



ABSTRAK

Latar Belakang:

Obesitas sentral berperan penting dalam terjadinya kekakuan arteri (arterial stiffness/AS) melalui mekanisme resistensi insulin dan paparan metabolik kronik. Indeks Trigliserida–Glukosa (TyG) merupakan penanda resistensi insulin yang praktis dan mencerminkan kondisi metabolik akut, sedangkan lama obesitas merepresentasikan paparan kronik yang berkontribusi terhadap perubahan struktural vaskular.

Tujuan:

Menganalisis hubungan indeks TyG dan lama obesitas dengan kekakuan arteri pada pasien obesitas sentral tanpa diabetes mellitus.

Metode:

Penelitian potong lintang ini melibatkan pasien obesitas sentral tanpa diabetes mellitus. Resistensi insulin dinilai menggunakan indeks TyG, sedangkan kekakuan arteri diukur dengan *carotid–femoral pulse wave velocity* (cfPWV). Analisis statistik meliputi uji korelasi, analisis multivariat, dan analisis *receiver operating characteristic* (ROC).

Hasil:

Indeks TyG berkorelasi positif sedang dan bermakna dengan kekakuan arteri ($r = 0,467$; $p = 0,001$). Analisis ROC menunjukkan kemampuan diskriminatif yang baik dari indeks TyG terhadap kekakuan arteri dengan nilai AUC 0,824 (95% CI: 0,696–0,951; $p = 0,001$). Pada analisis multivariat, lama obesitas merupakan determinan independen terkuat terhadap kekakuan arteri, sedangkan hubungan indeks TyG melemah setelah penyesuaian terhadap variabel perancu.

Kesimpulan:

Indeks TyG berkorelasi signifikan dengan kekakuan arteri dan memiliki kemampuan diskriminatif yang baik pada pasien obesitas sentral tanpa diabetes mellitus. Namun, kekakuan arteri pada populasi ini lebih dipengaruhi oleh paparan kronik obesitas yang tercermin dari lama obesitas.

Kata kunci: indeks TyG; lama obesitas; kekakuan arteri; obesitas sentral; resistensi insulin



ABSTRACT

Background:

Central obesity contributes to arterial stiffness (AS) through insulin resistance and chronic metabolic exposure. The triglyceride–glucose (TyG) index reflects an acute metabolic state, whereas the duration of obesity represents chronic exposure leading to long-term vascular structural changes.

Objective:

To analyze the association of the TyG index and the duration of obesity with arterial stiffness in centrally obese individuals without diabetes mellitus.

Methods:

This cross-sectional study included centrally obese patients without diabetes mellitus. Insulin resistance was assessed using the TyG index, and arterial stiffness was measured by carotid–femoral pulse wave velocity (cfPWV). Correlation analysis, multivariable analysis, and receiver operating characteristic (ROC) analysis were performed.

Results:

The TyG index showed a moderate and significant positive correlation with arterial stiffness ($r = 0.467$; $p = 0.001$). ROC analysis demonstrated good discriminative performance of the TyG index for arterial stiffness (AUC 0.824; 95% CI: 0.696–0.951; $p = 0.001$). In multivariable analysis, the duration of obesity emerged as the strongest independent determinant, while the association between the TyG index and arterial stiffness was attenuated after adjustment.

Conclusion:

The TyG index is significantly correlated with arterial stiffness and demonstrates good discriminative ability in centrally obese individuals without diabetes mellitus. However, arterial stiffness in this population is more strongly driven by chronic obesity exposure, as reflected by the duration of obesity.

Keywords: TyG index; duration of obesity; arterial stiffness; central obesity; insulin resistance