

# Gambaran kadar magnesium darah pada penderita stroke iskemik akut dan hubungannya dengan skor n i h s s

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Abstrak

## LATAR BELAKANG

Kejadian stroke menimbulkan kerusakan sel otak. Berbagai faktor risiko telah dikenal meliputi faktor risiko mayor dan minor. Kadar magnesium endogen sebagai salah satu faktor risiko kerusakan sel otak masih belum banyak dianalisa dengan berbagai hasil penelitian yang masih kontroversial.

## METODE

Penelitian ini merupakan penelitian prospektif longitudinal (retreated measurement design) dengan data primer diperoleh dari penderita stroke iskemik yang berobat ke RSCM yang memenuhi kriteria inklusi dan eksklusi. Diagnosis stroke iskemik dilakukan melalui pemeriksaan klinis dan CT Scan atau MRI kepala. Dilakukan pemeriksaan laboratorium darah, analisa urin, EKG, dan foto thoraks pada saat masuk. Dilakukan pemeriksaan magnesium serum, plasma, eritrosit pada hari ke-2, ke-4 dan ke-7 dan skor NIHSS pada hari dan saat yang sama.

## HASIL

Jumlah objek penelitian 53 orang. Sebagian besar rerata magnesium serum dan plasma dalam batas normal (1,4-2,0 mmEq/l) pada tiap hari pengambilan (Mg serum 67,9% - 90,6%, Mg plasma 75-5% - 88,7%) sedangkan ditemukan hipomg eritrosit pada hari ke-4 dan ke-7 onset stroke (81,1 % dan 73,6%). Ditemukan hubungan sangat bermakna antara Mg serum dengan Mg plasma pada tiap hari pengambilan ( $p=0,000$ ) dan hubungan bermakna antara Mg serum dengan Mg eritrosit ( $p=0,02$ ) dan Mg plasma dan Mg eritrosit ( $p=0,033$ ) pada hari ke-4. Ditemukan hubungan bermakna independen antara Mg plasma hari ke-4 dengan NIHSS hari ke-4 ( $p=0,005$ ) di samping faktor risiko riwayat stroke /TIA, aritmia jantung dan hiperkoleslerolemia dengan NIHSS.

## KESIMPULAN

Penderita iskemik serebral menunjukkan perubahan kadar Mg serum, plasma, eritrosit yang dipengaruhi berbagai faktor risiko lain dan hubungan bermakna antara kadar Mg plasma dan skor NIHSS hari ke-4.

**KATA KUNCI:** Stroke iskemik, hipertensi, magnesium serum, plasma, eritrosit, NIHSS.

## PREFACE

Stroke causes damage to brain cells. Many risk factors of stroke are known like mayor and minor risk factors. Endogen magnesium level as one of risk factor of brain cell damage is analyzed rarely with the controversially results of its studies.

## METHOD

The design of this study was repeated measurement with its primary data were collected from ischemic stroke patients in Cipto Mangunkusumo hospital who fulfilled inclusion and exclusion criteria. Diagnosis of stroke was made by physical exam, CT scan or head MRI and completed by blood and urine analysis, echocardiography and chest photo. Serum, plasma and erythrocyte Mg were collected on the 2nd, 4th, and 7th days after onset and compared with NIHSS scores at the same times.

## RESULT

There are 53 persons of subjects studied. Almost all means of the serum Mg and plasma Mg were in normal limits (1,4-2,0 mEq/l) on every days of data collection (serum Mg : 67,6%-90,6%, plasma Mg : 75,5%-88,7%), but there were erythrocyte hipoMg on the 4th and 7th days of stroke onset (81,1% and 73,6%). There were very significant relationship between serum Mg with plasma Mg ( $p=0,000$ ) on every days of data collection and significant relationship between serum Mg with erythrocyte Mg ( $p=0,02$ ) and plasma Mg with erythrocyte Mg ( $p=1,033$ ) on the 4th day onset. There were significant independent relationship between plasma Mg on the 4th day onset with NIHSS in the same day ( $p=0,005$ ), besides between the history of stroke/TIA, aritmia and hypercholesterolemia with NIHSS.

## CONCLUSION

Cerebral ischemic patients showed changes of serum, plasma and erythrocyte Mg levels which were influenced by other risk factors and there was significant relationship between plasma Mg and NIHSS score in the 4th day.