

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

Vivi Rizka Yandri, author

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Abstrak

ABSTRAK

Tujuan: Mengetahui pengaruh fotokoagulasi laser terhadap kadar Hypoxia-inducible Factor-1α (HIF-1α) vitreus dan kadar Intercellular Adhesive Molecule-1 (ICAM-1) vitreus pada Retinopati Diabetik Proliferasif. 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-1α 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-1α vitreus (dalam ng/mL) pada kelompok kontrol dan fotokoagulasi laser masing-masing $0,152\pm 0,015$ dan $0,164\pm 0,033$ sedangkan kadar ICAM-1 vitreus(dalam ng/mL) adalah $17,840\pm 14,140$ dan $27,027\pm 10,452$. Tidak terdapat perbedaan bermakna rerata kadar HIF-1α dan ICAM-1 vitreus serta CMT di setiap waktu follow up antara kedua kelompok. Terdapat korelasi antara kadar HIF-1α dan HbA1c ($r=0,463$, $p=0,03$). Pengukuran CMT pre-vitrektomi dan kadar HIF-1α 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-1α dan ICAM-1 yang lebih rendah dibandingkan dengan yang tidak mendapatkan laser. Kadar HIF-1α 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-1α maupun ICAM-1 vitreus.

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ABSTRACT

Purpose: to determine the effect of pre-treatment of laser panretinal photocoagulation (PRP) before vitrectomy to Hypoxia-inducible Factor-1α (HIF-1α) 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-vitrektomy and other 11 eyes were served as control. HIF-1α 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-1α(ng/mL) were $0,152\pm 0,015$ and $0,164\pm 0,033$ in control and photocoagulation group, respectively. Mean of ICAM-1(ng/mL) were $17,840\pm 14,140$ and $27,027\pm 10,452$. There were no statistically significant differences in the comparison of both HIF-1α 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-1 α ; 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 α ; dan ICAM-1. Glycemic control status that worse in laser photocoagulation group could influence the level of HIF-1 α ; and ICAM-1 vitreus.