ABSTRAK

Latar Belakang
Terapi glaukoma selama ini berfokus pada penurunan tekanan intraokular, namun progresifitas masih dapat terjadi. Pemberian terapi antioksidan, antiinflamasi dan agen neuroprotektif saat ini mulai dikembangkan untuk pengobatan glaukoma, salah satunya adalah *Epigallocathecine-3-gallate* (EGCG). Suplementasi EGCG diharapkan dapat mengurangi kerusakan sel ganglion retina akibat glaukoma.

Tujuan
Penelitian ini menganalisis pengaruh suplementasi EGCG terhadap ekspresi nNOS dan densitas sel ganglion retina tikus model glaukoma yang diinduksi NMDA.

Metode:
Penelitian ini merupakan uji eksperimental dengan rancangan *true experimental* dan *post-test only*. Hewan coba yang digunakan adalah tikus Wistar model glaukoma yang diinduksi NMDA dosis 160 nmol. Tikus dibagi menjadi kelompok kontrol yang diberikan *aquadest* dan kelompok perlakuan yang diberi EGCG dengan dosis 50 mg/kg BB/hari peroral selama 14 hari. Ekspresi nNOS dinilai dengan imunohistokimia dan densitas sel ganglion retina dinilai dengan pengecatan *Hematoxylin-eosin*. Pengaruh pemberian EGCG terhadap ekspresi nNOS dan densitas sel ganglion retina dinilai dengan analisis statistik.

Hasil
Rerata ekspresi nNOS pada kelompok perlakuan ($0,50 \pm 0,28$) lebih rendah dibanding kelompok kontrol ($1,78 \pm 0,55$) dengan perbedaan bermakna ($p=0.01$). Rerata densitas sel ganglion retina yang lebih tinggi pada kelompok perlakuan ($13,72 \pm 1,10$) dibanding kelompok kontrol ($9,21 \pm 0,58$) dengan perbedaan bermakna ($p=0.04$). Terdapat korelasi yang signifikan dengan hubungan negatif antara ekspresi nNOS dan densitas sel ganglion retina.

Kesimpulan
Pemberian EGCG pada tikus Wistar model glaukoma berpengaruh terhadap rendahnya ekspresi nNOS dan tingginya densitas sel ganglion retina.

Kata Kunci
Glaukoma, EGCG, nNOS, densitas sel ganglion retina

ABSTRACT

Background

Glaucoma therapy has been focused on lowering intraocular pressure, but progression can still occur. The administration of antioxidant, anti-inflammatory, and neuroprotective agents is currently being developed for glaucoma treatment, one of which is *Epigallocatechin-3-gallate* (EGCG). Supplementation of EGCG is expected to reduce retinal ganglion cell damage caused by glaucoma.

Objective

This study analyzes the effect of EGCG supplementation on nNOS expression and retinal ganglion cell density in a rat model of NMDA-induced glaucoma.

Method

This research is a study with true experimental and post-test only design. Wistar rats induced by intravitreal NMDA injection at a dose of 160 nmol as glaucoma model. Rats were divided into control group that received aquadest and treatment group that received EGCG at a dose of 50 mg/kg/day orally for 14 days. Expression of nNOS was evaluated by immunohistochemistry and retinal ganglion cell density was assessed by hematoxylin-eosin staining. The effect of EGCG administration on nNOS expression and retinal ganglion cell density was evaluated by statistical analysis.

Results

The mean nNOS expression in the treatment group (0.50 ± 0.28) was lower than control group (1.78 ± 0.55), with significant difference (p=0.01). The mean retinal ganglion cell density was higher in treatment group (13.72 ± 1.10) compared to control group (9.21 ± 0.58), with a significant difference (p=0.04). There was a significant negative correlation between nNOS expression and retinal ganglion cell density.

Conclusion

Administration of EGCG to Wistar rats with glaucoma affects the low expression of nNOS and the high retinal ganglion cells density.

Keywords

Glaucoma, EGCG, nNOS, retinal ganglion cell density