ISRCTN21354914 https://doi.org/10.1186/ISRCTN21354914

A study to explore the best dose of mitomycin-c inside your eye during retinal detachment surgery

Submission date
12/11/2024

Recruitment status
Recruiting

Registration date
12/02/2025

Overall study status
Ongoing

Last Edited
04/09/2025

Condition category
Eye Diseases

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
The aim of this study is to investigate the potential benefit of a commonly used anti-inflammatory treatment to improve the outcome of surgery in eyes with retinal detachment. The retina is a thin layer which lines the inside of the eye. It is sensitive to light (like the film in a camera) and is necessary for vision. If a hole or tears develop in a retina, it can become detached. Retinal detachment is the most common eye emergency. For 1 in 5 patients the detached retina can develop scar tissue on its surface, a complication termed proliferative vitreoretinopathy (PVR). This PVR scar tissue pulls on the retina preventing the holes or tears from being repaired by standard surgery. The scar tissue increases your risk of the retina detaching again and requires more operations to resolve the problem. Multiple surgeries to remove the scar tissue often result in poor vision outcomes that do not meet the patients' expectations. Efforts to stop and treat PVR scar tissue formation have so far proved unsuccessful.
Mitomycin C (MMC) has been used in ophthalmology for over 30 years, with evidence to show its ability to stop scarring after eye surgery. This low-cost drug is currently used routinely around the globe to treat patients for other eye problems by applying MMC-soaked mini-sponges to the external surface of the eye. This study aims to demonstrate safe and potentially effective MMC treatment by direct application to the internal surface of the patient's eye with retinal detachment, at high risk of PVR. The researchers will define the most appropriate and safest dose of MMC in patients with retinal detachment.

Who can participate?
Patients aged 18 years and over who have a diagnosis of repeated retinal detachment complicated by scar tissue

What does the study involve?
Participants will receive MMC in addition to the standard eye operation

What are the possible benefits and risks of participating?
There are limited previous clinical studies using the IMP for this indication. The safety and effectiveness of intraocular use have been shown in small groups of people (about 30), with no

major safety events occurring. There is a risk that in larger groups of people the safety events will be more common. In this study, the dose will start low at 0.02% MMC and potentially reach 0.05%. In previous studies, higher doses (0.04%) have been used, but not 0.05%.The IMP is commonly used in glaucoma and there have been multiple trials testing the safety of its use. The dosing will be staggered in order to properly monitor each patient in turn. Statistical methods and DSMB judgement will be used to decide on appropriate dose escalation. The maximum dose will be 0.05%, which is only marginally more concentrated than previous studies using 0.04%.
Participants will be observed for the duration of IMP treatment, and have a visit 1 day after surgery and then weekly visits for 3 weeks.
The patients will be attending more frequently during the first 3 months following surgery, with patients attending every 2 weeks for face-to-face clinical visits/assessments until the 3-month visit.
All the study visits and care after surgery are standard practice for retinal detachment. Therefore there is no additional burden introduced by the trial visits.

Where is the study run from?
1. University College London (UK)
2. Moorfields Eye Hospital (UK)

When is the study starting and how long is it expected to run for?
November 2024 to January 2028

Who is funding the study?
Medical Research Council (UK)

Who is the main contact?
1. Jessie Barry, cctu.morph@ucl.ac.uk
2. Dr Mahiul Muqit, mahi.muqit1@nhs.net

Contact information

Type(s)
Public

Contact name
Ms Jessie Barry

Contact details
99 High Holborn
London
United Kingdom
WC1V 6LJ
+44 (0)20 3108 4933
cctu.morph@ucl.ac.uk

Type(s)
Scientific, Principal investigator

Contact name
Dr Mahiul Muqit

Contact details
162 City Road
London
United Kingdom
EC1V 2PD
+44 (0)207 253 3411
mahi.muqit1@nhs.net

Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

Integrated Research Application System (IRAS)
1010526

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
137155

Study information

Scientific Title
A Phase I/II dose-finding study of intraocular mitomycin-c adjunct in vitrectomy for retinal detachment and proliferative vitreoretinopathy (MORPH-1)

Acronym
MORPH-1

Study objectives
Safety:
To affirm the safety profile of the pharmacological doses of Mitomycin based on the occurrence of Dose Limiting Events (DLEs).

Efficacy:
Successful retinal re-attachment without tamponade at 6 months.

1.+10 ETDRS letters improvement in Visual acuity (ETDRS chart at 4 meters starting distance) at 6 months
2. Presence or absence of PVR grade C as measured/mapped on:
2.1. Widefield fundus photography,
2.2. OCT (Optical coherence tomography)
2.3. Clinical fundus examination
3. Mean 5-10 pc/ms reduction in flare from baseline at 6 months post-surgery

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 04/02/2025, North East - Tyne & Wear South REC (NHSBT Newcastle Blood Donor Centre, Newcastle upon Tyne, NE2 4NQ, United Kingdom; -; tyneandwearsouth.rec@hra.nhs.uk), ref: 24/NE/0211

Study design
Non-randomized study

Primary study design
Interventional

Study type(s)
Safety, Efficacy

Health condition(s) or problem(s) studied
Proliferative vitreoretinopathy in rhegmatogenous retinal detachment

Interventions
Additional use of mitomycin-C during retinal detachment surgery (vitrectomy) including dose or dose range 0.1, 0.2, 0.3, 0.4, 0.5, and 1 mg/ml, dose frequency one dose per participant, intraocular route of administration and duration of treatment 3 minutes of application.

