

# The effect of 3% diquafosol sodium eye drops in patients after cataract surgery

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| <b>Submission date</b><br>04/10/2020   | <b>Recruitment status</b><br>No longer recruiting | <input type="checkbox"/> Prospectively registered<br><input type="checkbox"/> Protocol            |
| <b>Registration date</b><br>13/11/2020 | <b>Overall study status</b><br>Completed          | <input type="checkbox"/> Statistical analysis plan<br><input checked="" type="checkbox"/> Results |
| <b>Last Edited</b><br>29/04/2021       | <b>Condition category</b><br>Eye Diseases         | <input type="checkbox"/> Individual participant data  |

## Plain English summary of protocol

### Background and study aims

Cataracts are when the lens of your eye, a small transparent disc, develops cloudy patches. Cataract surgery involves replacing the cloudy lens inside the eye with an artificial one. Postoperative Dry Eye Syndrome (DES) often occurs after cataract surgery. Diquafosol sodium eye solution is a new treatment for dry eye syndrome after cataract surgery. One of the usual treatments for post-cataract surgery is sodium hyaluronate eye drops. The aim of this study is to find out whether diquafosol sodium eye drops improve MGD dysfunction and dry eye syndrome after cataract surgery in comparison with sodium hyaluronate eye drops.

### Who can participate?

Adult cataract patients with normal lid position and closure and not suffering from any eye diseases

### What does the study involve?

Participants will be randomly allocated to use diquafosol sodium or sodium hyaluronate eye drops for 15 weeks following cataract surgery. Eye assessments are performed at each visit 1 week before and 3, 7, 15 weeks after surgery.

### What are the possible benefits and risks of participating?

There may be no risks or benefits for the participants. The eye drops are commercially available and have proven clinical safety.

### Where is the study run from?

Pusan National University School of Medicine (South Korea)

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

January 2020 to November 2020

### Who is funding the study?

Pusan National University Yangsan Hospital (South Korea)

Who is the main contact?

Dr Sangyoon Kim  
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## Contact information

### Type(s)

Scientific

### Contact name

Dr Sangyoon Kim

### Contact details

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## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

### Protocol serial number

Nil known

## Study information

### Scientific Title

Efficacy of 3% diquafosol sodium on tear breakup time (TBUT), Schirmer's I test score, ocular surface disease index (OSDI) score, lipid layer thickness (LLT) after cataract surgery: a randomized, double-masked study

### Study objectives

Current study hypothesis as of 28/01/2021:

3% diquafosol sodium might improve ocular surface status and dry eye syndrome in comparison with 0.1% sodium hyaluronate after cataract surgery.

Previous study hypothesis:

3% diquafosol sodium might improve meibomian gland (MGD) dysfunction and dry eye syndrome in comparison with 0.1% sodium hyaluronate after cataract surgery.

### Ethics approval required

Old ethics approval format

## Ethics approval(s)

Approved 20/01/2020, Pusan National University Yangsan Hospital Institutional Review Board (#20 Geumo-ro, Mulgeum-eup, Yangsan 50612, South Korea; +82 (0)55 360 3854; pnuyhirb@gmail.com), ref: 05-2019-049

## Study design

Prospective, randomized double-masked comparative clinical trial

## Primary study design

Interventional

## Study type(s)

Treatment

## Health condition(s) or problem(s) studied

Dry eye syndrome, meibomian gland dysfunction

## Interventions

Current interventions as of 28/01/2021:

Eligible patients are randomized using the random number method into two treatment groups. The first group will use 3% diquafosol sodium ophthalmic solution (Diquas-s®, Mitsubishi Tanabe Pharma Inc., Osaka, Japan) six times daily over 15 weeks following cataract surgery. The second group receive standard postoperative treatment with 0.1% sodium hyaluronate (HyalQ, Ildong Pharmaceutical Inc., Seoul, Korea).

Previous interventions:

Eligible patients are randomized using the random number method into two treatment groups. The first group will use 3% diquafosol sodium ophthalmic solution (Diquas-s®, Mitsubishi Tanabe Pharma Inc., Osaka, Japan) six times daily over 4 months following cataract surgery. The second group receive standard postoperative treatment with 0.1% sodium hyaluronate (HyalQ, Ildong Pharmaceutical Inc., Seoul, Korea).

