

Gambaran homosistein, enzim MTHFR, vitamin B6, vitamin B12, dan asam folat pada penyakit jantung koroner

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Abstrak

Latar Belakang : Peningkatan kadar homosistein merupakan faktor risiko terjadinya aterosklerosis dan trombogenesis. Baik faktor genetik maupun lingkungan mempunyai pengaruh terhadap kadar plasma homosistein. Pada penelitian ini, kami meneliti gambaran dari homosistein pada populasi PJK di Jakarta dan Malang serta hubungannya dengan enzim MTHFR, Vit. B6, Vit. B12, dan asam folat.

Metode dan Hasil : Penelitian deskriptif ini melibatkan 30 pasien PJK di Jakarta dan 12 pasien di Malang. Subyek yang direkrut di Malang lebih muda, tetapi tidak ada perbedaan dalam jenis kelamin, IMT, diabetes, dan merokok. Tidak ada perbedaan pada profil lipid diantara dua populasi. Subyek di Malang mempunyai kadar homosistein lebih tinggi (median 18 mmol/dL vs 9,1 mmol/dL; $p < 0,001$), kadar MTHFR yang lebih rendah (median 0,105 IU vs 0,157 IU; $p = 0,019$) kadar asam folat yang lebih rendah (median 7,1 vs 11,2 ng/mL; $p = 0,005$), kadar vit. B12 yang lebih rendah (median 273 ng/mL vs 429,5 ng/mL; $p = 0,032$). Tidak ada perbedaan pada kadar vit B6. Analisis dari hubungan menunjukkan hubungan yang terbalik antara homosistein dan vit. B12 ($r = -0,43$, $p = 0,004$) dan asam folat ($r = -0,39$, $p = 0,01$).

Kesimpulan : Tidak ada perbedaan kadar homosistein, MTHFR, asam folat, dan vitamin B12 pada populasi PJK (Jakarta dan Malang). Terdapat hubungan yang terbalik antara homosistein dan vit. B12 serta asam folat.

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Background : Increased homocysteine level is a risk factor for atherosclerosis and thrombogenesis_ Both genetic and environmental factors influence plasma level of homocysteine. In this study, we examine the distribution of homocysteine in population of CAD in Malang and Jakarta and the association between homocysteine, enzyme MTHFR, Vit. B6, Vit. B12, and folic acid.

Methods and Results : This is a descriptive study including 30 CAD patients in Jakarta and 12 in Malang. Subjects recruited in Malang is younger, but no difference in gender, BMI, smoking and diabetes. No difference in lipid profile between both populations. Subjects in Malang have higher level of homocysteine (median 18 mmol/dL vs 9.1 mmol/dL; $p < 0.001$), lower level of MTHFR (median 0.105 IU vs 0.157 IU; $p = 0.019$), lower level of Folic acid (median 7.1 vs 11.2 ng/mL; $p = 0.005$), lower level of Vit. B12 (median 273 ng/mL vs 429.5 ng/mL; $p = 0.032$). There is no difference in level of Vit. B6. Analysis of association showed inverse relationship between homocysteine and vit B12 ($r = -0.43$, $p = 0.004$) and folic acid ($r = -0.39$, $p = 0.01$).

Conclusion : There is difference in level of homocysteine, MTHFR, folic acid and vit. B12 between populations coronary artery disease (Jakarta and Malang). There is inverse relationship between

homocysteine and vit B12 and folic acid.