

**HUBUNGAN RERATA PENINGKATAN KADAR MAGNESIUM DARAH DENGAN  
KEJADIAN PREEKLAMPSIA SETELAH SUPLEMENTASI MAGNESIUM PADA  
IBU HAMIL HIPOMAGNESEMIA DI PUSKESMAS KOTA PADANG**

**TESIS**

**Oleh :**

**dr. Try Genta Utama**

**1750305214**



**Pembimbing :**

**Dr. dr. Dovy Djanas, SpOG (K)**

**Dr. dr. H. Hafni Bachtiar, MPH**

**PROGRAM PENDIDIKAN DOKTER SPESIALIS  
OBSTETRI DAN GINEKOLOGI  
FAKULTAS KEDOKTERAN UNIVERSITAS ANDALAS  
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## ABSTRACT

**Introduction :** Preeclampsia is a hypertensive disorder in pregnancy that occurs in 5-10% of pregnancies and occurs after 20 weeks of gestation and recovers spontaneously after delivery. Several studies have stated that one of the risks of hypertension in pregnancy is related to magnesium homeostasis. Magnesium plays an important role in forming new tissues (maternal and fetal). Pregnant women need a higher intake of magnesium than non-pregnant women of the same age. Magnesium deficiency during pregnancy not only causes problems for the nutrition of pregnant women and fetuses, but also associated with the occurrence of preeclampsia, preterm labor and muscle cramps during pregnancy.

**Objective :** To determine the relationship between the average increase in blood magnesium levels with the incidence of preeclampsia in hypomagnesemic pregnant women.

**Methods :** This research is an analytical study using a cross sectional comparative study design. This research was conducted during April 2020 until the sample was fulfilled which was carried out in 8 Padang City Health Centers in collaboration with the Obstetrics and Gynecology Section of the Faculty of Medicine, Andalas University. Sampling metode was done by consecutive sampling. From the results of the calculation using the sample formula, it was determined that the sample size was 38 people. Examination of samples was carried out at the Pramitha Padang Private Clinical Laboratory.

**Result :** The average blood magnesium level before supplementation was  $1.77 \pm 0.10$  mg/dL. The mean blood magnesium level after supplementation was  $2.14 \pm 0.17$  mg/dL. The average increase in blood magnesium levels in respondents was  $0.37 \pm 0.17$  mg/dL. There were 17 respondents (45% of all patients who experienced an increase in magnesium levels after taking supplements) experienced an increase in blood magnesium levels more than the average and 3 people (8%) experienced preeclampsia after supplementation. The incidence of preeclampsia was found to be higher in respondents with increased magnesium levels than respondents with no increase in magnesium levels, namely 18% versus 0%. This is not statistically significant ( $p > 0.05$ ).

**Conclusion :** there was no relationship between an increase in the average blood magnesium level with the incidence of preeclampsia after magnesium supplementation in hypomagnesemic pregnant women ( $p > 0.05$ ), and magnesium supplementation in hypomagnesemic women has not been shown to be effective in reducing the incidence of preeclampsia.

**Keywords :** preeclampsia, hypertension, blood magnesium levels

## ABSTRAK

**Pendahuluan :** Preeklamsia adalah gangguan hipertensi pada kehamilan yang terjadi pada 5-10% kehamilan dan terjadi setelah usia kehamilan 20 minggu serta sembuh spontan setelah persalinan. Beberapa penelitian menyebutkan salah satu risiko terjadinya hipertensi pada kehamilan berhubungan dengan homeostasis magnesium. Magnesium berperan penting dalam membentuk jaringan baru (maternal dan fetal). Wanita hamil membutuhkan asupan magnesium lebih tinggi daripada wanita yang tidak hamil pada usia yang sama, hal ini disebabkan terjadinya peningkatan kebutuhan yang disertai dengan peningkatan eksresi melalui ginjal pada wanita hamil. Defisiensi magnesium selama kehamilan tidak hanya menyebabkan permasalahan bagi nutrisi ibu hamil dan janin, namun juga berhubungan dengan terjadinya preeklamsia, persalinan preterm dan kram otot selama kehamilan.

**Tujuan :** Mengetahui hubungan peningkatan rerata kadar magnesium darah dengan kejadian preeklamsia setelah suplementasi magnesium pada ibu hamil.

**Metode :** Penelitian ini menggunakan metode analitik observasional dengan pendekatan *cross sectional comparative study*. Dilakukan selama bulan April 2020 hingga sampel terpenuhi yang dilaksanakan di 8 Puskesmas kota Padang yang bekerja sama dengan Bagian Obstetri dan Ginekologi Fakultas Kedokteran Universitas Andalas. Analisis sampel dilakukan di laboratorium Pramitha kota Padang. Berdasarkan rumus yang digunakan, didapatkan 38 sampel penelitian.

**Hasil :** Rerata kadar magnesium darah sebelum pemberian suplementasi pada responden adalah  $1,77 \pm 0,10$  mg/dL. Rerata kadar magnesium darah setelah pemberian suplementasi adalah  $2,14 \pm 0,17$  mg/dL. Rerata peningkatan kadar magnesium darah pada responden adalah  $0,37 \pm 0,17$  mg/dL. Terdapat 17 responden (45% dari keseluruhan pasien yang mengalami peningkatan kadar magnesium setelah pemberian suplemen) mengalami peningkatan kadar magnesium darah lebih dari rerata. Terdapat 3 orang (8%) mengalami kejadian preeklamsia setelah suplementasi.

**Kesimpulan :** Kejadian preeklamsia ditemukan lebih tinggi pada responden dengan kadar magnesium meningkat dibandingkan responden dengan kadar magnesium tidak meningkat yaitu sebesar 18% berbanding 0%. Hal ini tidak bermakna secara statistik ( $p > 0,05$ ).

**Kata Kunci :** Preeklamsia, Hipertensi, Kadar Magnesium Darah