

Comparison of postoperative parameters in cataract surgery with two different fluidic settings

Submission date 18/01/2016	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 20/01/2016	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 20/01/2016	Condition category Eye Diseases	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

Plain English summary of protocol

Background and study aims

Cataracts are cloudy areas on the lens of the eye. They can appear for a number of reasons however they are most common in older people, developing over a long period of time (senile cataract). The lens sits near the front of the eye, and plays an important role in vision. When cataracts cause the lens to become clouded, it can prevent light from reaching the back of the eye (retina) to form an image that can be interpreted by the brain. When this happens, vision becomes blurred and distorted, and can eventually lead to blindness. Cataract surgery involves removing the affected lens and replacing it with a clear artificial one (intraocular lens). Modern cataract surgery is usually performed using a technique called phacoemulsification, also called small-incision surgery. This is where ultrasound waves (high-frequency sound waves) are used to break up the affected lens in the eye and mixed with a salt water solution (saline) that is injected into the eye by the phacoemulsification machine (emulsification), so it can be sucked (aspirated) out through a tiny cut in the cornea (transparent layer forming the front of the eye). The replacement lens is then injected through the cut in the cornea into the correct position. Many surgeons use different amounts of liquid for the emulsification. Some argue that using smaller amounts could help to prevent damage (trauma) to the eye than the standard amounts used, however further research is needed to find out whether this is the case. The aim of this study is to compare the amount of saline used with the overall effects on the eye following cataract surgery.

Who can participate?

Adults aged between 55 and 85 who have senile cataracts.

What does the study involve?

Participants are randomly allocated to one of two groups. All participants receive cataract surgery using the phacoemulsification technique to remove the affected lens before it is replaced by an artificial one. For those in group 1, the phacoemulsification machine is put on a low fluidic setting, which means a smaller amount of fluid is injected into the eye. For those in group 2, the phacoemulsification machine is put on a standard fluidic setting, which means that the normal amount of fluid is injected into the eye. For all participants, the length of surgery and

the amount of fluid used is measured for each procedure. At the start of the study and then again after 1 day, 3 weeks and 3 months, all participants have an eye exam in order to see if the procedure used has had an effect on their eye health (whether any eye damage has been caused).

What are the possible benefits and risks of participating?

Participants benefit from taking part as they receive thorough eye examinations which they would not normally be given. There are no risks of taking part in the study other than the general risks associated with cataract surgery.

Where is the study run from?

St. Erik Eye Hospital (Sweden)

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

October 2011 to April 2015

Who is funding the study?

1. Karolinska Institute (Sweden)
2. Stockholm County Council (Sweden)

Who is the main contact?

Dr Anthony Chang

Contact information

Type(s)

Scientific

Contact name

Dr Anthony Chang

Contact details

St. Erik Eye Hospital
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Sweden
SE-11282

Additional identifiers

Protocol serial number

N/A

Study information

Scientific Title

Comparison of phacoemulsification cataract surgery with low versus standard fluidic settings and the impact on postoperative parameters

Study objectives

Low compared fluidic settings in phacoemulsification cataract surgery is probably less traumatic compared to standard fluidic settings and can be evaluated by postoperative parameters indicating surgical trauma

Ethics approval required

Old ethics approval format

Ethics approval(s)

Regional ethical review board in Stockholm (Sweden), 26/02/2012, ref: Dnr 2011/2049

Study design

Single-centre prospective randomised parallel trial

Primary study design

Interventional

Study type(s)

Prevention

Health condition(s) or problem(s) studied

Postoperative complications in cataract surgery

Interventions

Participants will be randomised to receive either low- or standard fluidic settings. They will all be implanted with an AcrySof SN60WF intraocular lens (IOL).

Perioperatively the saline bag will be weighed before and after surgery to measure the amount of saline used. The saline for hydrodissection and wetting of the cornea is withdrawn before the first weight is measured. The Cumulative Dissipated Energy will be recorded as well as the surgery time. All operations will be videotaped with phacomachine lay over so that the energy used is shown at the end of surgery.

Patients will have a preoperative check, follow-up 1 day, 3 weeks and 3 months after surgery.

Intervention Type

Procedure/Surgery

Primary outcome(s)

1. Duration of surgery is measured during surgery in minutes
2. Consumed balanced saline solution is determined by weighing the saline bag before and after surgery. The saline for hydrodissection and wetting of the cornea is withdrawn before the baseline measurement.
3. Cumulative dissipated energy is determined by recording the CDE-value from the LCD display of the Phacoemulsification machine
4. Central corneal thickness is measured with Anterior segment OCT at baseline, 1 day, 3 weeks and 3 months
5. Endothelial cell density is measured using confocal microscopy at baseline and 3 months
6. Anterior chamber flare is measured by laser flare meter at baseline, 1 day, and 3 weeks
7. Macular thickness is measured by OCT at baseline, 1 day, 3 weeks and 3 months

Key secondary outcome(s))

1. Intraocular pressure is measured using Goldmann applanation tonometry at baseline, 1 day, 3 weeks and 3 months
2. Corrected distance visual acuity is measured using a ETDRS chart during ophthalmologic examinations at baseline, 1 day, 3 weeks and 3 months

Completion date

30/04/2015

Eligibility

Key inclusion criteria

1. Aged between 55 and 85
2. Presence of senile cataract

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Key exclusion criteria

1. Traumatic cataract
 2. Extremely dense cataract
 3. Subluxated lens
 4. Macular or corneal disease
 5. Anterior chamber depth shallower than 2.1 mm
 6. Pupil dilated less than 5 mm in diameter with 0.2 ml solution of cyclopentolate 0.1% and phenylephrine 1.5%
 7. Diabetes
 8. Glaucoma
 9. Continuous treatment with oral or nasal nonsteroidal anti-inflammatory drugs or steroids
- Previous intraocular surgery or retinal photocoagulation

Date of first enrolment

26/09/2012

Date of final enrolment

12/01/2015

Locations

Countries of recruitment

Sweden

Study participating centre
St. Erik Eye hospital
Polhemsgatan 50
Stockholm
Sweden
SE-11282

Sponsor information

Organisation
Eye Foundation (Ögonfonden)

Organisation
Stockholm County Council

Organisation
Karolinska Institute

Funder(s)

Funder type
Government

Funder Name
Karolinska Institutet

Alternative Name(s)
Karolinska Institute, KI

Funding Body Type
Government organisation

Funding Body Subtype
Local government

Location
Sweden

Funder Name

Stockholms Läns Landsting

Alternative Name(s)

Stockholm County Council

Funding Body Type

Government organisation

Funding Body Subtype

Local government

Location

Sweden

Results and Publications

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

Stored in repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes