

Angiopoietin like protein 3 (Angptl3), fatty acid binding protein 4 (FABP4) and homeostasis model assessment of insulin resistance (HOMA-IR) among Indonesian obese non diabetic males

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Abstrak

Tujuan: Untuk meneliti korelasi antara penanda biokimia Angptl3, FABP4 dan HOMA-IR pada populasi pria Indonesia dengan kondisi obesitas sentral non diabetes. Metode: Penelitian ini menggunakan metode potong lintang pada 133 individu pria dengan obesitas sentral non diabetes (dengan kriteria lingkaran pinggang > 90 cm; konsentrasi glukosa darah puasa < 126 mg/dL; dan tidak adanya keluhan khas diabetes) usia 30-60 tahun yang dilakukan di Jakarta, Indonesia. Penanda biokimia yang ditentukan meliputi Angptl3, FABP4, FFA, insulin puasa, dan glukosa puasa. Di samping itu dilakukan penentuan berat badan, tinggi badan, lingkaran pinggang (LP), tekanan darah sistolik (TDS), dan tekanan darah diastolik (TDD). Hubungan antara berbagai penanda biokimia didapatkan melalui uji korelasi Pearson dan Spearman. Hasil: Hasil uji korelasi Pearson dan Spearman menunjukkan adanya korelasi positif yang bermakna antara Angptl3 dan FABP4 ($r = 0,319$; $P = 0,000$), Angptl3 dan FFA ($r = 0,171$; $P = 0,049$), FABP4 dan HOMA-IR ($r = 0,202$; $P = 0,019$), FFA dan FABP4 ($r = 0,506$; $P = 0,000$), LP dan HOMA-IR ($r = 0,323$; $P = 0,000$), LP dan FABP4 ($r = 0,387$; $P = 0,000$), Indeks Massa Tubuh (IMT) dan HOMA-IR ($r = 0,270$; $P = 0,002$), serta IMT dan FABP4 ($r = 0,362$; $P = 0,000$). Kesimpulan: Adanya korelasi positif yang bermakna antara Angptl3-FABP4, Angptl3-FFA, FFA-FABP4 serta FABP4-HOMA-IR menimbulkan dugaan bahwa Angptl3 memicu lipolisis dalam jaringan adiposa melalui hubungannya dengan FABP4 serta berhubungan dengan peningkatan resistensi insulin pada individu pria obes non diabetes.

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Abstract

Aim: To reveal the correlation between Angptl3, FABP4 and HOMA-IR among Indonesian obese non diabetic males. Methods: This is a cross sectional study with 133 obese non diabetic males volunteers (characterized by waist circumference > 90 cm; fasting blood glucose < 126 mg/dL; and no diabetic specific symptoms) age between 30-60 years which was done in Jakarta, Indonesia. We measured biochemical markers such as Angptl3, FABP4, FFA, fasting insulin and fasting glucose. We also measured weight, height, waist circumference (WC), systolic blood pressure (SBP) and diastolic blood pressure (DBP). Correlation between each marker was measured using Pearson and Spearman's analysis. Results: Pearson and Spearman's correlation analysis showed significant positive correlation between Angptl3 and FABP4 ($r = 0.319$; $P = 0.000$), Angptl3 and FFA ($r = 0.171$; $r = 0.049$), FABP4 and HOMA-IR ($r = 0.202$; $P = 0.019$), FFA and FABP4 ($r = 0.506$; $P = 0.000$), WC and HOMA-IR ($r = 0.323$; $P = 0.000$), WC and FABP4 ($r = 0.387$; $P = 0.000$), Body Mass Index (BMI) and HOMA-IR ($r = 0.270$; $P = 0.002$), BMI and FABP4 ($r = 0.362$; $P = 0.000$). Conclusion: This study showed positive significant correlations between Angptl3-FABP4, Angptl3-FFA, FFA-FABP4 and FABP4-HOMA-IR. We suggest that Angptl3 can activate lipolysis in adipose tissue (through its correlation with FABP4), and Angptl3 concentration is related to insulin resistance risk among Indonesian obese non diabetic males.