or treated within the past 5 years) or immunosuppressive, radiation or chemotherapy within the last three months.
6. Receiving anticoagulant therapy, systemic steroids, hormone replacement therapy or any investigational drugs, or have taken any in the previous month prior to Day 0
7. Evidence of drug abuse
8. Had or are known to have serum hepatitis or are carriers of hepatitis B surface antigen, hepatitis B core antibodies or hepatitis C antibodies (previous vaccination against hepatitis B or C is not excluded)
9. Previously had a positive result to the HIV antibody test, or admit to belong in a high risk group
10. Allergic to other amide local anaesthetics

Subjects who have been involved in other studies in the past two months prior to Day 0 must discuss the exact details of the previous studies prior to a decision being made of eligibility for inclusion in this trial.

Date of first enrolment

22/12/2015

Date of final enrolment

16/08/2017

Locations

Countries of recruitment

United Kingdom

England

Study participating centre

Manchester University NHS Foundation Trust

Wythenshawe Hospital

Southmoor Road

Manchester

United Kingdom

M239LT

Sponsor information

Organisation

University of Manchester

ROR

<https://ror.org/027m9bs27>

Funder(s)**Funder type**

Not defined

Funder Name

Combination - Integra UK and gift donation

Results and Publications**Individual participant data (IPD) sharing plan**

The datasets generated during and/or analysed during the current study are/will be available upon request from Sara Ud-Din, sara.ud-din@manchester.ac.uk

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		01/08/2019	03/08/2021	Yes	No