

# HUBUNGAN ANTARA KADAR LEPTIN DENGAN DERAJAT KEPARAHAN *OBSTRUCTIVE SLEEP APNEA* (OSA) DAN KUALITAS TIDUR

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## ABSTRAK

**Latar belakang:** *Obstructive Sleep Apnea* (OSA) adalah gangguan pernapasan saat tidur yang ditandai dengan berkurangnya atau terhentinya aliran udara di saluran napas bagian atas, yang menyebabkan fragmentasi tidur dan penurunan kualitas tidur. Salah satu faktor yang terlibat dalam patofisiologi OSA adalah leptin, yang diproduksi oleh jaringan adiposa, yang mengatur nafsu makan dan homeostasis energi. Kadar leptin yang tinggi sering dikaitkan dengan obesitas dan risiko tinggi OSA.

**Metode:** Penelitian dengan desain observasional potong lintang di ruang rawat jalan RSUP Dr. Kariadi, dengan menggunakan sampel konsekutif pasien OSA yang memenuhi kriteria inklusi. Derajat keparahan OSA diukur dengan *Apnea-Hypopnea Index* (AHI), pemeriksaan kadar leptin dilakukan dengan metode ELISA, dan kualitas tidur dinilai dengan *The Pittsburgh Sleep Quality Index* (PSQI).

**Hasil:** Sebanyak 26 subjek OSA diikutsertakan dalam penelitian ini, 10 orang (38,5%) mengalami OSA berat, 4 orang mengalami OSA sedang (15,4%), dan 12 orang mengalami OSA ringan (46,2%). Leptin tinggi ditemukan pada 11 orang (42,3%) subjek, sedangkan 17 orang (65,4%) subjek mengalami kualitas tidur buruk. Terdapat hubungan bermakna antara jenis kelamin ( $p=0,049$ ), BMI ( $p=0,022$ ), lingkar leher ( $p=0,006$ ) dengan tingkat keparahan OSA, tetapi tidak ditemukan hubungan bermakna pada usia ( $p=0,881$ ). Korelasi signifikan diamati antara BMI ( $p=0,007$ ), lingkar leher ( $p=0,002$ ), dan kadar leptin. BMI ( $p=0,032$ ) dan lingkar leher ( $p=0,006$ ) juga ditemukan berhubungan signifikan dengan kualitas tidur. Uji Spearman menunjukkan hubungan positif signifikan antara leptin ( $p=0,002$ ) dengan tingkat keparahan OSA dan kualitas tidur yang buruk ( $p=0,018$ ). Meskipun subjek dengan OSA berat memiliki kualitas tidur yang buruk, tidak ditemukan korelasi signifikan antara tingkat keparahan OSA dengan kualitas tidur ( $p=0,058$ ).

**Kesimpulan:** Pasien OSA berat memiliki kadar leptin yang lebih tinggi dalam serum leptin dengan korelasi positif signifikan dan kualitas tidur yang buruk.

**Kata kunci:** *Obstructive Sleep Apnea* (OSA), kadar leptin, kualitas tidur

# RELATIONSHIP BETWEEN LEPTIN LEVELS WITH THE SEVERITY OF OBSTRUCTIVE SLEEP APNEA (OSA) AND SLEEP QUALITY

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## ABSTRACT

**Introduction:** Obstructive Sleep Apnea (OSA) is a sleep-disordered breathing characterized by reduced or cessation of airflow in the upper airway, leading to sleep fragmentation and decreased sleep quality. One factor involved in the pathophysiology of OSA is leptin, produced by adipose tissue, which regulates appetite and energy homeostasis. High leptin levels are often associated with obesity and high risk of OSA.

**Methods:** An observational cross-sectional study in an outpatient care of Dr. Kariadi General Hospital, using consecutive sampling of OSA patients meeting the inclusion criteria. The severity of OSA was measured with Apnea-Hypopnea Index (AHI), Leptin assay was done by ELISA method, and quality of sleep was assessed by The Pittsburgh Sleep Quality Index (PSQI).

**Results:** A total of 26 OSA subjects were enrolled in this study, 10 of them (38.5%) had severe OSA, 4 had moderate OSA (15.4%), and 12 with mild OSA (46.2%). High leptin was observed in 11 (42.3%) subjects, while 17 (65.4%) subjects had poor quality of sleep. There was significant relationship between sex ( $p=0.049$ ), BMI ( $p=0.022$ ), neck circumference ( $p=0.006$ ) with severity of OSA, but no significant relationship was found in age ( $p=0.881$ ). Significant correlations were observed between BMI ( $p=0.007$ ), neck circumference ( $p=0.002$ ) and Leptin serum. BMI ( $p=0.032$ ) and neck circumference ( $p=0.006$ ) were also found to be significantly related to quality of sleep. *Spearman* test showed positive significant relationship between leptin ( $p=0.002$ ) with severity OSA and poor quality of sleep ( $p=0.018$ ). Though subjects with severe OSA had poor quality of sleep, no significant correlation was found between the severity of OSA with quality of sleep ( $p=0.058$ ).

**Conclusion:** Severe OSA patients have higher leptin levels in serum leptin with positive significant correlation and poor quality of sleep.

**Keywords:** obstructive sleep apnea, leptin levels, sleep quality