

## Zinc and copper levels in patients with primary hypertension and normotension

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### Abstrak

Kadar Zinc dan Cuprum pada Penderita Hipertensi Primer dan Normotensi. Salah satu pencetus hipertensi primer yaitu paparan radikal bebas. Pembentukan radikal bebas dalam tubuh dapat dicegah dengan antioksidan. Peran zinc dan cuprum adalah sebagai kofaktor dari enzim antioksidan endogen superoksida dismutase (SOD). Penelitian ini bertujuan untuk menganalisis perbedaan kadar serum zinc dan cuprum pada kelompok hipertensi primer dan normotensif. Penelitian ini merupakan penelitian observasional analitik dengan desain cross sectional dan metode simple random sampling. Subjek adalah orang yang berusia 40-70 tahun, mengunjungi Rumah Sakit Haji Surabaya, dan terdiri dari 15 responden hipertensi primer dan 15 responden normotensif (kelompok pembanding). Data dikumpulkan melalui wawancara dan uji laboratorium klinis sampel darah. Konsentrasi serum zinc dan cuprum diukur dengan metode AAS (Spektrofotometer Serapan Atom). Data dianalisis dengan chi-square dan independent T-test. Hasil penelitian menunjukkan bahwa tingkat rata-rata serum zinc dan cuprum responden pada kelompok hipertensi primer lebih rendah daripada kelompok normotensif. Namun, secara statistik tidak ada perbedaan yang signifikan ( $p=0,852$ ) kadar serum zinc antara kelompok hipertensi primer dan kelompok normotensi, tapi ada perbedaan yang signifikan pada kadar serum cuprum ( $p=0,022$ ). Kesimpulannya adalah ada yang berbeda dari kadar serum cuprum antara dua kelompok sedangkan untuk kadar serum zinc tidak berbeda.;

One of the causes of primary hypertension is an exposure to free radicals. The formation of free radicals in the body can be prevented by taking antioxidants. Zinc and copper are cofactors of endogenous antioxidant enzyme superoxide dismutase. This study aimed to analyze the differences of zinc and copper levels in primary hypertensive and normotensive patients. This was an analytical observational study with cross sectional design and simple random sampling method. Subjects were patients aged 40-70 years at Haji General Hospital consisting of 15 primary hypertensive patients and 15 normotensive individuals (comparison group). Data was collected through interviews and laboratory test of blood samples. Zinc and Copper serum concentrations were measured by AAS. Data were analyzed by chi-square and independent samples t-test. The results showed that the mean levels of zinc and copper in primary hypertensive patients was lower than normotensive. However, statistically there was no difference in zinc serum levels ( $p=0.852$ ) in the two groups, and there was a significant difference in copper serum levels ( $p=0.032$ ). It can be concluded that there were differences in copper serum levels between the two groups but not with the levels of zinc.

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