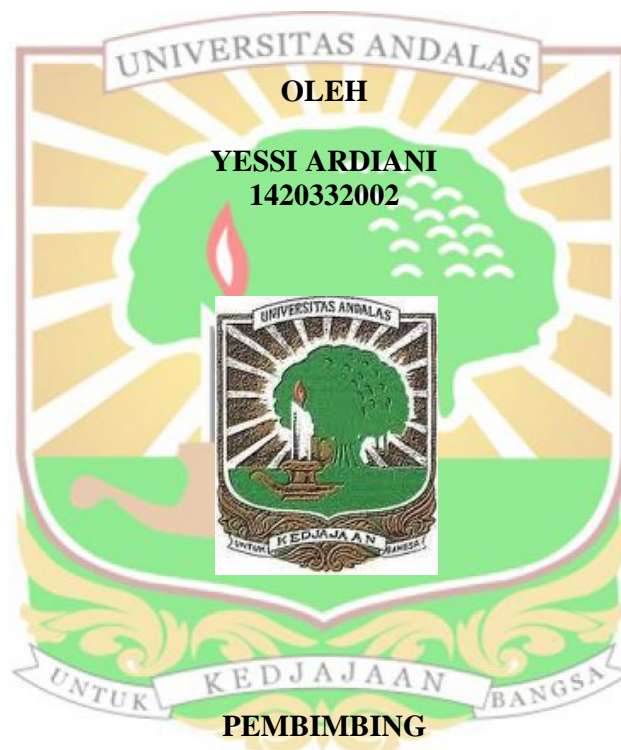


**PERBEDAAN *BRAIN DERIVED NEUROTROPHIC FACTOR* DAN
MATRIX METALLOPROTEINASE-9 NEONATUS CUKUP BULAN
ANTARA BERAT BADAN LAHIR NORMAL DENGAN
*INTRAUTERINE GROWTH RESTRICTION***

TESIS



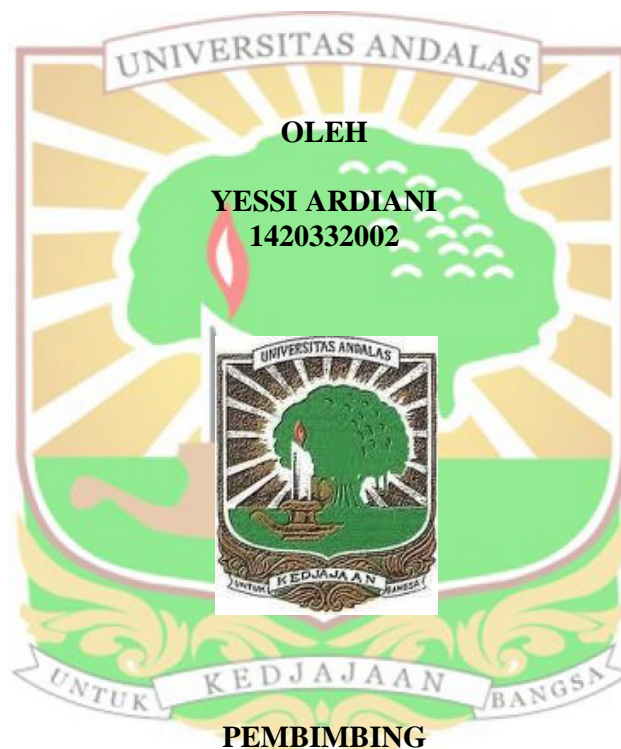
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ABSTRAK

PERBEDAAN *BRAIN DERIVED NEUROTROPHIC FACTOR* DAN *MATRIX METALLOPROTEINASE-9* NEONATUS CUKUP BULAN ANTARA BERAT BADAN LAHIR NORMAL DENGAN *INTRAUTERINE GROWTH RESTRICTION*

YESSI ARDIANI

Intrauterine Growth Restriction (IUGR) didefinisikan sebagai pertumbuhan janin yang kurang dari pertumbuhan potensial normal (<persentil 10) dikarenakan faktor genetik maupun lingkungan. Salah satu penyebab IUGR cenderung karena gangguan mekanisme utero-plasenta dari ibu ke janin. Faktor yang mempengaruhi proses pertumbuhan plasenta adalah *Brain Derived Neurotrophic Factor* (BDNF) dan *Matrix Metalloproteinase* (MMP-9) yang berperan penting dalam *angiogenesis*.