Intervention Type
Drug

Phase
Phase I

Drug/device/biological/vaccine name(s)
Mitomycin-C

Primary outcome(s)
Safety:
The occurrence of Dose Limiting Events (DLEs) over 7 days post-surgery. Safety events are assessed against DLE criteria from Day 1 to Day 7.

Efficacy:
Successful retinal re-attachment without tamponade at 6-month patient follow-up, as assessed by the slit-lamp examination.

Key secondary outcome(s))
1. Change in visual acuity (measured using ETDRS chart at 4 metres starting distance) in the MMC treatment group from baseline to the 6-month final follow-up visit
Target: +10 ETDRS letters improvement
Acceptable: +5 ETDRS letters improvement
2. PVR grade, change from baseline to the 6-month final follow-up visit
Target: Complete absence of PVR in 80% of patients in the MMC group
Acceptable: Significant difference in the rate of PVR presence between the MMC group and the wider population
PVR grade C as measured/mapped on widefield fundus photography, OCT and clinical fundus

examination
3. Reduction in flare measured by laser flare photometry, change from baseline to the 6-month final follow-up visit
Target: mean 5-10 pc/ms reduction in flare post-surgery/MMC
Acceptable: mean 0-5 pc/ms reduction in flare post-surgery/MMC

Completion date
30/01/2028

Eligibility

Key inclusion criteria
Current key inclusion criteria as of 04/09/2025:
1. Individuals aged ≥18 years
2. Macula-OFF Rhegmatogenous Retinal Detachment (RRD) complicated with Proliferative vitreoretinopathy (PVR) grade C
3. Requiring surgery with silicone oil tamponade
4. Able and agree to provide written informed consent
5. Able and agree to attend all protocol-mandated follow-up visits
6. If participants of childbearing potential, must have a negative pregnancy test at screening visit and prior to surgery, and agree to at least one form of contraception throughout the duration of the trial

Previous key inclusion criteria:
1. Individuals aged ≥18 years
2. Recurrent macula-OFF Rhegmatogenous Retinal Detachment (RRD) complicated with Proliferative vitreoretinopathy (PVR) grade C
3. Requiring surgery with silicone oil tamponade
4. Able and agree to provide written informed consent
5. Able and agree to attend all protocol-mandated follow-up visits
6. If participants of childbearing potential, must have a negative pregnancy test at screening visit and prior to surgery, and agree to at least one form of contraception throughout the duration of the trial

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
All

Key exclusion criteria

Current key exclusion criteria as of 04/09/2025:
1. Previous known adverse reaction to Mitomycin C (MMC)
2. History of open globe Injury
3. Uncontrolled or advanced glaucoma (defined as uncontrolled eye pressure, changes to medication, recent surgery in the last 3 months or being considered for surgical treatment).
4. Uncontrolled or advanced glaucoma (defined as uncontrolled eye pressure, changes to medication, recent surgery in the last 3 months or being considered for surgical treatment)
5. Uncontrolled uveitis
6. Previous steroid-induced glaucoma
7. Proliferative diabetic retinopathy or vasculopathy
8. Participant who is pregnant or is planning to become pregnant for the duration of the trial
9. Participant who has given birth within the past 6 months or is breastfeeding
10. Suspected ocular/periocular infection (e.g. Herpes Simplex Virus, Varicella Zoster Virus, mycobacterial, fungal disease)
11. Aphakia
12. Participant in whom a lensectomy is planned at the time of surgery
13. Pre-existing anterior chamber intraocular lens
14. Participant enrolled in another interventional clinical trial within 90 days prior to screening
15. Participants receiving any other treatments, such as anti-cancer or autoimmune disease

Previous key exclusion criteria:
1. Previous known adverse reaction to mitomycin C (MMC)
2. History of open globe injury
3. A diagnosis of ocular hypertension on two or more pressure-lowering medications
4. Uncontrolled or advanced glaucoma (defined as uncontrolled eye pressure, changes to medication, recent surgery in the last 3 months or being considered for surgical treatment)
5. Uncontrolled uveitis
6. Previous steroid-induced glaucoma
7. Proliferative diabetic retinopathy or vasculopathy
8. Participant who is pregnant or is planning to become pregnant for the duration of the trial
9. Participant who has given birth within the past 6 months or is breastfeeding
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13. Pre-existing anterior chamber intraocular lens
14. Participant enrolled in another interventional clinical trial within 90 days prior to screening
15. Participants receiving any other treatments, such as anti-cancer or autoimmune disease

Date of first enrolment
10/01/2025

Date of final enrolment
10/06/2026

Locations

Countries of recruitment
United Kingdom

Study participating centre
NIHR Moorfields Biomedical Research Centre
Moorfields Eye Hospital NHS Foundation Trust
162 City Road
London
United Kingdom
EC1V 2PD

Sponsor information

Organisation
University College London

ROR
https://ror.org/02jx3x895

Funder(s)

Funder type
Research council

Funder Name
Medical Research Council

Alternative Name(s)
Medical Research Council (United Kingdom), UK Medical Research Council, Medical Research Committee and Advisory Council, MRC

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be available upon request from cctu-enquiries@ucl.ac.uk. Participant-level data will be stored securely on UCL

CCTU servers. This dataset will not be made public in its raw form to protect the participant's identities and to comply with data protection. A fully anonymised dataset will be made available to researchers on submission and review of a formal request, sent in writing to UCL CCTU and the MORPH-1 Chief investigator.

IPD sharing plan summary

Available on request