

# Correlation between Uric Acid serum and Endothelin - 1 Plasma Levels in Hypertension with Hyperuricemia Patients in Dr. Mohammad Hoesin Hospital Palembang

*by Zulkhair Ali*

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**Submission date:** 03-Jun-2021 08:08AM (UTC+0700)

**Submission ID:** 1599341117

**File name:** ruricemia\_Patients\_in\_Dr.\_Mohammad\_Hoesin\_Hospital\_Palembang.pdf (105.64K)

**Word count:** 1472

**Character count:** 8117

**Method:** This is a descriptive study where subjects are all non-hemorrhagic stroke patients in CiptoMangunkusumo Hospital in 2014, upon whom CD of the internal carotid arteries (ICA) and vertebra-basilar arteries (VA) was performed. When there is a clinical suspicion of SSS, techniques are done to demonstrate reversal of flow.

**Results:** 576 subjects were found to be eligible, among which two subjects (0.3%) were confirmed to have SSS. Subjects are male, ages >55 years old, presenting with neurological deficits associated with compromised posterior circulation i.e. symptoms of cerebellar function at onset; the first subject, presented with sudden dizziness, the second subject presented with slurred speech. Subjects also suffered from stage two hypertension and dyslipidemia. CD in both subjects showed reverse flow of the left VA. CT-angiography of one subject showed stenosis and distal occlusion of the left VA.

**Conclusion:** SSS is a phenomenon with low prevalence, yet it is important to detect and diagnose this phenomenon. Careful ultrasonography examination should be done the clinical suspicion arise, as it plays an important role in demonstrating reversal of flow.

**Keywords:** carotid and vertebro-basilararteries; Doppler ultrasonography; posterior circulation; subclavian steal syndrome

#### THE ASSOCIATIONS OF MTHFR C677T MUTATION AND PLASMA HOMOCYSTEINE LEVEL WITH CAROTID INTIMA-MEDIA THICKNESS

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**Background and Objective:** Mild hyperhomocysteinemia has emerged as a risk factor for atherosclerosis. The genetic data of 5,10 methylenetetrahydrofolate reductase (MTHFR), a regulatory enzyme of homocysteine (Hcy) metabolism, among South-East Asian is conflicting and not often especially of cardiocerebrovascular disease subjects.

**Methods:** This study measured carotid IMT, fasting plasma Hcy and analyzed the MTHFR C677T genotype in cross sectional study of 40 hypertensive Malayan race > 45 yrs of age with acute ischemic stroke in Palembang Indonesia. Biochemical data were obtained within the first 48 hours of stroke onset. Subjects with previous history of CVD, malignancy, renal failure and DM were excluded.

**Results:** MTHFR 677TT mutation was observed in 3/40 (7.5%), heterozygosity was 25.0% and T allele was 0.20. Mean plasma Hcy level was found as  $8.5 \pm 4.16 \mu\text{mol/L}$  and it was associated to MTHFR C677T genotype. Plasma Hcy level was significantly higher among subjects with TT genotype compared to CC (mean [±SD]  $15.58 \pm 2.70 \mu\text{mol/L}$  vs  $7.72 \pm 3.80 \mu\text{mol/L}$ ,  $p = 0.002$ ) and CT genotype ( $15.58 \pm 2.70 \mu\text{mol/L}$  vs  $8.48 \pm 3.62 \mu\text{mol/L}$ ,  $p = 0.01$ ), but there was no significantly association between CC and CT genotype ( $p = 0.58$ ). after adjusting for age and sex, there was no association between MTHFR C677T genotype or plasma Hcy level and increased of IMT or presence of carotid plaque ( $p > 0.05$ ).

**Conclusions:** There was significantly association between the MTHFR C677T mutation and plasma homocysteine level. There was no association between both and carotid IMT or plaque.

**Keywords:** C677T; Carotid IMT; Homocysteine; MTHFR

#### CORRELATION BETWEEN URIC ACID SERUM AND ENDOTHELIN - 1 PLASMA LEVELS IN HYPERTENSION WITH HYPERURICEMIA PATIENTS IN DR. MOHAMMAD HOESIN HOSPITAL PALEMBANG

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Hypertension and hyperuricemia are associated with cardiovascular risk. Hyperuricemia activated the renin-angiotensin-aldosterone system (SRAA) through activation of angiotensin - I to angiotensin - II, where the effect of the angiotensin - II will lead to increased pressure intraglomerular, macrophage activation and cytokine production, as well as vasoconstriction effect on blood vessels. This condition will increased endothelin - 1 (ET - 1), adhesion molecules, nuclear factor -  $\kappa\text{B}$  (NF -  $\kappa\text{B}$ ), lower nitric oxide (NO) and nitric oxide synthase uncoupling and increase reactive oxygen species (ROS). Increased levels of ET - 1 is considered as one of the strongest independent factor associated with cardiovascular disease. The aim of this study was to know the correlation between uric acid serum and plasma ET-1 levels.

