

**KORELASI KADAR SERUM MAGNESIUM DENGAN VOLUME  
HEMATOM PADA PERDARAHAN INTRASEREBRAL AKUT**



**TESIS**

**Oleh :**

**Fanel Putra  
1350309201**

**PEMBIMBING**

**Dr. dr. Yuliarni Syafrita, Sp.S (K)  
Prof. dr. Basjiruddin A, Sp.S(K)**

**PROGRAM STUDI DOKTER SPESIALIS NEUROLOGI  
FAKULTAS KEDOKTERAN UNIVERSITAS ANDALAS**

**RS. DR. M. DJAMIL**

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## ABSTRAK

### KORELASI KADAR SERUM MAGNESIUM DENGAN VOLUME HEMATOM PADA PERDARAHAN INTRASEREBRAL AKUT

**Latar belakang:** Magnesium ( $Mg^{2+}$ ) merupakan salah satu mikronutrien yang memiliki efek menguntungkan pada sistem saraf pusat dan pembuluh darah. Kadar serum magnesium yang rendah menyebabkan tekanan darah meningkat dan gangguan pada kaskade koagulasi, sehingga terjadi pembesaran volume hematoma pada pasien Perdarahan Intracerebral (PIS) yang bisa menyebabkan kematian. Tujuan penelitian ini untuk melihat korelasi antara kadar serum magnesium dengan volume hematoma pada onset akut perdarahan intracerebral non traumatik.

**Metode:** Penelitian ini menggunakan metode *cross-sectional* pada 51 pasien PIS, dilaksanakan mulai Desember 2017 sampai September 2018 di Instalasi Gawat Darurat (IGD) dan bangsal saraf RS DR. M. Djamil Padang. Setiap pasien dilakukan pemeriksaan Brain CT Scan tanpa kontras dan dihitung volume hematoma menggunakan rumus  $ABC/2$ , kemudian diperiksa kadar serum magnesium dan dianalisa dengan metoda *Colorimetric Test*. Data dianalisa menggunakan uji korelasi *Spearman* untuk menilai korelasi antara dua variabel. Nilai  $p < 0.05$  dianggap bermakna secara statistik.

**Hasil:** Berdasarkan jenis kelamin didapatkan laki-laki 27 orang (52.9%), 31 orang (60.8%) berusia 60 sampai 79 tahun, dan 26 orang (51%) lulusan SMA. Rerata kadar serum magnesium  $2.12 \pm 0.3$  mg/dL. Tidak terdapat hubungan bermakna antara kadar serum magnesium dengan volume hematoma pada pasien PIS onset  $< 72$  jam ( $r = -0.049$ ;  $p = 0.731$ ). Tetapi terdapat hubungan bermakna antara tekanan darah ( $r = 0.386$ ;  $p = 0.005$ ) dengan volume hematoma pada pasien PIS onset  $< 72$  jam.

**Kesimpulan:** Tidak terdapat hubungan antara kadar serum magnesium dengan volume hematoma pada pasien PIS fase akut, tetapi kadar serum magnesium yang rendah cenderung menyebabkan volume hematoma yang besar. Namun terdapat hubungan antara tekanan darah dengan volume hematoma pada pasien PIS fase akut.

**Kata Kunci:** Magnesium, Volume Hematom, PIS

## ABSTRACT

### THE CORRELATION BETWEEN SERUM MAGNESIUM LEVELS AND HEMATOMA VOLUME ON ACUTE INTRACEREBRAL HEMORRHAGE

**Background:** Magnesium ( $Mg^{2+}$ ) is a micronutrient that has a beneficial effect on the central nervous system and blood vessels. Low serum magnesium levels can cause an increased blood pressure and an impairment in the coagulation cascade, resulting in an enlarged hematoma volume in patients with intracerebral hemorrhage (ICH) which can lead to death. The aim of this study was to examine the correlation between serum magnesium levels and hematoma volume in the acute onset of non-traumatic intracerebral hemorrhage.

**Methods:** This study used a cross-sectional design in 51 patients with ICH, implemented from December 2017 to September 2018 at the Emergency Room (ER) and neurology ward of the DR. M. Djamil Padang Hospital. Each patient underwent Brain CT Scan without contrast and hematoma volume was calculated using the  $ABC / 2$  formula, then serum magnesium levels were examined and analyzed using the Colorimetric Test method. Data were analyzed using the Spearman correlation test to assess the correlation between two variables. P values  $<0.05$  were considered statistically significant.

**Results:** Based on sex, there were 27 men (52.9%), 31 people (60.8%) aged 60 to 79 years, and 26 people (51%) high school graduates. The mean serum magnesium level is  $2.11 \pm 0.3$  mg/dL. There was no significant relationship between serum magnesium levels and hematoma volume in patients with ICH onset  $<72$  hours ( $r = -0.049$ ;  $p = 0.731$ ). But there was a significant relationship between blood pressure ( $r = 0.386$ ;  $p = 0.005$ ) with hematoma volume in patients with ICH onset  $<72$  hours.

**Conclusion:** There was no association between serum magnesium levels and hematoma volume in acute phase ICH, but a low serum magnesium level tends to cause a large hematoma volume. However, there is a relationship between systolic and diastolic blood pressure and hematoma volume in acute phase ICH patients.

**Keywords:** Magnesium, Hematoma Volume, ICH