

Effects of machine-based vs surgeon-based marking in astigmatism-correcting lens implantation during cataract surgery

Submission date 09/07/2018	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 20/07/2018	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
Last Edited 08/11/2019	Condition category Eye Diseases	<input type="checkbox"/> Individual participant data

Plain English summary of protocol

Background and study aims

Cataracts are a disease in which the lens of the eye becomes cloudy. This can be caused by age. Astigmatism is a condition where vision may be blurred as a result of an error of the lens. Patients with both cataracts and astigmatism often undergo surgery where an ordinary intraocular lens is inserted. This fixes cataracts, but does not correct astigmatism and therefore patients may still have poor vision.

To correct both astigmatism and cataracts, a type of lens called a toric intraocular lens can be inserted. It is important to insert the toric intraocular lens in the correct axis (the position of the astigmatism) in order to effectively correct the astigmatism.

There are two methods of indicating, or marking, the axis of lens implantation - either using a machine-based method, or manually by the surgeon performing the operation. We aimed to determine which of these methods is more effective.

Who can participate?

Adults with cataracts and corneal astigmatism

What does the study involve?

Participants will undergo lens implantation cataract surgery, and will be randomly allocated to receive this surgery either using a machine or from a surgeon and will receive follow up tests 1 day, 1 month and 2 months after the surgery. Additionally, participants will be tested for uncorrected and best corrected visual acuity before and 1 day, 1 month and 2 months after the surgery.

What are the possible benefits and risks of participating?

The benefit to participants of taking part is that their cataracts will be removed and their astigmatism will be corrected. A possible risk of taking part is complications from cataract surgery, such as infection.

Where is the study run from?

St Mary's Hospital, Seoul, South Korea

When is the study starting and how long is it expected to run for?
February 2014 to April 2018

Who is funding the study?

1. Korean Health Technology R&D Project (South Korea)
2. Ministry for Health & Welfare, Republic of Korea (South Korea)
3. National Research Foundation of Korea (NRF) (South Korea)

Who is the main contact?

Dr Rowoon Yi
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Contact information

Type(s)

Scientific

Contact name

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Contact details

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Additional identifiers

Study information

Scientific Title

Accuracy of Toric Intraocular Lens implantation using Automated Vs Manual Marking

Study objectives

The SensoMotoric Instruments (SMI) is more accurate than manual marking for Toric IOL implantation during cataract surgery.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Institutional review board of Bucheon St. Mary's Hospital, 02/01/2014, HC14RISI0077

Primary study design

Interventional

Study design

Prospective interventional randomised controlled trial

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Cataracts with corneal astigmatism

Interventions

Participants will be randomised to either SMI group or manual group in a 1:1 allocation using individual-level blocked randomisation stratified by sex (male, female) and age. The randomisation sequence will be computer-generated by the trial statistician and programmed by the data manager.

The SMI group will undergo toric intraocular lens implantation using SMI (SensorMotoric Instruments) marking, whereas the manual group will undergo toric intraocular lens implantation using manual marking (done by a surgeon).

Before and after lens implantation, participants were tested for uncorrected visual acuity, best corrected visual acuity and corneal topography.

Intervention Type

Device

Phase

Not Applicable

Primary outcome(s)

Toric intraocular axis, measured using a refractometer 1 day, 1 month and 2 months post-operation

Key secondary outcome(s)

The following are measured by a physician using the logMAR method 1 day, 1 month and 2 months post-operation:

1. Uncorrected visual acuity
2. Best corrected visual acuity

Completion date

01/04/2018

Eligibility**Key inclusion criteria**

1. Cataracts
2. Corneal astigmatism > 1.5 diopters
3. Aged over 20

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Total final enrolment

132

Key exclusion criteria

1. Glaucoma
2. Retinal disease
3. Irregular astigmatism

Date of first enrolment

01/02/2014

Date of final enrolment

31/12/2017

Locations

Countries of recruitment

Korea, South

Study participating centre

Seoul St. Mary's Hospital

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Sponsor information

Organisation

Ministry for Health & Welfare, Republic of Korea

ROR

<https://ror.org/00vxgjw72>

Funder(s)

Funder type

Not defined

Funder Name

Ministry for Health & Welfare, Republic of Korea

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 Dr Rowoon Yi (beneficialyi@gmail.com). The data available will be individual participant data that underlies the results reported after deidentification (text, tables, figures and appendices), along with the study protocol. Data will be available from 9 months after until 36 months after article publication and will be shared with investigators whose proposed use of the data has been approved by an independent review committee. Data provided may be used for individual participant meta-analysis. Proposals should be directed to beneficialyi@gmail.com (Rowoon Yi, clinical fellow) to gain access and data requestors will need to sign a data access agreement.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	03/08/2019	08/11/2019	Yes	No