## Intervention Type

Drug

## Phase

Not Applicable

## Drug/device/biological/vaccine name(s)

3% diquas sodium ophthalmic solution(Diquas-s®, Mitsubishi Tanabe Pharma Inc., Osaka, Japan); 0.1% sodium hyaluronate (HyalQ, Ildong Pharmaceutical Inc., Seoul, Korea)

## Primary outcome(s)

Current primary outcome measure as of 28/01/2021:

Measured at baseline (1 week before cataract surgery) and 3, 7, 15 weeks after cataract surgery:

1. Ocular surface status parameters:

1.1. Lipid layer thickness (LLT) measured using an interferometer

1.2. Schirmer's type I test using COLOR BAR by Eagle Vision Inc.

1.3. Tear breakup time (TBUT) measured by an ophthalmologist

2. Patients' symptoms measured using Ocular Surface Disease Index (OSDI) questionnaire

Previous primary outcome measure:

Measured at baseline and 4 months:

1. Ocular surface status parameters:

1.1. Lipid layer thickness (LLT) measured using an interferometer

1.2. Schirmer's type I test using COLOR BAR by Eagle Vision Inc.

1.3. Tear breakup time (TBUT) measured by an ophthalmologist

2. Patients' symptoms measured using Ocular Surface Disease Index (OSDI) questionnaire

3. Meibomian gland dysfunction assessed using Meiboscores with the LipiView® interferometer

### **Key secondary outcome(s)**

There are no secondary outcome measures

### **Completion date**

09/11/2020

## **Eligibility**

### **Key inclusion criteria**

Current inclusion criteria as of 28/01/2021:

In order to be eligible for participation in this study, the subject had to:

1. Be male or female, aged 19 years or older

2. Have a tear breakup time (TBUT) of 10 seconds or more

3. Have a Schirmer's I test result of 10 mm or more

4. Have not used diquafosol-based eye drops, artificial tear drops, steroid eye drops, or antibiotic eye drops within 3 months before participation

5. Show normal blinking during a slit lamp exam

6. Voluntarily agree to participate in this study

Previous inclusion criteria:

Adult cataract patients with normal lid position and closure and not suffering from any ocular diseases

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Adult

### **Sex**

All

### **Total final enrolment**

60

### **Key exclusion criteria**

Current exclusion criteria as of 28/01/2021:

The subject is excluded from the study if the subject either:

1. Has Sjögren's syndrome
2. Has severe blepharitis
3. Had ocular surgery or laser eye surgery
4. Has severe ocular inflammation/infection
5. Is using eye drop treatment for dry eyes, such as glaucoma or allergies
6. Shows sensitivity to the study drugs
7. Is considered to be ineligible for participation owing to reasons other than the aforementioned exclusion criteria based on the judgment of the principal researcher

Previous exclusion criteria:

1. Patients who had used topical anti-inflammatory, antibiotic, or other medication during the previous 90 days before surgery
2. Eyes with a history of trauma, ocular surgery, laser or systemic treatment known to affect tear secretion, autoimmune disease, current use of contact lenses, and/or history of slit-lamp evidence of eye surface disorders

**Date of first enrolment**

20/02/2020

**Date of final enrolment**

18/07/2020

## Locations

**Countries of recruitment**

Korea, South

**Study participating centre**

**Pusan National University School of Medicine**

Department of Ophthalmology

20-Geumo-ro Mulgeum-eup

Yangsan

Korea, South

50612

## Sponsor information

**Organisation**

Pusan National University Yangsan Hospital

**ROR**

<https://ror.org/04kkg1090>

## Funder(s)

**Funder type**

Hospital/treatment centre

**Funder Name**

Pusan National University Yangsan Hospital

## Results and Publications

**Individual participant data (IPD) sharing plan**

The data-sharing plans for the current study are unknown and will be made available at a later date.

**IPD sharing plan summary**

Data sharing statement to be made available at a later date

**Study outputs**

| Output type                     | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|---------------------------------|---------|--------------|------------|----------------|-----------------|
| <a href="#">Results article</a> |         | 27/04/2021   | 29/04/2021 | Yes            | No              |