

## ABSTRAK

### Hubungan Antara Kadar Leptin dengan Fungsi Paru Dinamik Pada Pasien Sindrom Metabolik Dislipidemia Di RSUP Dr. Kariadi Semarang

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**Pendahuluan** : Sindrom metabolik merupakan kumpulan gejala yang berhubungan dengan peningkatan risiko penyakit kardiovaskular dan diabetes melitus tipe 2. Dislipidemia, sebagai salah satu komponen sindrom metabolik, diketahui berkontribusi terhadap gangguan fungsi paru-paru melalui berbagai mekanisme inflamasi dan oksidatif. Leptin, hormon adiposit yang berperan dalam regulasi energi dan homeostasis lipid, dilaporkan memiliki hubungan dengan fungsi paru-paru. Penelitian ini bertujuan untuk mengevaluasi hubungan antara kadar leptin dengan fungsi paru dinamik pada pasien sindrom metabolik dislipidemia.

**Metode** : Penelitian observasional analitik dilakukan terhadap 60 pasien sindrom metabolik dislipidemia yang terdaftar di klinik endokrinologi sebuah rumah sakit terkemuka. Kadar leptin serum diukur menggunakan teknik ELISA. Fungsi paru dinamik dinilai menggunakan spirometri yang mencakup kapasitas vital paksa (FVC) dan volume ekspirasi paksa detik pertama (FEV1). Data dianalisis menggunakan regresi linier untuk menguji hubungan antara kadar leptin dengan parameter fungsi paru.

**Hasil** : Analisis data menunjukkan adanya yang signifikan antara kadar leptin dengan FEV1 (% prediksi,  $p < 0.05$ ), FVC (% prediksi,  $p < 0.05$ ), dan FEV1/FVC (% ,  $p < 0.05$ ), menunjukkan bahwa semakin tinggi kadar leptin, fungsi paru dinamik semakin menurun.

**Kesimpulan** : Penelitian ini menyimpulkan bahwa terdapat hubungan antara kadar leptin dengan fungsi paru dinamik pada pasien sindrom metabolik dislipidemia. Temuan ini menyarankan bahwa peningkatan kadar leptin mungkin berperan dalam patogenesis gangguan fungsi paru pada populasi ini. Intervensi yang menargetkan penurunan kadar leptin dapat menjadi pendekatan baru dalam mengelola gangguan fungsi paru pada pasien dengan sindrom metabolik dislipidemia.

**Kata Kunci** : Sindrom Metabolik, Dislipidemia, Leptin, Fungsi Paru Dinamik, Spirometri

## **ABSTRACT**

### ***The Correlation Between Leptin Levels and Dynamic Pulmonary Function in Patients with Dyslipidemia Metabolic Syndrome at Dr. Kariadi Hospital, Semarang***

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**Introduction :** *Metabolic syndrome is a collection of symptoms related to an increased risk of cardiovascular disease and type 2 diabetes mellitus. Dyslipidemia, as one component of metabolic syndrome, is known to contribute to lung function impairments through various inflammatory and oxidative mechanisms. Leptin, an adipocyte hormone that plays a role in energy regulation and lipid homeostasis, has been reported to have a relationship with lung function. This study aims to evaluate the relationship between leptin levels and dynamic lung function in patients with dyslipidemic metabolic syndrome.*

**Methods :** *An analytical observational study was conducted on 60 patients with dyslipidemic metabolic syndrome registered at the endocrinology clinic of a leading hospital. Serum leptin levels were measured using the ELISA technique. Dynamic lung function was assessed using spirometry, which includes Forced Vital Capacity (FVC) and Forced Expiratory Volume in the first second (FEV1). Data were analyzed using linear regression to examine the relationship between leptin levels and lung function parameters.*

**Results :** *Data analysis showed a significant correlation between leptin levels and FEV1 (% predicted,  $p < 0.05$ ), FVC (% predicted,  $p < 0.05$ ), and FEV1/FVC (% ,  $p < 0.05$ ), indicating that higher leptin levels are associated with a decrease in dynamic lung function.*

**Conclusion :** *This study concludes that there is a relationship between leptin levels and dynamic lung function in patients with dyslipidemic metabolic syndrome. These findings suggest that elevated leptin levels may play a role in the pathogenesis of lung function disorders in this population. Interventions targeting the reduction of leptin levels could be a new approach in managing lung function impairments in patients with dyslipidemic metabolic syndrome.*

**Keywords :** *Metabolic Syndrome, Dyslipidemia, Leptin, Dynamic Lung Function, Spirometry*