Pengaruh fotokoagulasi laser terhadap hypoxia inducible factor-1 hif-1 dan intercellular adhesive molecule-1 icam-1 pada retinopati diabetik proliferatif = Effect of laser photocoagulation to hypoxia inducible factor 1 hif 1 and intercellular adhesive molecule 1 icam 1 in proliferative diabetic retinopathy

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Abstrak

Tujuan: Mengetahui pengaruh fotokoagulasi laser terhadap kadar Hypoxia-inducible Factor-1 (HIF-1) vitreus dan kadar Intercellular Adhesive Molecule-1 (ICAM-1) vitreus pada Retinopati Diabetik Proliferatif.

Metode: Penelitian ini adalah uji klinis acak terbuka. Desain penelitian adalah uji klinis acak terbuka. Dua puluh dua mata dirandomisasi menjadi 2 kelompok, yaitu yang mendapatkan fotokoagulasi laser panretinal 1-2 minggu pre-vitrektomi dan kontrol. Kadar HIF-1 dan ICAM-1 dihitung menggunakan enzyme-linked immunosorbent assay (ELISA). Central macula thickness (CMT) diukur saat baseline, pre-vitrektomi, follow-up 2, 4, dan 12 minggu paska vitrektomi.
Hasil: Analisis hasil didapatkan rerata kadar HIF-1 vitreus (dalam ng/mL) pada kelompok kontrol dan fotokoagulasi laser masing-masing 0,152±0,015 dan 0,164±0,033 sedangkan kadar ICAM-1 vitreus(dalam ng/mL) adalah 17,840±14,140 dan 27,027±10,452. Tidak terdapat perbedaan bermakna rerata kadar HIF-1 dan ICAM-1 vitreus serta CMT di setiap waktu follow up antara kedua kelompok. Terdapat korelasi antara kadar HIF-1 dan HbA1c (r=0,463, p=0,03). Pengukuran CMT pre-vitrektomi dan kadar HIF-1 vitreus pada penelitian ini mempunyai korelasi positif pada kedua kelompok (r = 0,447 dan r = 0,32).
Simpulan: Fotokoagulasi laser 1-2 minggu pre-vitrektomi tidak menyebabkan kadar HIF-1 dan ICAM-1 yang lebih rendah dibandingkan dengan yang tidak mendapatkan laser. Kadar HIF-1 vitreus berkorelasi dengan tebalnya CMT, sedangkan kadar ICAM-1 vitreus tampak tidak berhubungan. Kontrol glikemik yang lebih buruk pada kelompok fotokoagulasi laser mempengaruhi hasil dari kadar HIF-1 maupun ICAM-1 vitreus.
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Purpose: to determine the effect of pre-treatment of laser panretinal photocoagulation (PRP) before vitrectomy to Hypoxia-inducible Factor-1 (HIF-1) and Intercellular Adhesive Molecule-1 (ICAM-1) in the vitreous fluid of patients with diabetic retinopathy proliferative.
Methods: This is post-test only randomized clinical trial open label study. Twenty two eyes were recruited, and 11 eyes had pre-treatment of PRP pre-vitrectomy and other 11 eyes were served as control. HIF-1 and ICAM-1 were measured by enzyme-linked immunosorbent assay (ELISA). At the beginning of PRP and just before vitrectomy (1-2 week after PRP), and at the time of follow-up of 2,4, and 12 week after vitrectomy, central macular thickness (CMT) was measured.
Results: Mean of HIF-1(ng/mL) were 0,152±0,015 and 0,164±0,033in control and photocoagulation group, respectively. Mean of ICAM-1(ng/mL) were 17,840±14,140 and 27,027±10,452. There were no statistically significant differences in the comparison of both HIF-1 and ICAM-1 in each group and CMT at each time of follow up. The positive correlation between ICAM-1 in the vitreous body and HbA1c was clinically

significant (r=0,463, p=0,03). The positive correlation between both level of HIF-I the vitreous body of both groups and CMT was found (r = 0,447 dan r = 0,32).
Conclusion: Laser photocoagulation 1-2 weeks before vitrectomy did not cause lower concentration of vitreous level of HIF-1 dan ICAM-1. Glycemic control status that worse in laser photocoagulation group could influence the level of HIF-1 and ICAM-1 vitreus.