

# The role of angiography in glaucoma

<b>Submission date</b> 07/03/2019	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 28/03/2019	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 18/02/2022	<b>Condition category</b> Eye Diseases	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

The development of optical coherence tomography (OCTA) has enabled non-invasive measurements of vascular (blood vessel) changes in the retinal layers of the eye, and this new tool has been increasingly used in retinal diseases and glaucoma. Several previous studies have investigated the vessel density in the peripapillary area or parafoveal region with OCTA in patients with glaucoma. Some of these studies have shown that the abnormal vessel density in OCTA has a significant association with glaucomatous optic nerve damage, and peripapillary vascular density was associated with the severity of visual field damage. However, it remains unknown whether there are significant regional relationships between the peripapillary vascular density and visual field sensitivity. Therefore, the aim of this study is to analyze regional relationships between peripapillary vascular density assessed by optical coherence tomographic angiography and visual field sensitivity in primary open angle glaucoma at different stages and normal eyes. The researchers will investigate relationships between peripapillary vascular density and visual field sensitivity and compare the diagnostic ability of each for the detection of glaucoma.

### Who can participate?

Glaucoma patients and healthy volunteers

### What does the study involve?

The study does not involve any interventions, the participants just underwent an eye examination including fundus photo, visual field test, and OCTA.

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

As this study doesn't include any interventions no benefits or risks are expected.

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

July 2018 to December 2019

### Who is funding the study?

Pusan National University Hospital (South Korea)

Who is the main contact?

Jonghoon shin  
jjongggal@naver.com

## Contact information

### Type(s)

Scientific

### Contact name

Mr Jonghoon Shin

### ORCID ID

<https://orcid.org/0000-0003-1721-1253>

### Contact details

20-Geumo-ro, Mulgeum-eup  
Yangsan  
Korea, South  
50612  
+82 (0)55 360 2595  
jjongggal@naver.com

## Additional identifiers

### Protocol serial number

03-2019-001

## Study information

### Scientific Title

Regional relationships between peripapillary vascular density assessed by optical coherence tomographic angiography and visual field sensitivity in glaucoma

### Acronym

OCTAPVDVF

### Study objectives

Some previous studies have shown that reduced peripapillary vascular density was reported in glaucomatous eyes, and peripapillary vascular density was associated with the severity of visual field damage. However, it remains unknown whether there are significant regional relationships between peripapillary vascular density and visual field sensitivity. Therefore, in this study, the researchers will analyze regional relationships between peripapillary vascular density assessed by optical coherence tomographic angiography and visual field sensitivity in primary open angle glaucoma at different stages and normal eyes.

### Ethics approval required

Old ethics approval format

## **Ethics approval(s)**

Approved 07/01/2019, Institutional Review Board of Pusan National University Yangsan Hospital, 20, Geumo-ro, Mulgeum-eup, Yangsan-si, Gyeongsangnam-do, South Korea, Tel: +82 (0) 55 360 3854, Email: pnuyhirb@gmail.com, IRB No. 05-2019-005

## **Study design**

Single-center comparative cross-sectional study

## **Primary study design**

Observational

## **Study type(s)**

Diagnostic

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

Glaucoma

## **Interventions**

All participants underwent the following ophthalmic examinations:

1. BCVA measurements, slit-lamp examination, gonioscopy, and IOP measurement with the Goldmann applanation tonometer.
2. Red-free fundus photography using a non-mydratic fundus camera (Canon CR-2, Canon, Tokyo, Japan)
3. OCTA measurements using Topcon Atlantis (DRI OCT-1, Topcon, Tokyo, Japan)
4. Automated visual field examination using the Humphrey 740 Visual Field Analyzer (Carl Zeiss Meditec, Dublin, CA, USA) were performed on all subjects.

Glaucoma patients should keep using the glaucoma treatment with topical IOP-lowering agents, and age-matched normal controls who visited our clinic for regular eye examinations for refractive errors.

## **Intervention Type**

Other

## **Primary outcome(s)**

Measured at a single examination:

1. Microvascular images and peripapillary vascular density measured using optical coherence tomographic angiography
2. Visual field sensitivity obtained by automated visual field examination using the Humphrey 740 Visual Field Analyzer

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

The diagnostic abilities of the peripapillary vascular density and RNFL thickness for differentiating the control group and glaucoma group (total, mild, moderate-severe subgroups), measured at a single examination

## **Completion date**

31/12/2019

## **Eligibility**

## **Key inclusion criteria**

Patients:

1. Primary open angle glaucoma
2. Undergoing treatment with drugs

Control group:

1. Visited the clinic for regular eye examinations for refractive errors

## **Participant type(s)**

Patient

## **Healthy volunteers allowed**

No

## **Age group**

Adult

## **Sex**

All

## **Key exclusion criteria**

1. Best-corrected visual acuity less than 20/40
2. Refractive error outside the range of – 6.0 to + 3.0 diopters
3. Astigmatism beyond  $\pm$  3.0 diopters
4. Previous ocular trauma
5. Ocular surgery or laser treatment
6. History of ocular or systemic disease that could affect the optic nerve or visual field

## **Date of first enrolment**

01/08/2018

## **Date of final enrolment**

31/01/2019

## **Locations**

### **Countries of recruitment**

Korea, South

### **Study participating centre**

**Pusan National University Yangsan Hospital**

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 Hospital

**Alternative Name(s)**

PNUH

**Funding Body Type**

Private sector organisation

**Funding Body Subtype**

Other non-profit organizations

**Location**

Korea, South

## 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>		21/05/2020	18/02/2022	Yes	No