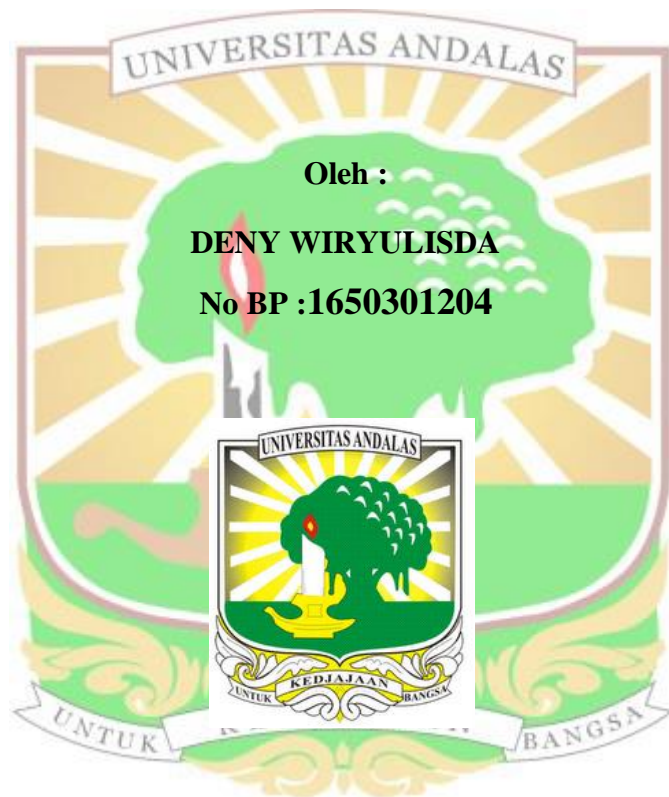


**HUBUNGAN PERUBAHAN *RETINAL GANGLION CELL THICKNESS*  
DAN *COLOR CONFUSION INDEX* PADA GLAUKOMA  
SUDUT TERBUKA *EARLY STAGE***

**TESIS**

**Diajukan sebagai pemenuhan syarat untuk meraih gelar  
Dokter Spesialis Mata**



Oleh :

**DENY WIRYULISDA**

**No BP :1650301204**

Dosen Pembimbing :

**1. Dr. dr. Fitratul Ilahi, SpM(K)**

**2. Dr. dr. Hendriati, SpM(K)**

**PROGRAM STUDI OPHTHALMOLOGY PROGRAM SPESALIS**

**FAKULTAS KEDOKTERANUNIVERSITAS ANDALAS**

**PADANG**

**2022**

**HUBUNGAN PERUBAHAN *RETINAL GANGLION CELL THICKNESS*  
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SUDUT TERBUKA *EARLY STAGE***

**Deny Wiryulisda, Fitratul Ilahi, Hendriati**

Bagian Ilmu Kesehatan Mata Fakultas Kedokteran Universitas Andalas  
RSUP Dr. M. Djamil Padang

**Abstrak**

**Pendahuluan:** Glaukoma merupakan masalah kesehatan global dan merupakan penyebab kebutaan yang ireversibel di dunia dan berhubungan dengan kerusakan saraf optik dengan defek lapang pandang yang sesuai dengan hilangnya *Retinal Ganglion Cell* (RGC). Estimasi kematian 40% RGC terjadi sebelum muncul defek lapang pandang pada penderita glaukoma pada pemeriksaan awal. Kehilangan dari RGC dan didapatkan juga 25% dengan sel fotoreseptor (*L/M cones*) swelling.

**Tujuan:** Mengetahui hubungan perubahan *Retinal Ganglion Cell thickness* di makula dan nilai *Color Confusion Index* (CCI) pada Glaukoma Sudut Terbuka *Early Stage*

**Metode:** Pasien Glaukoma Sudut Terbuka *early stage* diperiksa OCT Makula 512x128 dan dinilai *RGC thickness* dengan mengambil nilai minimum dan pemeriksaan warna dengan Farnsworth D15 kemudian dilakukan penghitungan *Color Confusion Index* (CCI).

**Hasil:** Dari hasil penelitian sejumlah 46 subyek penelitian pasien glaukoma sudut terbuka *early stage* didapatkan penipisan *RGC thickness* di makula dengan kategori warna kuning 13% dan kategori warna merah sebanyak 13%. Dari hubungan penipisan *RGC thickness* dan *Color Confusion Index*, didapatkan hubungan yang bermakna ( $p=0,000$ ), dimana pada *RGC thickness* yang tipis (kategori kuning 6,5%, dan kategori warna merah 8,7%) dengan nilai CCI  $>1,00$ .

**Kesimpulan:** Sudah terjadi penipisan *RGC thickness* di makula, dan peningkatan nilai *Color Confusion Index* (CCI) pada pasien glaukoma sudut terbuka *early stage*, dan terdapat hubungan antara penipisan *RGC thickness* di makula dengan peningkatan nilai *Color Confusion Index* (CCI).

**Kata Kunci :** *RGC thickness*, CCI, Glaukoma sudut terbuka

**CORRELATION OF RETINAL GANGLION CELL THICKNESS  
CHANGE AND COLOR CONFUSION INDEX ON EARLY STAGE  
OPEN ANGLE GLAUCOMA**

**Deny Wiryulisda, Fitriatul Ilahi, Hendriati**

Department of Ophthalmology, Faculty of Medicine, Andalas University  
Dr. M. Djamil Hospital Padang

**Abstract**

**Introduction :** Glaucoma is a global health problem and is the leading cause of irreversible blindness in the world and is associated with optic nerve damage with visual field defects corresponding to the loss of retinal ganglion cells (RGCs). Estimated loss of 40% RGC occurs before visual field defects appear in glaucoma patients on initial examination as well as 25% photoreceptor cells (L/M cones) swelling which will affect the color vision.

**Aim :** Understanding the relationship between changes in retinal ganglion cell thickness in the macula and the value of the color confusion index (CCI) in early stage open-angle glaucoma.

**Method :** Early stage open-angle glaucoma patients were examined for 512x128 Macular OCT and assessed for RGC thickness by taking the minimum value of GC-IPL. Color vision was checked by using Farnsworth D15 then Color Confusion Index (CCI) was calculated.

**Result :** 46 patients with early stage open-angle glaucoma were involved and thinning of the macula RGC thickness was found with 13% yellow color category and 13% red color category. Statistically, there is a significant relationship between the thinning of the RGC thickness and the Color Confusion Index ( $p=0.000$ ), in which the thin RGC thickness (6.5% yellow category, and 8.7% red category) with CCI values  $>1.00$ .

**Conclusion:** There has been thinning of the RGC thickness in the macula, and an increase in the value of Color Confusion Index (CCI) in patients with early stage open-angle glaucoma, and there is a significant relationship between thinning of the RGC thickness in the macula and an increasing value of the Color Confusion Index (CCI).

**Keywords:** RGC thickness, CCI, Open Angle Glaucoma