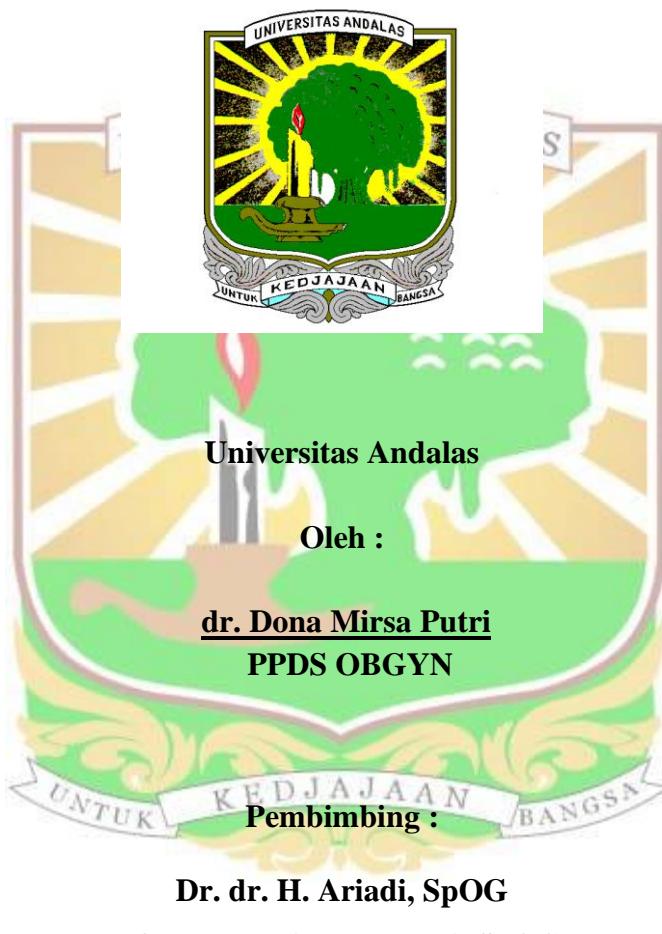


KORELASI KADAR FERRITIN DENGAN
KADAR *BRAIN DERIVED NEUROTROPIC FACTOR (BDNF)*
PADA PREEKLAMSI

TESIS



PROGRAM PENDIDIKAN DOKTER SPESIALIS
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ABSTRAK

KORELASI KADAR FERRITIN DENGAN KADAR BRAIN DERIVED NEUROTROPHIC FACTOR (BDNF) PADA PREEKLAMSI

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Latarbelakang dan Tujuan: Anemia defisiensi besi yang ditandai dengan rendahnya kadar ferritin serum pada awal kehamilan memiliki dampak tidak langsung terhadap penurunan ekspresi *Brain Derived Neurotrophic Factor* (BDNF) pada hipokampus ibu. BDNF bersama dengan reseptornya *tyrosine kinase B* (TrkB) menginduksi ekspresi *metalloproteinase-9* (MMP-9) melalui jalur C-Fos memiliki peran penting dalam proses implantasi blastokista, invasi trofoblast dan perkembangan plasenta. Penurunan kadar BDNF dapat mengganggu proses tersebut sehingga dapat menyebabkan ketidakseimbangan faktor pro-angiogenik dan anti-angiogenik seperti VEGF, PIGF, sFlt1 dan sEng sehingga dapat menyebabkan preeklamsia. Penelitian ini bertujuan untuk mengetahui korelasi kadar ferritin dengan kadar BDNF pada preeklamsia.

Metode: Penelitian berdisain *cross sectional* ini dilakukan dengan populasi pasien dengan kehamilan lebih dari 20 minggu yang didiagnosis dengan preeklamsia, yang dirawat atau berkunjung ke IGD RS Dr. M.jamil Padang. Sebanyak 66 sampel diambil secara *consecutive sampling*. Terhadap semua sampel dilakukan pemeriksaan kadar ferritin dan BDNF serum menggunakan metode ELISA. Dilakukan uji normalitas data menggunakan uji Kolmogorov-Smirnov, dilanjutkan dengan uji korelasi Pearson dan uji regresi linear sederhana.

Hasil: Hasil penelitian menunjukkan bahwa rerata kadar ferritin serum normal ($181,76 \pm 212,08$ ng/ml). Rerata kadar BDNF ditemukan lebih rendah dibandingkan kehamilan normal yaitu $0,505 \pm 0,314$ ng/ml (rentang normal kadar BDNF 8-46 ng/ml). Terdapat korelasi positif antara kadar ferritin dan kadar BDNF serum, dengan koefisien korelasi (*R*) 0,147 (korelasi lemah) dan tidak terdapat hubungan bermakna antara kadar ferritin dan kadar BDNF (*p*=0,240).

Kesimpulan: Terdapat korelasi positif antara kadar ferritin dengan kadar BDNF pada preeklamsia.

Kata kunci: Preeklamsia, ferritin, anemia defisiensi besi, *Brain Derived Neurotrophic Factor*

ABSTRACT

CORRELATION OF FERRITINE AND BRAIN DERIVED NEUROTROPHIC FACTOR (BDNF) LEVELS IN PREECLAMPSIA

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Background and Objective: Iron deficiency anemia that followed by low serum ferritin levels in early pregnancy has an indirect impact on decreasing the expression of Brain Derived Neurotrophic Factor (BDNF) in the maternal hippocampus. BDNF together with its receptor tyrosine kinase B (TrkB) induced the expression of metalloproteinase-9 (MMP-9) which plays an important role in blastocyst implantation, trophoblast invasion and placental development. Decreasing BDNF levels can interfere with those process which caused imbalance of pro-angiogenic and anti-angiogenic factors such as VEGF, PIGF, sFlt1 and sEng that leads to preeclampsia. This study aims to determine the correlation between ferritin and BDNF serum levels in preeclampsia.

Methods: This was an observational study with a cross-sectional design involving above 20 term pregnant women who were diagnosed with preeclampsia. A total of 66 sample were taken from Dr. M. Djamil Padang Hospital and examined for ferritin and BDNF serum levels using the ELISA method. The data normality test was performed using the Kolmogorov-Smirnov test, followed by the Pearson correlation test and simple linear regression test.

Result: Ferritin serum level was normal (181.76 ± 212.08 ng/ml). The mean of BDNF levels were found to be lower than normal pregnancies (0.505 ± 0.314 ng/ml) (normal range of BDNF levels was 8-46 ng/ml). There was an insignificant positive correlation between ferritin levels and serum BDNF levels, with correlation coefficient (R) 0.147 (weak correlation) ($p = 0.240$).

Conclusion: Ferritin serum level have positive correlation with BDNF serum level in preeclampsia.

Key Words: Preeclampsia, ferritin, iron deficiency anemia, Brain Derived Neurotrophic Factor