This was a descriptive study conducted at the outpatient clinic and wards of Internal Medicine Department, dr. Mohammad Hoesin (RSMH) hospital Palembang from February to August 2014. The subjects were hypertensive patients with hyperuricemia. We collected 32 subjects, 53.1 % males and 46.9% women. Mean uric acid was  $7.85 \pm 1.47 \text{ mg/dl}$  and plasma ET - 1 levels was 1,555 (0,948–9,688). The correlation between uric acid and plasma ET - 1 level was significant,  $p$  value = 0.002,  $r = 0,499$  and R square = 0,249.

This study showed there was moderate correlation between serum uric acid and plasma ET-1 level.

**Keywords:** ET-1; hypertension; hyperuricemia

#### ABDOMINAL ADIPOSE TISSUE WAS ASSOCIATED WITH GLOMERULAR HYPERFILTRATION AMONG NON- DIABETIC AND NORMOTENSIVE ADULTS WITH A NORMAL BODY MASS INDEX

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Glomerular hyperfiltration is recognized as an early marker of progressive kidney dysfunction in the obese population. This study aimed to identify the relationship between glomerular hyperfiltration and body fat distribution measured by computed tomography(CT) in healthy Korean adults.

The study population included individuals aged 20–64 years who went a routine health check-up including an abdominal CT scan. We selected 4,378 individuals without diabetes, hypertension, overt proteinuria, or hematuria. Creatinine clearance was estimated using the Cockcroft-Gault equation, and glomerular hyperfiltration was defined as the highest quintile of creatinine clearance.

The prevalence of glomerular hyperfiltration increased significantly according to the subcutaneous and visceral adipose tissue areas (SAT: men, OR = 14.06 (9.02–21.92), women, OR = 9.37 (5.81–15.12); VAT: men, OR = 6.30 (4.25–9.35), women, OR = 8.91 (5.24–15.15) for the comparisons of lowest vs. highest quartile; all  $P$  for trend <0.001) in multivariate analysis. After stratification by body mass index (normal <  $23 \text{ kg/m}^2$ , overweight  $\geq 23 \text{ kg/m}^2$ ), subjects with greater subcutaneous adipose tissue, even those in the normal BMI group, had a higher prevalence of glomerular hyperfiltration (men, OR = 6.44 (1.79–23.21),  $P$  for trend = 0.006; women, OR = 4.10 (2.28–7.38),  $P$  for trend <0.001 for the comparisons of lowest vs. highest quartile). The visceral adipose tissue area was also associated with glomerular hyperfiltration both in men and women with normal BMIs (men, OR = 5.09 (1.76–14.68); women, OR = 4.58 (2.36–8.88)). Among women, the odds ratio of the association of glomerular hyperfiltration with subcutaneous abdominal adipose tissue increased after menopause.

Subcutaneous and visceral adipose tissue areas are positively associated with glomerular hyperfiltration in healthy Korean adults without diabetes or hypertension. Even in the normal BMI group, subjects with greater subcutaneous and visceral adipose tissue had a higher prevalence of glomerular hyperfiltration.

#### COMPARISON ON STATIN USE AMONG HYPERTENSIVE PATIENTS BETWEEN FRAMINGHAM RISK SCORE AND POOLED COHORT RISK SCORE

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**Background:** Statin is recommended for individuals with an estimated Framingham Risk Score (FRS) of >20%. The 2013 ACC/AHA recommends statins for those with a pooled cohort risk score (PCRS)  $\geq 7.5\%$ .

**Objectives:** To compare statin use in different CV risk categories of FRS and PCRS.

**Methods:** This was a retrospective review study conducted at a primary care clinic in Kuala Lumpur, Malaysia. 883 medical records of hypertensive patients that have attended the clinic for at least one year were selected through systematic random sampling (1:4). CV risk scores were calculated for each individual using FRS and PCRS. FRS has three risk groups: low (<10%), medium (10–20%) and high (>20%). The PCRS is defined as low (<7.5%) and high ( $\geq 7.5\%$ ).

**Results:** The mean age of the patients was  $61.1 \pm 10.5$  years and 61.7% were females, 658 (74.5%) were on statin. The proportion of statin use in different risk groups was: 74.6% (262) in FRS high risk, 76.1% (526) in the FRS medium and hi

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