Penelitian *cross sectional* ini dilakukan di RSUP Dr. M.Djamil, RS dr. Reksodiwiryono, RS dr. Rasidin, RS Bhayangkara serta Laboratorium Biomedik Universitas Andalas. Penelitian ini dilaksanakan mulai Agustus 2017- Januari 2018. Sampel berasal dari ibu yang memenuhi kriteria inklusi. Sampel penelitian ini adalah darah yang diambil dari tali pusat neonatus cukup bulan dengan berat lahir normal (31 orang) dan IUGR (31 orang) secara *consecutive*. Kadar BDNF dan MMP-9 diperiksa dengan metode ELISA. Perbedaan antara kadar tersebut pada berat badan lahir normal dengan IUGR diuji dengan uji T tidak berpasangan.

Hasil penelitian menunjukkan kadar BDNF pada bayi normal adalah $1,58 \pm 0,23$ ng/ml dan pada bayi IUGR adalah $1,25 \pm 0,35$ ng/ml ($p=0,001$). Kadar MMP-9 pada bayi normal adalah $1,09 \pm 0,20$ ng/ml dan pada bayi IUGR adalah $1,25 \pm 0,35$ ($p=0,03$).

Kesimpulan penelitian ini BDNF neonatus cukup bulan lebih tinggi secara signifikan pada berat badan lahir normal dibanding dengan IUGR. MMP-9 neonatus cukup bulan lebih tinggi secara signifikan pada IUGR dibanding dengan berat badan lahir normal.

Kata Kunci : Neonatus cukup bulan, *Brain Derived Neurotrophic Factor*, *Matrix Metalloproteinase-9*, bayi berat badan lahir normal, *intrauterine growth restriction*

ABSTRACT

THE DIFFERENCE OF *BRAIN DERIVED NEUROTROPHIC FACTOR* AND *MATRIX METALLOPROTEINASE-9* BETWEEN NORMAL AND *INTRAUTERINE RESTRICTION* AMONG APPROPRIATE GESTATIONAL AGE NEONATES

YESSI ARDIANI

Intrauterine Growth Restriction (IUGR) was defined as the growth of the fetus less than its normal potential growth (<percentile 10) due to genetic and environmental factors. One of the most widely believed causes of IUGR was impaired utero-placental mechanism from mother to fetus. Furthermore, factor which was thought to affect placental growth was due to the influence of Brain Derived Neurotrophic Factor (BDNF) and Matrix Metalloproteinase (MMP-9) which play important role in angiogenesis.

The study design was cross-sectional at RSUP Dr.M.Djamil, dr.Reksodiwiryo, dr. Rasidin Hospital, Bhayangkara Hospital and Biomedical Laboratory of Andalas University in August 2017- January 2018. The sample of this study was umbilical cord blood of appropriate gestational age neonate with normal birth weight (31 neonates) and IUGR (31 neonates) by consecutive sampling, Samples taken from mothers who meet inclusion criterias. BDNF and MMP-9 levels were analysed by ELISA. The different between normal birth weight and IUGR test followed by unpaired T test.

The results showed that BDNF levels in normal neonates was $1,58 \pm 0,23$ ng / ml and in IUGR neonates were $1,25 \pm 0,35$ ng / ml ($p = 0,001$). MMP-9 levels in normal neonates was $1,09 \pm 0,20$ ng / ml and in IUGR neonates were $1,25 \pm 0,35$ ($p = 0,03$).

The conclusion of this study was BDNF of moderately mature neonates was significantly higher in normal birth weight compared to IUGR and the moderately high MMP-9 neonates were significantly higher in IUGR compared with normal birth weight.

Key Words: Appropriate gestational age neonates, Brain Derived Neurotrophic Factor, Matrix Metalloproteinase-9, normal birth weight, intrauterine growth restriction