

Hubungan antara kadar plasminogen activator inhibitor-1 dengan stroke iskemik: penelitian pendahuluan = The association of plasminogen activator inhibitor-1 level with ischemic stroke: preliminary study

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Abstrak

Stroke iskemik merupakan suatu disfungsi jaringan otak yang disebabkan oleh penurunan aliran darah ke otak. Penyebab tersering penurunan aliran darah ke otak adalah aterosklerosis dan emboli serebral. Untuk mencegah stroke diperlukan pengenalan dan pengendalian terhadap faktor risiko stroke. Saat ini peningkatan kadar plasminogen activator inhibitor-I (PAI-I) telah dinyatakan sebagai faktor risiko penyakit jantung iskemik. Peningkatan kadar, PAI-1 telah dihubungkan dengan penurunan aktivitas sistem fibrinolisis. Mengenai hubungan antara kadar PAI-1 dengan stroke iskemik masih belum jelas.

Pada penelitian ini ingin diketahui hubungan antara kadar PAI-1 dengan stroke iskemik. Selain itu, pada penelitian ini juga ingin diketahui hubungan antara kadar PAI-1 dengan faktor risiko stroke iskemik lainnya seperti usia, jenis kelamin, status metabolik glukosa terganggu, hipertrigliseridemia, obesitas dan hipertensi. Oleh karena keterbatasan jumlah subjek penelitian, maka kami mengawalinya dengan suatu penelitian pendahuluan. Penelitian pendahuluan ini dilakukan dengan rancangan kasus kontrol, melibatkan 38 subjek penderita stroke iskemik dan 38 subjek kontrol yang telah memenuhi kriteria penelitian. Kadar PAI-1 diperiksa dengan metode ELISA menggunakan reagen Asserachrom PAI-1 dari Stago.

Hasil penelitian menunjukkan hubungan antara kadar PAI-1 dengan stroke iskemik mempunyai nilai rasio odds sebesar 3.1, tetapi secara statistik hubungan ini tidak bermakna karena nilai 95 % interval kepercayaan adalah 0.757 - 12.790 ($p = 0.103$). Hasil analisis multivariat dengan regresi multipel menunjukkan adanya hubungan yang lemah namun bermakna antara kadar PAI-1 dengan usia ($r = -0.2$; $p = 0.020$), hipertensi ($r = -0.2$; $p = 0.042$) dan hipertrigliseridemia ($r = 0.3$; $p = 0.004$), tetapi tidak didapatkan hubungan yang bermakna antara kadar PAI-1 dengan jenis kelamin ($p = 0.616$), status metabolik glukosa terganggu ($p = 0.653$) dan obesitas ($p = 0.328$). Hubungan antara kadar PAI-1 dan faktor risiko stroke lainnya dapat digambarkan melalui persamaan berikut yaitu kadar PAI-1 = $55.4 - 0.5 \times (\text{usia}) - 5.3 \times (\text{hipertensi}) + 11.1 \times (\text{hipertrigliseridemia})$. Untuk mendapatkan kesimpulan, penelitian pendahuluan ini sebaiknya dilanjutkan dengan jumlah sampel yang cukup.

Ischemic stroke is a cerebral dysfunction caused by decreased cerebral blood flow. The main causes of decreased cerebral blood flow are atherosclerosis and cerebral emboli. In attempt on stroke prevention, risk factors of stroke should be recognized and controlled. Recently increased plasminogen activator inhibitor-1 (PAI-1) has been established as a risk factor for ischemic heart disease. Increased PAI-1 level is associated with decreased fibrinolytic activity. The association of increased PAI-1 level with ischemic stroke remains unclear.

The aim of this study was to analyze the relationship between PAI-1 level and ischemic stroke. In addition, the relationship between PAI-1 level and other risk factors of ischemic stroke such as age, gender,

uncontrolled blood glucose, hypertriglyceridemia, obesity and hypertension, would also be analyzed. Due to the limitation of sample size, we begin with a preliminary study. This preliminary study was a case control design, involved 38 patients of ischemic stroke and 38 control subjects who fulfilled the criteria. The level of PAI-1 was determined by ELISA method using Asserachrom PAI-1 from Stago. The results indicated that the odds ratio of the relationship between PAI-1 level and ischemic stroke was 3.1, but this relationship was not statistically significant since the 95 % confidence interval was 0.757 - 12.790 ($p = 0.103$).

The result of multivariate analysis with multiple regression showed that there were significant weak correlation between PAM level with age ($r = -0.2$; $p = 0.020$), hypertension ($r = -0.2$; $p = 0.042$), and hypertriglyceridemia ($r = 0.3$; $p = 0.004$) but there were no correlation between PAI-1 level with gender ($p = 0.616$), uncontrolled blood glucose ($p = 0.653$), and obesity ($p = 0.328$). The relationship of PAI-1 level and other risk factors could be described by this formula, $\text{PAI-1 level} = 55.4 - 0.5 \times (\text{age}) - 5.3 \times (\text{hypertension}) + 11.1 \times (\text{hypertrygliceridemia})$. To obtain a conclusion, this preliminary study should be continued with adequate sample size.</i>