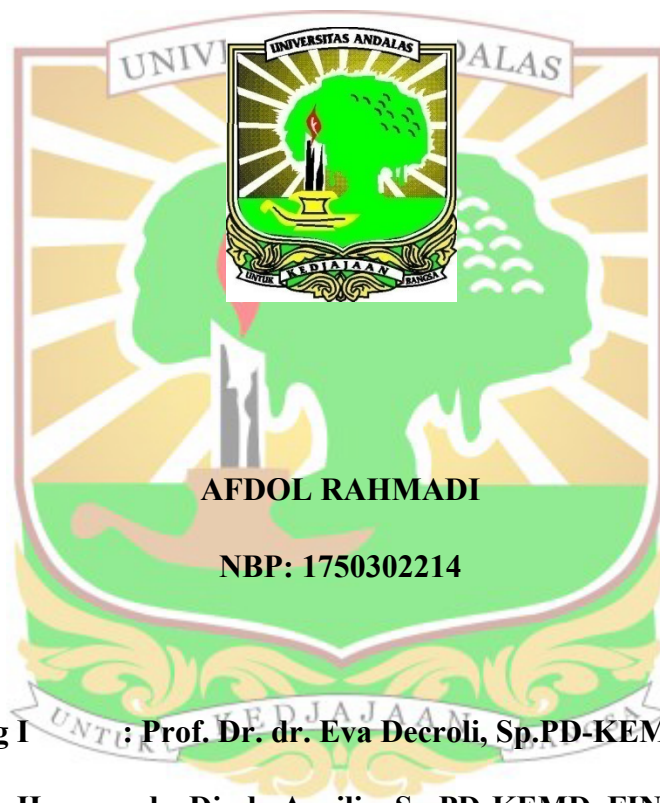


TESIS

**KORELASI ANTARA INDEKS MASSA TUBUH DAN *HOMEOSTASIS*
MODEL ASSESSMENT OF INSULIN RESISTANCE DENGAN KADAR
TESTOSTERON TOTAL SERUM PADA PRIA PENDERITA
PREDIABETES**



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**PROGRAM STUDI PENDIDIKAN DOKTER SPESIALIS-1
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RSUP DR. M. DJAMIL PADANG**

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ABSTRAK
KORELASI ANTARA INDEKS MASSA TUBUH DAN *HOMEOSTASIS MODEL ASSESSMENT OF INSULIN RESISTANCE* DENGAN KADAR TESTOSTERON TOTAL SERUM PADA PRIA PENDERITA PREDIABETES

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Pendahuluan : Hormon testosteron berperan penting pada kesehatan pria. Di seluruh dunia terdapat 20-40% pria mengalami defisiensi kadar hormon testosteron. Hormon testosteron dan metabolitnya meregulasi metabolisme energi, pertumbuhan otot, menghambat adipogenesis, dan modulasi fungsi reproduksi dan seksual pria. Defisiensi hormon testosteron umumnya lebih sering menjadi koinsiden pada pria yang telah mengalami komorbid. Dari berbagai studi diketahui sekitar 25 – 50% penderita diabetes melitus tipe 2 (DMT2) pria memiliki kadar testosteron total serum yang lebih rendah. Defisiensi kadar hormon testosteron pada pria penderita prediabetes dapat memperburuk kontrol glikemik sehingga mempercepat progresifitas menjadi DMT2. Kondisi prediabetes telah diketahui berhubungan erat dengan kondisi *overweight* atau obesitas dan peningkatan resistensi insulin. Penelitian ini akan melihat korelasi antara indeks massa tubuh (IMT) dan *homeostasis model assessment of insulin resistance* (HOMA-IR) dengan kadar testosteron total serum pada pria penderita prediabetes.

Metode : Penelitian ini merupakan penelitian observasional analitik dengan desain *cross sectional* yang dilaksanakan di Bagian Ilmu Penyakit Dalam RSUP Dr. M. Djamil Padang selama 6 bulan. Sampel dipilih secara *consecutive sampling* sebanyak 35 orang pria penderita prediabetes yang memenuhi kriteria inklusi dan eksklusi. Pada sampel dilakukan pemeriksaan IMT, HOMA-IR dan kadar testosteron total serum. Kadar hormon testosteron total serum diperiksa dengan teknik *enzyme linked immunosorbent assay* (ELISA), kemudian dianalisis korelasinya menggunakan SPSS 26.0.

Hasil : Pada penelitian ini didapatkan rerata IMT yaitu 33,12 (4,11) kg/m², rerata nilai HOMA-IR yaitu 3,64 (1,00) dan rerata kadar testosteron total serum yaitu 328,72 (94,94) ng/dl. Terdapat korelasi negatif dengan derajat korelasi sedang antara IMT dengan kadar testosteron total serum ($p < 0,001$; $r = -0,567$). Terdapat korelasi negatif dengan derajat korelasi kuat antara HOMA-IR dengan kadar testosteron total serum ($p < 0,001$; $r = -0,671$).

Kesimpulan : Terdapat korelasi negatif antara IMT dengan kadar testosteron total serum dengan derajat korelasi sedang. Terdapat korelasi negatif antara HOMA-IR dengan kadar testosteron total serum dengan derajat korelasi kuat.

Kata kunci : IMT, HOMA-IR, Testosteron total, Prediabetes.

ABSTRACT
CORRELATION BETWEEN BODY MASS INDEX AND HOMEOSTASIS
ASSESSMENT MODEL OF INSULIN RESISTANCE WITH TOTAL
TESTOSTERONE LEVELS IN MEN WITH PREDIABETES

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Background: Testosterone plays an important role in male health. Worldwide, 20-40% of men experience a deficiency in testosterone levels. Testosterone and its metabolites regulate energy metabolism, and muscle growth, inhibit adipogenesis, and modulate male reproductive and sexual functions. Testosterone deficiency is generally more common in men who have had comorbidities. Various studies show that around 25-50% of men with type 2 diabetes mellitus (DMT2) have lower serum total testosterone levels. The deficiency of testosterone levels in men with prediabetes can worsen glycemic control thereby accelerating the progression to T2DM. Prediabetes has been known to be closely related to overweight or obesity and increased insulin resistance. This study will examine the correlation between body mass index (BMI) and homeostasis model assessment of insulin resistance (HOMA-IR) with total testosterone levels in men with prediabetes.

Methods: This research is an analytic observational study with a cross-sectional design which was carried out at the Internal Medicine Department of Dr. M. Djamil Padang for 6 months. Samples were selected by consecutive sampling as many as 35 men with prediabetes who met the inclusion and exclusion criteria. The samples were examined for BMI, HOMA-IR, and total testosterone levels. Total testosterone levels were examined by enzyme-linked immunosorbent assay (ELISA) technique, the correlation was analyzed using SPSS 26.0.

Results: In This study, the mean BMI was 33,12 (4,11) kg/m², the mean HOMA-IR value was 3,64 (1,00) and the mean total testosterone levels was 328,72 (94,94) ng/dl. There was a negative correlation with a moderate degree of correlation between BMI and total testosterone levels ($p < 0,001$; $r = -0,567$). There was a negative correlation with a strong degree of correlation between HOMA-IR and total testosterone levels ($p < 0,001$; $r = -0,671$).

Keywords: BMI, HOMA-IR, Total testosterone, Prediabetes.